



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

June 13, 2018

Mr. William Maher
Director of Licensing Projects – Nuclear
Florida Power & Light Company
Mail Stop: JOE/JB
700 Universe Blvd
Juno Beach, FL 33408

SUBJECT: LICENSE RENEWAL ENVIRONMENTAL SITE AUDIT REGARDING THE
TURKEY POINT NUCLEAR GENERATING UNITS 3 AND 4 SUBSEQUENT
LICENSE RENEWAL APPLICATION (EPID NO. L-2018-LNE-0001)

Dear Mr. Maher:

The U.S. Nuclear Regulatory Commission (NRC) staff is reviewing the Florida Power & Light Company's subsequent license renewal application for Turkey Point Nuclear Generating Units 3 and 4 (Turkey Point). The environmental site audit will be conducted at Turkey Point during the week of June 19, 2018, by NRC and its contractors. The environmental audit activities will be conducted in accordance with the environmental audit plan (Enclosure 1).

To develop the Supplemental Environmental Impact Statement, the NRC staff requests the information described in the environmental audit needs list (Enclosure 2) be made available, to the extent possible, during the environmental site audit. A draft schedule of tours and meetings for the audit is also provided (Enclosure 3).

The NRC staff transmitted the draft environmental needs to Steve Franzone of your staff by e-mail on May 29, 2018. .

If you have any questions, please contact me by e-mail at Lois.James@nrc.gov.

Sincerely,

/RA/

Lois M. James, Senior Project Manager
License Renewal Project Branch
Division of Materials and License Renewal
Office of Nuclear Reactor Regulation

Docket Nos. 50-250 and 50-251

Enclosures:
As stated

cc w/encls: Listserv

SUBJECT: LICENSE RENEWAL ENVIRONMENTAL SITE AUDIT REGARDING THE
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LICENSE RENEWAL ENVIRONMENTAL AUDIT PLAN TURKEY POINT NUCLEAR GENERATING UNITS 3 AND 4

1. Background

By letter dated January 30, 2018, Florida Power & Light Company. (FPL or applicant), submitted to the U.S. Nuclear Regulatory Commission (NRC or staff) an application to renew the Turkey Point Nuclear Generating Units 3 and 4 (Turkey Point), operating licenses DPR-31 and DPR-41. The staff is reviewing the information contained in the environmental report (ER) of the license renewal application (LRA) per Title 10 of the *Code of Federal Regulations* Part 54 (10 CFR Part 54).

During the staff's review, an environmental audit is conducted at the Turkey Point site. This audit is conducted with the intent to gain understanding, to verify information, and to identify information that will require docketing to support the basis of the licensing or regulatory decision. Specifically, the NRC staff will identify pertinent environmental data, review the facility and area, and obtain clarifications regarding information provided in the ER.

Per NRC guidance, the NRC staff prepares a regulatory audit plan that provides a clear overview of audit activities and scope, team assignments, and schedule.

2. Environmental Audit Bases

License renewal requirements are specified in 10 CFR Part 54, "Requirements for Renewal of Operating Licenses for Nuclear Power Plants." Licensees are required by 10 CFR 54.23 to submit an ER that complies with the requirements in 10 CFR Part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions," as part of the LRA. Review guidance for the staff is provided in NUREG-1555, "Standard Review Plans for Environmental Reviews for Nuclear Power Plants: Supplement 1 – Operating License Renewal."

NRC staff is required to prepare a site-specific supplement to NUREG-1437, "Generic Environmental Impact Statement for License Renewal of Nuclear Plants." During the scoping process required in 10 CFR Part 51, NRC staff is required to define the proposed action, identify significant issues which must be studied in depth, and to identify those issues that can be eliminated from further study.

3. Environmental Audit Scope

The scope of this environmental audit for the Turkey Point subsequent license renewal review is to identify those issues which are significant and those issues which can be eliminated from further study and to identify the environmental resources that must be adequately described and evaluated in the site-specific Supplemental Environmental Impact Statement. Audit team members will focus on reviewing the documents and requested information listed in the Turkey Point Environmental Audit Needs List (Enclosure 2) and discussing the information with the applicant's subject matter experts.

4. Information and Other Material Necessary for the Environmental Audit

As described in the Site Audit Needs List (Enclosure 2).

5. Environmental Audit Team Members and Resource Assignments

The environmental audit team members and their specific discipline assignments are shown in Table 1. Those members of the team who are contractors from Pacific Northwest National Laboratory will have PNNL after their name.

Table 1 Environmental Audit Team Members and Resource Assignments

Discipline	Team Members
Environmental Review Supervisor	Ben Beasley, NRC
Environmental Project Manager	William Burton, NRC Michael Wentzel, NRC (on-site for audit)
Aquatic	Briana Grange, NRC
Terrestrial	Michelle Moser, NRC
Hydrology	William Ford (surface water), NRC Kevin Folk (groundwater), NRC Philip Meyer, PNNL Rajiv Prasad, PNNL
Greenhouse Gases	Kevin Folk, NRC
Geologic	William Ford, NRC
Air/Meteorology and Alternatives	Robert Hoffman, NRC
Socioeconomic; Historic, and Cultural Resources; Environmental Justice	Nancy Martinez, NRC
Human Health and Postulated Accidents	William Rautzen, NRC
Waste Management (rad and non-rad), Uranium Fuel Cycle, and Spent Nuclear Fuel	Phyllis Clark, NRC

6. Logistics

The environmental audit will be conducted at Turkey Point from June 19–21, 2018. An entrance meeting will be held with plant management at the beginning of the audit. An exit meeting will be held at the end of this audit.

7. Special Requests

The staff requests that the applicant make available the information identified on the Environmental Audit Needs List (Enclosure 2). Plant staff who are subject matter experts in the disciplines listed on the Environmental Site Audit Needs List should be available for interviews and to provide tours.

8. Deliverables

An audit summary report is scheduled to be issued by NRC staff within 90 days from the end of the environmental audit.

TURKEY POINT NUCLEAR GENERATING UNITS 3 AND 4 (TURKEY POINT) LICENSE RENEWAL ENVIRONMENTAL SITE AUDIT NEEDS LIST

The U.S. Nuclear Regulatory Commission (NRC) staff has reviewed Appendix E, the Environmental Report (ER), of the “Turkey Point Nuclear Plant Units 3 and 4 [Turkey Point] Subsequent License Renewal Application [SLRA].”

Please be prepared to discuss the following issues and make the following available during the environmental site audit.

Tours

Please provide subject matter experts to lead the following tours:

1. Onsite terrestrial resources, including the cooling canal system, mudflats, mangroves, freshwater forested/scrub shrub wetlands, and upland habitats.
2. Important terrestrial resources within the vicinity of the Turkey Point site, including the Everglades Mitigation Bank.
3. Onsite aquatic environments to include the cooling canal system (CCS), the remnant canals, the mangrove wetland west of Turkey Point, and the sawgrass marsh / mangrove community adjacent to Palm Drive. This tour can be combined with the terrestrial ecology tour, hydrology tour, and/or any other tours that are appropriate. If not combined, please schedule this tour such that the aquatic ecology reviewer can also attend the terrestrial ecology and hydrology tours.
4. Major air emission sources
5. Primary meteorological tower
6. Radiation protection / access control area to observe the following:
 - a A walk-down of the liquid and gaseous radwaste systems inside of the plant to get a sense of the components listed in the ER and how they are routed.
 - b Low-level radioactive waste storage and processing areas, including mixed waste.
 - c Radiological environmental monitoring program (REMP) – a small, representative sample of monitoring stations (e.g., air monitoring stations, TLD stations, drinking water, surface water, sediment, groundwater, milk, and vegetation, including monitoring stations co-located with State monitoring stations)
7. NPDES / FDES permitted outfalls, including storm drain outfalls
8. Non-Rad waste storage sites / RCRA permitted storage (if any)
9. Independent spent fuel storage installation (ISFSI)
10. Turkey Point Units 3 and 4 intake and discharge locations on the CCS
11. Representative locations “(i.e., flow, surface water, groundwater, and ecology) associated with the enhanced monitoring within the CCS required as part of the Consent Agreement with the County and Consent Order with the State for which FPL produces an annual monitoring report
12. CCS interceptor ditch and L-31-E canal adjacent to the CCS and the location where water is transferred from L-31 to the CCS

13. Point of blowdown water discharge from the Unit 5 cooling tower into the CCS
14. Discharge location of Floridan aquifer water into the CCS
15. Groundwater production wells including: (1) CCS freshening system wells, (2) Biscayne Aquifer "marine" wells; (3) Recovery Well System extraction wells and Class 1 injection well; and (4) Upper Floridan Aquifer saline production wells for Unit 5 (i.e., PW-1, PW-3, and PW-4)
16. Sewage treatment plant and Class V injection well (# IW-1)
17. Water and wastewater treatment facilities
18. Ongoing sediment removal activities within the CCS
19. Barge turning basin and Turtle Point Canal where FPL will undertake restoration (dredge and fill) projects to prevent releases of groundwater from the CCS to surface waters connected to Biscayne Bay
20. Plug that seals off the CCS from the Card Sound Canal that discharges into Card Sound
21. Possible on-site alternative power generation locations
22. Berm that separates the CCS from Biscayne Bay.
23. Location of least tern nesting
24. Location of any ground disturbing activities described in Section 4.6.5.3, including land disturbing activities to construct new parking areas for plant employees, access roads, buildings, and facilities; as well as temporary project support areas for equipment storage, worker parking, and material laydown areas could result in the disturbance of habitat and wildlife

Audit Meetings

Please provide subject matter experts to participate in the audit meetings on the following topics:

1. Crocodile monitoring, threatened and endangered species surveys, and resource planning, specifically individuals that interface with the Fish and Wildlife Service or National Park Service staff regarding aquatic and terrestrial resources.
2. Aquatic ecology of the site and the staff's site audit needs. This meeting can be combined with any terrestrial ecology meetings and the meeting request below, as appropriate. If not combined, please schedule this meeting such that the aquatic ecology reviewer can also attend the terrestrial ecology and hydrology meetings.
3. Threatened and endangered species surveys and resource planning at Turkey Point and specifically individuals that interface with the U.S. Fish and Wildlife Service, National Marine Fisheries Service, and National Park Service staff regarding aquatic and terrestrial resources.
4. Air quality portions of the ER, particularly air permits and emission inventories associated with facility operations, and stationary and mobile sources of air pollutants.
5. Radiological protection and radwaste systems (typically a staff Health Physicist).
 - a Radiation Protection Program: Overview of the program with emphasis on the as low as reasonably achievable (ALARA) program to control worker radiation

- exposure (annual dose goals and status). Are there any proposed changes or upgrades to the program being considered during the license renewal term?
- b Radioactive solid waste: Review how the plant plans to handle low-level radioactive waste (Class A, B, and C, mixed waste, and spent nuclear fuel) during the license renewal term (onsite storage, potential expansion of storage facilities, and disposal options). Are there any proposed changes or upgrades to the program being considered during the license renewal term?
 - c Radioactive gaseous and liquids effluents: Review how the plant processes radioactive effluents to maintain radiation doses to the public to levels that are ALARA. Are there any proposed changes or upgrades to the program being considered during the license renewal term?
6. Modeling studies and attendant projections listed below, focused on explaining the projections of cooling canal salinities, of impacts on Floridan Aquifer groundwater users, and of the efficacy of the planned recovery well system operation in retracting the hypersaline plume.
- a In 2016, TETRA TECH provided “A Groundwater Flow and Salt Transport Model of the Biscayne Aquifer” to FPL. One of the purposes of this model is to assess the efficacy of the recovery well system to retract the hypersaline plume in the Biscayne Aquifer west and north of FPL's property.
 - b In 2014, TETRA TECH completed an “Evaluation of Drawdown in the Upper Floridan Aquifer Due to Proposed Salinity Reduction-based Withdrawals.” To reduce the salinity within the cooling canal system, water from the Upper Floridan Aquifer will be discharged into the cooling canal system. This model was used to determine potential impacts to other users of Floridan Aquifer water from the withdrawal of Floridan Aquifer groundwater.
 - c In 2014, TETRA TECH completed an “Evaluation of Required Floridan Water for Salinity Reduction in the Cooling Canal System.” Water and salt balance modeling of the cooling canal system was performed to assess the volume of water from the Floridan Aquifer required to reduce the salinity of cooling canal system water to seawater concentrations. Reducing the salinity in the cooling canal system is predicted to reduce the contribution from the CCS to the hypersaline plume in the Biscayne Aquifer.
7. Groundwater and surface water with particular knowledge of the relevant portions of the ER
8. Socioeconomics with particular knowledge of the relevant portions of
9. Historical and cultural portions with particular knowledge of the relevant portions of
10. Replacement power portions with particular knowledge of the relevant portions of

Questions and Document Needs

Specific questions, requests, and document needs are provided below by resource area.

Land Use and Visual

- LU-1 As explained in the ER, the Federal Coastal Zone Management Act (CZMA) requires applicants for a federal license to certify to the licensing agency that the proposed

activity would be consistent with the state's federally approved coastal zone management program. Regulations require the license applicant to provide its certification to the federal licensing agency and a copy to the applicable state agency. Section 9.5.10 of the ER, Coastal Zone Management Act, states:

FPL received confirmation of coastal zone certification in a letter dated March 9, 2012, from the FDEP to the USACE (FDEP 2012). The operating agreement between the FDEP and participating agencies identifies the final order issued as part of the PPSA as the CZMA consistency for the authorized power plant. Therefore, [Turkey Point] has fulfilled the regulatory requirement to certify to the licensing agency that the proposed activity would be consistent with the state's federally approved coastal zone management program.

The NRC recognizes that NOAA regulations are applicable to the renewal of federal licenses for activities not previously reviewed by the state (15 CFR 930.51(b)(1)). Please explain how a certification contained in a letter from the FDEP to the USACE dated March 9, 2012 is a basis for your coastal zone consistency determination for this second license renewal.

Air Quality and Meteorology

- AQ-1 Has FPL received any notices of violation or non-compliances from the Florida Department of Environmental Protection (FDEP) regarding Turkey Point Air Permit No. 025003-021-AV subsequent to the period discussed in ER Section 3.3.3.2 (i.e., 2012–2016)?
- AQ-2 Have field tests concerning ozone and nitrogen oxides emissions generated by FPL's 230 kV in-scope transmission lines been conducted? If so please, provide a copy of these tests.
- AQ-3 Has FPL completed the 2018 renewal application of the Title V Insignificant Activities list incorporating the FLEX equipment inventory? If so please, provide a copy of this list if it differs from that presented in ER Table 3.3-11.

Groundwater Resources

- GW-1 As referenced in Sections 3.6.1.4.5 and 3.6.3.2.1 of the ER and in the April 2018 ER supplement, provide a status update regarding the construction and commissioning of the Recovery Well System for hypersaline plume abatement. Summarize, at a high level, the as-built components of the Recovery Well System including well configuration(s) and well spacing, well construction specifications, and piping configurations and routings between the recovery wells and the deep well injection point.
- GW-2 Provide a summary (by month) of the volume of groundwater withdrawn from the following well systems over the last three full calendar years, as well as groundwater withdrawal volumes collected for 2018:
- (1) the six wells comprising the Upper Floridan Aquifer CCS freshening system (ER Sections 3.6.1.4.5/3.6.3.2);

- (2) the three Biscayne Aquifer “marine” wells (ER Section 3.6.3.2);
- (3) the ten Biscayne Aquifer wells constituting the Recovery Well System (ER Sections 3.6.1.4.5/3.6.3.2.1); and
- (4) the three Upper Floridan Aquifer saline production wells for Unit 5 (i.e., PW-1, PW-3, and PW-4) (ER Section 3.6.3.2).

- GW-3 As discussed in Sections 3.6.1.4.5 and 3.6.2.2.3 of the ER (and as related to questions GW-1 and GW-2), provide a status update of ongoing and planned salt removal efforts and disposal of hypersaline groundwater into the Boulder Zone. Specifically, provide a summary (by month) of the volume of hypersaline groundwater and salt withdrawn and reinjected into the Boulder Zone since operations began in 2016 through 2018, year-to-date. Summarize any monitoring of upper aquifers and leak testing of the injection wells to protect overlying aquifers. In addition, provide a summary of any water quality monitoring that is conducted of the reinjected groundwater. Please plan to have knowledgeable staff available at the audit to discuss the injection of water into the Boulder Zone.
- GW-4 Sections 3.6.4.2.1 and 4.5.5.4 of the ER provide a summary and an assessment, respectively, of historic inadvertent releases of radionuclides to groundwater covering the period 2012–2016 and ER Tables 3.6-6 and 4.5-1 summarize groundwater protection monitoring results for tritium. NRC notes that ER Table 4.5-1 summarizes data from the 2016 annual radiological environmental operating report. As the 2017 operating report is pending, provide the latest quarterly, validated groundwater protection monitoring results covering all monitored parameters (i.e., tritium, potassium-40, cesium-137 and any other monitored radionuclides) for the 28 wells and 4 storm drains in the program for 2018. Identify the date(s) of the quarterly samples.
- GW-5 As described in Section 3.6.4.1.1 of the ER, provide the latest available results for tritium and any other monitored radionuclides in the CCS as well as in underlying groundwater and identify the sampling date(s).
- GW-6 Provide a description of any documented inadvertent radiological releases that have occurred since April 2016. Describe the impact on the environment and provide a summary of radionuclide concentrations in nearby monitoring wells and storm drains from the date of discovery of the release to the present time. Also, include a description of any ongoing or completed remediation actions and the residual activity (e.g., concentration in groundwater) remaining after the remediation was completed, if it is not ongoing (ER Section 3.6.4.2.1).
- GW-7 Section 9.3 of the ER summarizes historical regulatory infractions including notices of violation issued to Turkey Point. As applicable, provide an updated summary of and describe any Notices of Violation; nonconformance notifications; or related infractions received from regulatory agencies associated with permitted discharges, sanitary sewage systems, groundwater or soil contamination, as well as any involving spills, leaks, and other inadvertent releases (e.g., petroleum products, chemicals, or radionuclides) received since 2016. Provide copies of relevant correspondence to and from the responsible regulatory agencies.

- GW-8 As discussed and cited in Section 3.6.2.4 of the ER, has the potentiometric surface (groundwater elevation) mapping illustrated in ER Figures 3.6-4 through 3.6-9 for the Turkey Point site been updated? If so, provide the updated figures.
- GW-9 As referenced in Sections 3.6.1.4.5 and 9.3 of the ER and as described in recent media reports, describe the status and features of FPL's plans for use of reclaimed wastewater in lieu of groundwater to freshen the CCS?
- GW-10 The Consent Agreement Annual Report for 2016 is referenced in Section 2.2.3.2 of the ER and the 2016 Consent Agreement Amendment with MDC is discussed and reference in Section 3.6.1.4.5 and elsewhere in the ER. Please provide a copy of the latest annual report for review, as applicable, as well as the 2016 Amendment.
- GW-11 Please provide a map of storm drain locations to include those in the plant groundwater protection monitoring program (ER Section 3.6.4.2.1).

Terrestrial

- T-1 Section 3.7.5.1 of the ER describes several invasive terrestrial species that are known to occur within Southern Florida and along transmission lines (that are not within the scope of this review). In addition, the ER states that nonindigenous plant species identified in the cooling canal system are systematically removed during ongoing berm vegetation maintenance activities.
- a Please provide a list of the nonindigenous plant species that FPL has observed within the cooling canal system and within the Turkey Point site.
 - b Please describe the frequency and methods for vegetative maintenance activities within the cooling canal system.
- T-2 Section 3.7.7.1 of the ER states that FPL proposed a broad-scale vegetation assessment to characterize the distribution and density of vegetation on the Turkey Point site as part of the ecological monitoring required by the State of Florida's site certification process for Units 3 and 4. Provide a summary and update of any vegetative surveys that have occurred since the site certification for Units 3 and 4 was granted in 2009.
- T-3 Section 3.7.8.2 of the ER describes State-listed species that occur within Miami-Dade County. The ER also states that the full extent of which state-listed plant species occur within all proposed project areas is undetermined and refers to Section 2.4.1.3 of the NRC's Final Environmental Impact Statement (EIS) for Units 6 and 7. Tables 2-14 and 2-15 within Section 2.4.1.3 of the NRC's Final EIS for Units 6 and 7 describes whether each state-listed species has been observed on the Turkey Point site. Please describe whether there have been any recent observations of state-listed species not included in Tables 2-14 and 2-15 of NRC's Final EIS for Units 6 and 7.
- T-4 Section 3.7.8.4 of the ER describes the Bald and Golden Eagle Protection Act (BGEPA). FPL states that current and future bald eagle nests located on the Turkey Point site would be subject to all protections under the BGEPA. Please describe all known occurrences of bald and golden eagles or their nests at the Turkey Point site.

- T-5 Section 3.7.8.5 of the ER describes species protected under the Migratory Bird Treaty Act (MBTA) and states that several bird species protected under the MBTA visit Turkey Point. Please provide a list of the species protected under the MBTA that have been observed on the Turkey Point site.
- T-6 Section 4.6.5.3 of the ER states that maintenance activities during the license renewal term are expected to be similar to current activities. Please provide a summary of all current maintenance activities that have the potential to impact terrestrial resources, such as site landscape maintenance, herbicide use (other than that described in Section 9.5.14), tree or shrub removal for safety or other purposes, or other maintenance activities.
- T-7 Section 4.6.5.3 of the ER states that construction of the new independent spent fuel storage installation (ISFSI) would disturb between 2.5 to 10 ac (1 to 4 ha) of land. Please describe and quantify the type of land cover and habitats that occur within land to be disturbed, as well as a summary of any biota that inhabit that area.
- T-8 Section 4.6.5.3 of the ER states that FPL may conduct land disturbing activities to construct new parking areas for plant employees, access roads, buildings, and facilities. Section 4.6.5.3 also states that temporary project support areas for equipment storage, employee parking, and material laydown areas could result in the disturbance of habitat and wildlife. For each activity, please provide the following:
- a The location where construction or maintenance activities would occur
 - b The amount of land that would be disturbed, broken down by land cover or habitat type.
 - c A list of biota that inhabit the area where activities would occur.
- T-9 Section 4.6.5.3 of the ER states that environmental review procedures, best management practices (BMPs), and a stormwater management plan would reduce impacts to terrestrial resources by controlling fugitive dust, runoff, and erosion from project sites; reducing the spread of invasive nonnative plant species; and reducing the disturbance of wildlife in adjacent habitats. Please provide a summary of the environmental review procedures, BMPs, and stormwater management plan that would help reduce impacts to terrestrial resources.
- T-10 Please describe whether FPL plans to initiate or continue any restoration activities for terrestrial resources at the Turkey Point site during the period of extended operations, such as the Everglades Mitigation Bank.

Aquatic

- A-1 Section 3.7.3 of the ER describes the CCS and aquatic resources associated with the CCS, and Table 3.7-1 of the ER lists the aquatic species present in the CCS. The information in these sections is primarily derived from surveys performed in November 2007 in support of the Turkey Point, Units 6 and 7, combined license application. Provide an updated description of the aquatic environment and an updated list of species currently present in the CCS with focus on what changes to the aquatic environment and species presence/composition have occurred since 2007. If the description in Section 3.7.3 and list of species in Table 3.7-1 of the ER continues to

accurately depict the aquatic community, please confirm that this information remains relevant. Include a statement regarding scientific uncertainty to the extent that such a statement is appropriate.

- A-2 The CCS has undergone a number of environmental changes and fluctuations in the past several years, including increases in salinity concentrations, temperature fluctuations, high turbidity, seasonal algal blooms, chemical treatments in connection with the algal blooms, and generally degraded water quality. Summarize these factors. Describe how these changes have affected fish populations in the CCS and how these factors have generally altered the value of the CCS as habitat for aquatic species.
- A-3 Section 3.7.1.1 of the ER describes other (non-CSS) onsite aquatic resources. The information presented in this section is primarily derived from surveys performed in 2009 in support of the Turkey Point, Units 6 and 7, combined license application. Provide an updated description of these onsite aquatic resources. If the descriptions in Section 3.7.1.1 of the ER continues to accurately depict the aquatic community, please confirm that this information continues to be relevant. Include a statement regarding scientific uncertainty to the extent that such a statement is appropriate.
- A-4 List and provide brief summaries of all aquatic resource surveys and studies performed on the Turkey Point site from pre-construction through present day.
- A-5 Provide copies of any aquatic resource surveys or studies performed on the Turkey Point site that have not already been submitted to the NRC in connection with the previous Turkey Point license renewal or the Turkey Point, Units 6 and 7, combined license application.
- A-6 Describe how fish interact with the cooling water intake system. For the intake, include the approach velocity that a fish would experience at the intake point, descriptions of intake screen operation and mesh size, and fish return systems (if any). For the discharge, include the average monthly temperatures of effluent discharge and a characterization of the associated thermal plume.
- A-7 Provide an analysis of how impingement and entrainment during the proposed license renewal term would affect aquatic resources in the CCS.
- A-8 Provide an analysis of how thermal effluents during the proposed license renewal term would affect aquatic resources in the CCS.
- A-9 Section 9.2.1 of the ER indicates that FPL has implemented an ecological monitoring plan as a requirement of the Florida conditions of certification for Turkey Point. Provide a copy of this plan as well as any associated monitoring reports that FPL has produced in connection with this plan.
- A-10 Provide a copy of the application(s) submitted to the U.S. Army Corps of Engineers in connection with the dredge and backfill activities described in Section 9.5.3.1 of the ER.

Special Status Species and Habitats (U.S. Fish and Wildlife Service)

- SS-1 Section 3.7.7.5 of the ER describes least tern (*Sterna antillarum*) monitoring studies. Please provide a copy of all least terns monitoring surveys.
- SS-2 Section 3.7.7.6 of the ER describes eastern indigo snake (*Drymarchon corais couperi*) monitoring studies by the Orianna Society. Please provide a copy of all indigo snake monitoring surveys.
- SS-3 In its April 2018 supplement to the ER, FPL states that all impacts to the American crocodile (*Crocodylus acutus*) and its designated critical habitat will be beneficial or remain the same as experienced during license renewal. The NRC's Section 7 consultation under that Endangered Species Act require the staff to describe all impacts to the American crocodile and its designated critical habitat, even if the impacts are beneficial or remain the same as during current operations.
- Please discuss the beneficial as well as the adverse impacts to the American crocodile and its designated critical habitat during the period of extended operations, such as changes to nesting habitat or crocodile health, changes to water quality parameters within the cooling canal system, and any procedures to mitigate the impacts from Turkey Point operations on the American crocodile and its designated critical habitat.
- SS-4 In FPL's April 10, 2018, supplement to ER Section 4.6.6.4, FPL describes the potential for several species to occur on or within the vicinity of Turkey Point, as well as the potential impacts to these species. For Carter's mustard (*Warea carteri*), the ER supplement describes why impacts would be minimal to this species. However, the ER supplement does not describe the potential for this species to occur on or within the vicinity of the site. Please describe any known occurrences of Carter's mustard on or within the vicinity of Turkey Point.
- SS-5 In its ER, FPL listed the ivory-billed woodpecker (*Campephilus principalis*), as common species in Table 3.7-11, "Common Wildlife Species of Southern Florida." This species is currently listed as endangered under the Endangered Species Act. However, neither the ER nor the supplement to the ER describes the potential for the species to occur on or within the vicinity of the site. Please describe any known occurrences of ivory-billed woodpecker on or within the vicinity of Turkey Point.

Special Status Species and Habitats (NMFS Species and EFH)

- SS-6 In FPL's April 10, 2018, supplement to the ER, FPL concludes that the proposed license renewal would have no effect on federally listed species in Biscayne Bay because the Turkey Point does not intake or discharge cooling water to Biscayne Bay, Card Sound, or other waters of the U.S. To support this conclusion, describe any impacts that federally listed aquatic species could experience during the proposed license renewal term including:
- water quality changes or degradation associated with groundwater exchange between the hypersaline plume under the CCS and Biscayne Bay;
 - sedimentation or other water quality impacts that would result from land-disturbing activities to construct new parking areas for plant employees, access roads, buildings, and facilities and associated temporary project support

areas for equipment storage, worker parking, and material laydown areas described in Section 4.6.5.3 of the ER;

- construction of the new independent spent fuel storage installation (ISFSI) described in Section 2.2.6.5 of the ER;
- dredging and backfill activities in the Barge Basin and Turtle Point described in Section 9.5.3.1 of the ER;
- barge traffic associated with Turkey Point that would occur during the proposed license renewal period; and
- any other relevant activities that could result in effects on federally listed aquatic species during the license renewal term.

In the discussion, consider each of the following species:

- a shortnose sturgeon (*Acipenser brevirostrum*)
- b Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*)
- c Nassau grouper (*Epinephelus striatus*)
- d smalltooth sawfish (*Pristis pectinata*)
- e loggerhead sea turtle (*Caretta caretta*)
- f green sea turtle (*Chelonia mydas*)
- g leatherback sea turtle (*Dermochelys coriacea*)
- h hawksbill sea turtle (*Eretmochelys imbricata*)
- i Kemp's ridley sea turtle (*Lepidochelys kempii*)
- j Florida manatee (*Trichechus manatus*)

SS-7 In the April 10, 2018, Supplement to the ER, FPL concludes that the proposed license renewal would have no effect on essential fish habitat in Biscayne Bay because Turkey Point does not intake or discharge cooling water to Biscayne Bay, Card Sound, or other waters of the U.S. To support this conclusion, describe any impacts that could result on the aquatic habitats of Biscayne Bay, Card Sound, or other waters of the U.S as a result of:

- water quality changes or degradation associated with groundwater exchange between the hypersaline plume under the CCS and Biscayne Bay;
- sedimentation or other water quality impacts that would result from land-disturbing activities to construct new parking areas for plant employees, access roads, buildings, and facilities and associated temporary project support areas for equipment storage, worker parking, and material laydown areas described in Section 4.6.5.3 of the ER;
- construction of the new ISFSI described in Section 2.2.6.5 of the ER;
- dredging and backfill activities in the Barge Basin and Turtle Point described in Section 9.5.3.1 of the ER;

- barge traffic associated with Turkey Point that would occur during the proposed license renewal period; and
- any other relevant activities that could result in effects on federally managed species with designated essential fish habitat during the license renewal term.

In the discussion, consider the habitat of each of the following species:

- a gray snapper (*Lutjanus griseus*)
- b dog snapper (*L. jocu*)
- c mutton snapper (*L. analis*)
- d bluestriped grunt (*Haemulon sciurus*)
- e white grunt (*H. plumieri*)
- f spiny lobster (*Panulirus argus*)
- g pink shrimp (*Farfantepenaeus duorarum*)

SS-8 Attachment B of the ER includes letters sent to the U.S. Fish and Wildlife Service and National Marine Fisheries Service dated January 30, 2018. Provide copies of any subsequent correspondence between these agencies and FPL.

Historic and Cultural Resources

- HC-1 On January 30, 2018, FPL issued letters to the Florida State Historic Preservation Officer and Federally-recognized Indian tribes regarding Turkey Point's subsequent license renewal application.
- a Provide copies of letters and other communication documents from the Florida SHPO and Federally-recognized Indian tribes that FPL has received since the January 30, 2018 letters.
 - b Provide copies of letters and other communication documents sent to the Florida SHPO and Federally-recognized Indian tribes since January 30, 2018.
- HC-2 Approximately what percentage of land within the boundaries of the 9,640-acre FPL Turkey Point property is undisturbed? Provide a map detailing the level of previous and existing ground disturbance at the plant site, including documentation on how this level of disturbance was determined.
- HC-3 Section 3.8.5 of the ER identifies cultural resource surveys that have been conducted within FPL's 9,460-acre property.
- a Approximately what percentage of the Turkey Point 9,460-acre site has been surveyed collectively between these cultural resource surveys?
 - b Does FPL have a comprehensive map of the Turkey Point site property that identifies site locations previously surveyed?
- HC-4 Section 3.8.6 of the ER identifies administrative controls FPL has in place for management of cultural resources ahead of ground-disturbing activities at the site. Additionally, Section 6.2.2 of the ER states that permits and programs discussed in

Chapter 9, including a cultural resource protection plan, “continue to satisfactorily mitigate the range of [Turkey Point] operational environmental impacts.”

- a Does FPL have a Cultural Resources Management Plan? If so, provide a copy.
- b Does FPL have a cultural resource protection plan? If so, provide a copy.
- c Provide a copy of the Environmental Control Program for Turkey Point Plant, Units 3 & 4 Construction Activities, mentioned in Section 3.8.6.

HC-5 Section 3.2.3 of the ER states, “[b]eyond the 6-mile radius, on land, the existing units are not visible. However, from the water in Biscayne Bay, the existing units can be clearly seen.” Additionally, Section 3.8.4 of the ER states:

The NRHP Jones Family Historic District is slightly outside the 6-mile radius from [Turkey Point] and the portion on Totten Key is separated from Turkey Point by only open water. The remains of the home and other features on Totten Key have been subjected to the harsh environment and are no longer standing. Visibility over open water is limited by the curvature of the earth and is approximately 3 miles from standing height. As such, it is unlikely that [Turkey Point] is visible from the Jones Family Historic District.

Have any studies been conducted to confirm that Turkey Point is not visible from the Jones Family Historic District?

HC-6 Section 3.8.6 of the ER states that “FPL has administrative controls in place for management of cultural resources ahead of future ground-disturbing activities at the plant, although no license renewal-related ground-disturbing activities have been identified.” Section 4.6.5.3 states that “[t]errestrial habitats and wildlife could be affected by ground disturbance from refurbishment-related construction activities.” Additionally, Section 2.0 of the ER states that refurbishment is not anticipated for Turkey Point.

- a Clarify the inconsistency in these two statements regarding ground disturbance associated with license renewal.
- b Clarify whether there will be refurbishment activities associated with license renewal. If so, describe what these refurbishment activities will be.

HC-7 Provide an un-redacted copy of the following documents for the audit:

- a Carr, R.S. 1981. Dade County Historic Survey, Final Report, The Archaeological Survey. Metropolitan Dade County, Florida. Unpublished manuscript on file with the Florida Master Site File. December 1981.
- b Carr, R.S., I. Eyster, and J. Southard. 1980. Dade County Archeological Survey: Interim Report. Dade County Historical Survey. Unpublished manuscript on file with the Florida Master Site File. March 1980.
- c JRI (Janus Research, Inc.). 2004. Florida Gas Transmission Turkey Point, Resource Report 4, Cultural Resources. Unpublished manuscript on file with the Florida Master Site File.

- d JRI. 2013. Cultural Resource Assessment Survey of the Reclaimed Water Treatment Facility and On-Site Reclaimed Water Pipeline Alternate Locations Associated with Turkey Point Units 6 & 7 Project: Addendum 1. Unpublished manuscript on file with the Florida Master Site File.
- e Lewis, S. P. and J. Davis. 1996. Phase I Archaeological Resource Survey of the Florida Power and Light Company's South Dade Mitigation Bank, Dade County, Florida. Cotleur Hearing, Jupiter, Florida, August 1966. Unpublished manuscript on file with the Florida Master Site File.

Socioeconomics

SOC-1 Provide FPL property tax payment information for the year 2017, if available, similar to the data provide in Table 3.9-3 of the ER.

SOC-2 Section 3.9.5 of the ER discusses local government revenues and personal property tax paid by FPL on behalf of Turkey Point.

- a Besides Miami-Dade property tax payments, describe and provide any other sizeable annual support payments (e.g., emergency preparedness fees and payments or fees because of the independent spent fuel storage installation), one-time payments, or other forms of non-tax compensation (if any) provided to local organizations, communities, and jurisdictions on behalf of Turkey Point.
- b Describe and provide annual Miami-Dade County sales taxes from Turkey Point operations expenses.

SOC-3 Section 2.5 of the ER identifies that Turkey Point currently has 366 contract workers. Provide a count or estimate of contract workers needed to support operation of Turkey Point for the previous 5 years.

SOC-4 Table 3.9-3 of the ER provides FPL's property tax payments for 2012 through 2016. The table identifies that there was an increase in Turkey Point's property tax payments between 2012 and 2013, and between 2013 and 2014 (property tax payments increased by approximately 4.5 times from 2012 to 2013 and then increased by 1.4 times from 2013 to 2014). Section 3.9.5 of the ER states that the "payment increase coincides with the Units 3 and 4 [extended power uprate (EPU)] going into service and the lien date...." Turkey Point's EPU LAR Supplemental Environmental Report (ADAMS No. ML103560183) stated that Turkey Point planned to

...implement the modifications necessary to support the power uprates at [Turkey Point] 3 and 4 during the 2010, 2011 and 2012 refueling outages. Upon NRC approval of the EPU license amendment request and following completion of the scheduled outage periods as well as completion of power ascension and testing, [Turkey Point] 3 is expected to begin operating at the EPU core rated power level of 2644 MWt in the spring of 2012, and [Turkey Point] 4 in the fall of 2012.

Were the modifications for EPU and operation at EPU power levels the cause of the property tax payment increases from 2012 to 2013 and from 2013 to 2014? If not, please describe the reason for the increases.

Environmental Justice

- EJ-1 Section 3.11.3 of the ER states that local government officials, staff of social welfare agencies, and the Miccosukee Indian Tribe were contacted concerning resource dependencies or practices.
- a Identify the nature of these communications (e.g., letters, emails, phone calls, in-person meetings).
 - b Provide copies of letters and other communication documents to and from the contacted entities.
- EJ-2 As referenced in the ER, outreach concerning resource dependencies or practices was conducted by FPL in support of the Turkey Point, Units 6 and 7 combined license (COL) application, submitted to the NRC in 2009. Has FPL conducted additional outreach to identify unusual resource dependencies or practices or health conditions that could result in potentially disproportionate impacts to minority and low-income populations since 2009?

Waste Management (rad and non-rad)

- WM-1 Provide procedures related to the radioactive and nonradioactive Waste Management Program, Waste Minimization Program, Chemical Control Program, General Industrial Safety Requirements, and Electrical Safety.
- WM-2 In Section 3.6.4.2.1 of the ER, FPL stated that since 2012, there have been nine unplanned releases of radioactive materials. The last unplanned release referenced in the ER was April 23, 2016. Have there been any reportable unplanned releases of radioactive materials which would trigger a notification requirement since the ER was written? Provide a description of releases.
- WM-3 In Section 3.6.4.2.2 of the ER, Turkey Point stated that based on the review of site records for the most recent 5 years (2012–2016), there has been no inadvertent release that would not be classified as an incidental spill. Provide the most current records to see if there have been any reportable inadvertent release which would trigger a notification requirement since the ER was written.
- WM-4 Turkey Point is subject to the reporting provisions of 40 CFR Part 110 as it relates to the discharge of oil in such quantities as may be harmful pursuant to Section 311(b)(4) of the Federal Water Pollution Control Act. Any discharges of oil in such quantities that may be harmful to the public health or welfare or the environment must be reported to the National Response Center. In Section 9.5.3.7 of the ER, the applicant discusses reportable spills, and states that for the 5-year period of 2012–2016 there were no reportable spills. Have there been any reportable spills which would trigger this notification requirement since the ER was written? Please provide a description of any spills.
- WM-5 Turkey Point is subject to the reporting provisions of FAC 62-780.110. This reporting provision requires that any release of oil having the potential to significantly pollute surface or ground waters and which are not confined to a building or similar structure be reported to the FDEP, the coordinator of emergency services of the locality that could reasonably be expected to be impacted, and appropriate federal authorities. In

Section 9.5.3.8 of the ER, the applicant discusses reportable spills, and states that for the 5-year period of 2011–2016 there were no reportable spills. Have there been any reportable spills which would trigger this notification requirement since the ER was written? Please provide a description of any spills.

Cumulative Impacts

- CU-1 Please provide the name, description, location, and status of any additional past, present, or reasonably foreseeable projects or actions that have been identified since the ER was prepared.
- CU-2 Please provide the status of any agreement with Miami-Dade County to share the cost of constructing a wastewater treatment facility at the county's south district station. Who would own and operate this facility? When would this facility likely be constructed? Would treated wastewater be used to clean up the cooling canal system? Would this facility be operating and would treated waste water be flowing into the cooling canal system during the period of continued operations?

Replacement Power Alternatives

- AL-1 Identify the available location(s) on or near the FPL Turkey Point site that would be suitable for siting replacement power generation. Please identify possible locations during the general tour.
- AL-2 Identify the approximate acreage, terminal points, and orientation of the new natural gas pipeline that would be required to support the Natural Gas-fired Generation replacement power alternative discussed in ER Section 7.2.3.1.
- AL-3 Section 7.2.3.1.5 of the ER states, "Overall, the discharge volume for the NGCC plant would be less than the [Turkey Point] discharge volume." Please provide the basis for this statement.

PTN Environmental Site Audit Schedule

Tuesday, June 19, 2018

START	END	ACTIVITY
8:30 am	8:45 am	Entrance meeting with FPL
8:45 am	9 am	Site environmental tour briefing (FPL)
9 am	12 noon	Site tours/meetings between NRC and FPL SMEs
12 noon	1 pm	Lunch
1 pm	4 pm	Remaining site tours/meetings between NRC and FPL SMEs
4 pm	4:30 pm	Team debrief/planning
4:30 pm	5 pm	Daily debrief with FPL

Wednesday, June 20, 2018

START	END	ACTIVITY
8:30 am	12 noon	Meetings between NRC and FPL SMEs
12 noon	1 pm	Lunch
1 pm	4 pm	Meetings between NRC and FPL SMEs
4 pm	4:30 pm	Team debrief/planning
4:30 pm	5 pm	Daily debrief with FPL

Thursday, June 21, 2018

START	END	ACTIVITY
8:30 am	12 noon	Meetings between NRC and FPL SMEs
12 noon	1 pm	Lunch
1 pm	4 pm	Meetings between NRC and FPL SMEs
4 pm	4:30 pm	Team final debrief
4:30 pm	5 pm	Exit meeting with FPL