

James, Lois

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Sent: Monday, July 09, 2018 4:41 PM
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Subject: REQUESTS FOR ADDITIONAL INFORMATION FOR THE ENVIRONMENTAL REVIEW OF THE TURKEY POINT SUBSEQUENT LICENSE RENEWAL APPLICATION – SET 1 (EPID NO. L-2018-LNE-0001)
Attachments: Final Environmental RAIs Set 1.pdf

Dear Mr. Nazar:

By letters dated January 30, 2018, (Agencywide Documents Access and Management System (ADAMS) Accession No. ML18037A812), February 9, 2018 (ADAMS Accession No. ML18044A653), February 16, 2018 (ADAMS Accession No. ML18053A123), March 1, 2018 (ADAMS Accession No. ML18072A224), and April 10, 2018 (ADAMS Accession Nos. ML18102A521 and ML18113A132), Florida Power & Light Company (FPL) submitted an application for subsequent license renewal of Renewed Facility Operating License Nos. DPR-31 and DPR-41 for the Turkey Point Nuclear Generating Unit Nos. 3 and 4 (Turkey Point) to the U.S. Nuclear Regulatory Commission (NRC) pursuant to Section 103 of the Atomic Energy Act of 1954, as amended, and part 54 of title 10 of the *Code of Federal Regulations*, "Requirements for renewal of operating licenses for nuclear power plants".

The NRC staff is reviewing the information contained in the subsequent license renewal application and has identified, in the enclosure, areas where additional information is needed to complete the review.

These requests for additional information were discussed with Steve Franzone and Rick Orthen of your staff, and a mutually agreeable date for the response is within 30 days from the date of this e-mail. If you have any questions, please contact me by e-mail Lois.Jame@nrc.gov.

Sincerely,

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

50-250 and 50-251

Enclosure:
Requests for Additional Information

SUBJECT: REQUESTS FOR ADDITIONAL INFORMATION FOR THE ENVIRONMENTAL REVIEW OF THE TURKEY POINT SUBSEQUENT LICENSE RENEWAL APPLICATION (EPID NO. L-2018-LNE-0001)

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*concurrence via e-mail

OFFICE	PM:MRPB:DMLR	BC:MENB:DMLR	BC:MRPB:DMLR	PM:MRPB:DMLR
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DATE	07/09/2018	07/09/2018	07/09/2018	07/09/2018

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**TURKEY POINT NUCLEAR GENERATING UNITS 3 AND 4 (TURKEY POINT)
SUBSEQUENT LICENSE RENEWAL APPLICATION (SLRA)
REQUESTS FOR ADDITIONAL INFORMATION (RAIS)**

1. Air Quality and Meteorology (AQ)

AQ-1 Please describe the relationship between Title V Air Operation Permit No. 0250003-028-AV (Units 3 and 4) and Permit No. 0250003-027-AC (Unit 5).

2. Aquatic Resources (A)

A-1 Describe how fish and aquatic species interact with the Turkey Point cooling water intake system. 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).

A-2 For purposes of characterizing the thermal plume that aquatic species in the cooling canal system (CCS) would encounter, describe the thermal plume and provide the average monthly temperatures of effluent discharge into the CCS.

A-3 Has FPL performed any analyses of how impingement, entrainment, and/or thermal effluent during the proposed license renewal term would affect aquatic resources in the CCS? If so, please provide copies of such analyses.

A-4 Please submit the following documents on the NRC docket.

1. Joint Application for Individual Environmental Resource Permit/Authorization to Use State-Owner Submerged Lands/Federal Dredge and Fill Permit – U.S. Army Corps of Engineers (Application SAJ-2016-02462 (SP-MLC) dated August 2, 2016.
2. U.S. Army Corps of Engineers Permit SAJ-2016-02462 (SP-MLC), dated May 7, 2018.
3. U.S. Army Corps of Engineers May Affect Not Likely to Adversely Affect (MANLAA) Letter of Determination and U.S. Fish and Wildlife Service Concurrence regarding SAJ-2016-02462/2017-TA-0080 dated June 29, 2017.
4. Florida Department of Environmental Protection Consolidated Environmental Resource Permit and State-owned Lands Authorization, Permit No. 13-0127512-013, dated September 21, 2016.

3. 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 Environmental Report (ER) was prepared.

Enclosure

- 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 in 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?
- CU-3 The background section of Section 4.6.5.3 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. Section 2.2.6.5 states that the ISFSI would need to be expanded to accommodate the accumulation of spent fuel due to the additional operating years if the U.S. Department of Energy (DOE) has not begun taking ownership of commercial spent fuel. If the ISFSI needs to be expanded, please describe and quantify the type of land cover and habitats that occur within land to be disturbed.

4. Environmental Justice (EJ)

- 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. As discussed during the NRC environmental audit with FPL staff, the nature of these communications were interviews that were conducted by FPL staff in support of the Turkey Point, Units 6 and 7 application, submitted to the NRC in 2009. Has FPL conducted outreach to identify unusual resource dependencies or practices or health conditions that could result in potentially disproportionate impacts to minority and low-income populations specifically for the subsequent license renewal application for Units 3 and 4?

5. Historic and Cultural Resources (HC)

- HC-1 On January 30, 2018, FPL issued letters to the Florida State Historic Preservation Officer (SHPO) and Federally recognized Indian tribes regarding PTNs subsequent license renewal application:
- a) Identify and provide a summary of the Florida SHPO and Federally recognized Tribal responses that FPL has received since the January 30, 2018 letters.
 - b) Identify meetings (teleconferences, in-person) held with Federally recognized Indian tribes and provide of a summary of the discussions.
- 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, "Cultural Resources Surveys," identifies cultural resource surveys that have been conducted within FPLs 9,460-acre property.
- a) Approximately what percentage of the Turkey Point 9,460-acres 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?
- c) Section 3.8.5 of the ER states that “In 1995 and 1996, a cultural resources survey (Florida Master Site File (FMSF) Survey 5103) including controlled surface collection, remote sensing, and test excavation was conducted within part of the Turkey Point site for a mitigation bank associated with USACE permitting (Lewis and Davis 1996).” However, a review of the Lewis and Davis 1996 cultural survey during the NRC environmental audit identifies that the survey was conducted within the Everglades Mitigation Bank and this is adjacent to the Turkey Point site, not within. Clarify if the Lewis and Davis 1996 cultural survey was conducted within the Turkey Point 9,460-acres site.
- d) Has FPL conducted a survey of submerged cultural resources along the PTN site coast? If so, please provide a copy, withholding sensitive information as necessary.

HC-4 Section 3.8.6 of the ER, “Procedures and Integrated Cultural Resources Management Plan,” 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 PTN 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) How does FPL ensure that staff and contractors are informed on the administrative controls in place for the management of cultural resources ahead of future ground-disturbing activities at the Turkey Point site?

HC-5 Section 3.2.3 of the ER, “Visual Resources,” states that “Beyond 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.” and Section 3.8.4 of the ER, “Offsite Cultural Resources,” states “The NRHP Jones Family Historic District is slightly outside the 6-mile radius from PTN 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 and/or ground disturbing activities associated with subsequent license renewal. If so, describe what these refurbishment activities will be.

HC-7 During NRC environmental audit, FPL staff identified “original” red wooden buildings and a cottage within the FPL/Turkey Point site boundary that are more than 50 years old.

- a) Provide a description of these buildings and known historical significance.
- b) Has the eligibility of these buildings as a historic property(s) been evaluated?
- c) Has FPL contacted the Florida State Historic Preservation Officer and/or the Miami-Dade County Historic Preservation Office regarding the eligibility of these sites? If so, please identify the year they were conducted, describe the nature of these interactions, and any outcomes/actions as a result of these interactions.

6. Replacement Power Alternatives (AL)

AL-1 As discussed with FPL personnel during the Environmental Site Audit, describe the desktop review conducted for siting replacement power generation at Turkey Point, including the location and amount of available acreage, and key siting opportunities and constraints (e.g., access to existing infrastructure; wetland permitting).

AL-2 As discussed with FPL personnel during the Environmental Site Audit, 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 As discussed with FPL personnel during the Environmental Site Audit, please provide any studies regarding the potential feasibility of using cooling towers for Units 3 and 4, similar to what has been proposed for Units 6 and 7.

7. Special Status Species and Habitats (U.S. Fish and Wildlife Service (FWS)) (SS-FWS)

SS-FWS-1 Section 3.7.7.5 of the ER, describes least tern (*Sterna antillarum*) monitoring studies.

- a) Please provide a copy of all least terns monitoring surveys.
- b) Please describe any activities FPL conducts to minimize impacts to least terns on site. Please clarify whether such measures would be expected to continue during the period of extended operations.

SS-FWS-2 Section 3.7.7.6 of the ER, describes eastern indigo snake (*Drymarchon corais couperi*) monitoring studies by the Orianne Society.

- a) Please provide a copy of all indigo snake monitoring surveys from the Orianne Society.

- b) In addition, the 2000 American Crocodile Monitoring Report states that, “weekly surveys are conducted during fall, winter and early spring months in order to monitor Indigo snake (*Dryinarchon corias couperi*) activity. Captured individuals are measured, weighed, sexed and released.” Please provide a copy of these surveys.
- c) Please describe the occurrence patterns of eastern indigo snakes on the Turkey Point site, including time periods, situations, or locations where the species is most likely to occur.
- d) Please describe any activities FPL conducts to minimize impacts to eastern indigo snakes on site. Please clarify whether such measures would be expected to continue during the period of extended operations.

SS- FWS-3 In its ER Supplement, 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 of 1973, as amended (ESA) requires the staff to describe population changes at the Turkey Point site, impacts to the American crocodile and its designated critical habitat, and beneficial impacts, even if they remain the same as during current operations.

- a) Annual Crocodile Monitoring Reports from the 1970s through 2017 included information based on blood samples, nesting surveys, juvenile surveys, and adult surveys.
 - i. Please describe the basis for conducting each study, such as whether the study was a permit or court-related requirement.
 - ii. Please clarify which studies FPL intends to continue to conduct during the period of extended operations.
 - iii. Please provide a copy of all annual monitoring reports prior to 1989. If monitoring reports are not available, please provide the number of nests, hatchlings, and adults recorded annually, as well as a summary of the survey methodology for each year.
 - iv. Please provide the Annual Crocodile Monitoring Report for 2011, 2012, 2014, 2016, and 2017.
 - v. The Annual Crocodile Monitoring Report for 2005, and all years afterwards, include crocodile measurement data. However, measurement data is not provided within Annual Crocodile Monitoring Reports prior to 2005. Please provide the same measurement data for surveys prior to 2005.
 - vi. The Annual Crocodile Monitoring Report for 2009 and all years afterwards provide a summary of the survey methodology. However, detailed survey methodology is not provided within Annual Crocodile Monitoring Reports prior to 2009. Please clarify describe the survey methodology for all years prior to 2009 (e.g. number of surveys per season, number of hours per survey, observation methods).
- b) Please describe FPL activities or programs that have the potential to mitigate impacts or result in beneficial impact to the American crocodile and its designated critical habitat, such as a summary of the crocodile management

program. Please specify whether each activity is expected to continue during the period of extended operations.

- c) Please describe any adverse impacts to the American crocodile and its designated critical habitat that could occur during the period of extended operations, such as changes to nesting or foraging habitat and the likelihood for any “takes,” as defined under the Endangered Species Act of 1973, as amended.

SS- FWS-4 In its ER supplement to 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- FWS-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.

8. Special Status Species and Habitats (National Marine Fisheries Service (NMFS) Species and EFH) (SS-NMFS)

SS-NMFS-1 Provide a copy of the letter of concurrence from the U.S. Fish and Wildlife Service sent 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.

SS-NMFS-2 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. To support this conclusion, describe barge traffic and activities that would be associated with Turkey Point operations during the proposed license renewal term. Include the anticipated frequency of barge traffic and describe procedures that FPL would implement to minimize impacts to aquatic resources, including federally listed species and Essential Fish Habitat.

9. Terrestrial Resources

T-1 Section 3.7.5.1 describes several invasive terrestrial species that are known to occur within Southern Florida and along transmission lines (that are not within the scope of the subsequent license renewal 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. If known,

- please describe when the species was first identified on the Turkey Point site or vicinity.
- b) Please describe the frequency and methods for removing or limiting invasive species within the Turkey Point site (including both the cooling canal system as well as other areas) or in association special projects.
- T-2 Section 3.7.7.1 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 describes State-listed species that occur within Miami-Dade County. The ER also states that the full extent to 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 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 describe whether each State-listed species has been observed on the PTN 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 3.7.8.5 describes species protected under the Migratory Bird Treaty Act (MBTA) and states that several bird species protected under the MBTA visit PTN.
- a) Please describe whether the following species have been observed on site, and if so, the relative frequency that the species uses the site (e.g. frequent, occasionally, rare, or unknown). If available, please describe how the species uses onsite habitat (e.g. resting, foraging, breeding).
- American oystercatcher (*Haematopus palliatus*)
 - Arctic tern (*Sterna paradisaea*)
 - Audubon's shearwater (*Puffinus lherminieri*)
 - bald eagle (*Haliaeetus leucocephalus*)
 - band-rumped storm-petrel (*Oceanodroma castro*)
 - black rail (*Laterallus jamaicensis*)
 - black scoter (*Melanitta nigra*)
 - black skimmer (*Rynchops niger*)
 - black-whiskered vireo (*Vireo altiloquus*)
 - Bonaparte's gull (*Chroicocephalus philadelphia*)
 - bridled tern (*Onychoprion anaethetus*)
 - brown pelican (*Pelecanus occidentalis*)
 - clapper rail (*Rallus crepitans*)
 - common eider (*Somateria mollissima*)
 - common loon (*Gavia immer*)
 - common tern (*Sterna hirundo*)
 - Cory's shearwater (*Calonectris diomedea*)
 - double-crested cormorant (*Phalacrocorax auritus*)

- great black-backed gull (*Larus marinus*)
- great shearwater (*Puffinus gravis*)
- herring gull (*Larus argentatus*)
- king rail (*Rallus elegans*)
- least tern (*Sterna antillarum*)
- lesser yellowlegs (*Tringa flavipes*)
- limpkin (*Aramus guarauna*)
- long-tailed duck (*Clangula hyemalis*)
- magnificent frigatebird (*Fregata magnificens*)
- mangrove cuckoo (*Coccyzus minor*)
- Manx shearwater (*Puffinus puffinus*)
- Nelson's sparrow (*Ammodramus nelson*)
- northern gannet (*Morus bassanus*)
- parasitic jaeger (*Stercorarius parasiticus*)
- pomarine jaeger (*Stercorarius pomarinus*)
- prairie warbler (*Dendroica discolor*)
- prothonotary warbler (*Protonotaria citrea*)
- razorbill (*Alca torda*)
- red phalarope (*Phalaropus fulicarius*)
- red-breasted merganser (*Mergus serrator*)
- red-headed woodpecker (*Melanerpes erythrocephalus*)
- red-necked phalarope (*Phalaropus lobatus*)
- reddish egret (*Egretta rufescens*)
- ring-billed gull (*Larus delawarensis*)
- roseate tern (*Sterna dougallii*)
- royal tern (*Thalasseus maximus*)
- seaside sparrow (*Ammodramus maritimus*)
- semipalmated sandpiper (*Calidris pusilla*)
- short-billed dowitcher (*Limnodromus griseus*)
- short-tailed hawk (*Buteo brachyurus*)
- smooth-billed ani (*Crotophaga ani*)
- sooty tern (*Onychoprion fuscatus*)
- swallow-tailed kite (*Elanoides forficatus*)
- whimbrel (*Numenius phaeopus*)
- white-crowned pigeon (*Patagioenas leucocephala*)
- white-winged scoter (*Melanitta fusca*)
- willet (*Tringa semipalmata*)
- Wilson's plover (*Charadrius wilsonia*)
- Wilson's storm-petrel (*Oceanites oceanicus*)

- b) If not included in the response to 4(a), please describe the most commonly observed species that are protected under the MBTA. If available, provide a summary of how each species uses the site (e.g. resting, foraging, breeding).

T-5 Section 3.7.8.4 describes the Bald and Golden Eagle Protection Act (BGEPA). FPL states that current and future bald eagle nests located on the PTN 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 PTN site as well as any observations related to how bald eagles use available habitat on site (e.g. foraging, resting, nesting).

- T-6 Section 4.6.5.3 states that maintenance activities during the license renewal term are expected to be similar to current activities.
- a) 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, parking lot repaving, heavy machinery associated with refueling, temporary lay down areas for any construction or other activities, and any other maintenance activities.
 - b) Please describe any best management practices (BMPs) or procedures to minimize impacts to terrestrial resources when conducting maintenance activities.
- T-7 The background section of Section 4.6.5.3 states that land disturbing activities could include construction of new parking areas for plant employees, access roads, buildings, and facilities. The background section of Section 4.6.5.3 also states that temporary project support areas for equipment storage, worker parking, and material laydown areas could result in the disturbance of habitat and wildlife. Please clarify whether FPL anticipates whether these activities are expected to occur during the period of expected operations, and for each activity provide the following:
- a) The potential locations where construction or maintenance activities could occur.
 - b) The amount of land that would be disturbed, broken down by land cover or habitat type.
 - c) A description of the biota that inhabit the area where activities would occur.
- T-8 Section 4.6.5.3 states that environmental review procedures, 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, if not already provided in previous responses.
- T-9 Please describe whether FPL plans to initiate or continue any restoration activities for terrestrial resources at the PTN site during the period of extended operations, such as the Everglades Mitigation Bank.

10. Socioeconomics

- SOC-1 Provide FPL property tax payment information for the year 2017 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 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 the number of contract workers used 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 license amendment request (LAR) Supplemental Environmental Report (ADAMS Accession 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.

- a) 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.
- b) Were the projected timelines for modifications and operation of EPU core rated power levels identified in the EPU LAR the actual timelines or did modifications occur beyond calendar year 2012 that would have contributed to the 2014 lien date?

11. Waste Management (WM)

WM-1 The Turkey Point Nuclear Plant Units 3 and 4 Subsequent Operating License Renewal Application (SLRA) Section 9.5.3.7, "Reportable Spills [40 CFR Part 110]", contains a discussion on reportable spills, and states that for the 5 year period of 2012-2016 there were no reportable spills. Have any spills which would trigger the notification 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, occurred since the ER was written?

WM-2 The Turkey Point Nuclear Plant Units 3 and 4 Subsequent Operating License Renewal Application (SLRA) Section 9.5.3.8, "Reportable Spills [FAC 62-780.110]", contains a discussion on reportable spills, and states that for the 5 year period of 2011-2016 there were no reportable spills. The reporting provision of FAC 62-780.110 requires that any release of oil having the potential to significantly pollute surface or groundwaters and which are not confined to a building or similar structure be reported to the Florida Department of Environmental Protection (FDEP), the coordinator of emergency services of the locality that could reasonably be expected to be impacted, and appropriate federal authorities. Have any reportable spills which would trigger the notification reporting provisions of FAC 62-780.110 occurred since the ER was written?

12. Water Resources (WR)

WR-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 (status summary) regarding the construction and commissioning of the Recovery Well System (RWS) for hypersaline plume abatement. Summarize the as-built components of the Recovery Well System including well configuration(s) and well spacing (on one figure that shows all RWS wells), well construction specifications, and piping configurations and routings between the recovery wells and the deep well injection point (on one figure similar in extent and scale to the RWS wells configuration and spacing).

WR-2 Provide a summary or summaries (by month) of the volume of groundwater withdrawn from the following well systems during 2015, 2016, 2017, and 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). Explicitly identify if a well/wells was/were not operated during a full month (i.e., no withdrawal occurred during the month).

In addition, provide copies of any associated water withdrawal reports submitted to state or local regulatory agencies for the specified time periods.

WR-3 As discussed in Sections 3.6.1.4.5 and 3.6.2.2.3 of the ER (and as related to questions WR-1 and WR-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 mass of 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 (or provide referenceable documentation) to protect overlying aquifers. In addition, provide a summary of any water quality monitoring that is conducted of the reinjected groundwater.

- WR-4 As applicable to ER Sections 3.6.4.2.1 and 4.5.5.4, provide a description of any documented inadvertent radiological releases that have occurred since December 31, 2017. 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.
- WR-5 Section 9.3 of the ER summarizes historical regulatory infractions including notices of violation (NOVs) issued to FPL relative to Turkey Point operations. As applicable, provide an updated summary that describes any NOVs; 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) issued since August 2016 and not previously referenced in the ER. Provide copies of relevant correspondence to and from the responsible regulatory agencies.
- WR-6 In support of Section 3.6.2.4 of the ER, provide the current potentiometric surface (groundwater elevation) maps equivalent to those in ER Figures 3.6-4 through 3.6-9, and which show the current status of site monitoring wells and storm drain locations. Note: maps should be provided in a usable format for NRC staff use (e.g., PDF).
- WR-7 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? [Note: This is also applicable to Cumulative Impacts.]
- WR-8 It is the NRC staff's understanding that in the March 2018 timeframe, FPL switched from potable water (treated groundwater) supplied from Miami-Dade County to onsite groundwater supplied from wells completed in the Upper Floridan Aquifer as a makeup source for demineralized/ultrapure water for PTN Units 3 and 4. Similarly, it is understood that the source of makeup water for Unit 5 was switched to the Upper Floridan Aquifer. Identify the well(s) used to supply Upper Floridan Aquifer water for these purposes. Estimate the amount of Floridan water used and identify what the reject water is discharged to (i.e., the CCS?). Quantify the change(s) in public utility-supplied potable water versus overall onsite groundwater use by FPL at PTN as reflected in the water budget (balance) diagram included as Figure 2.2-1 in the ER.
- WR-9 Provide a description of the scope, schedule, and status of the restoration projects (i.e., Barge Turning Basin, and Turtle Point) referenced in Section 3.6.1.4.5 of the ER. Specifically, at these locations, describe the current depths of the canals in Biscayne Bay, what the depths in these locations will be after restoration, and how far out in the bay will the infilling extend. Include in the description a statement of the purpose of these projects and the projected outcome. Identify the locations of the projects on a map of suitable scale and in a usable format for NRC staff (e.g., PDF).

WR-10 As referenced in Section 2.2.3 and elsewhere in the ER, it is stated that during the subsequent license renewal period, both Units 1 and 2 will operate in synchronous condenser mode. In this mode, 17.3 million gallons per day of water from the CCS will be circulated through Units 1 and 2. Provide an updated description of current operation of Units 1 and 2 and the planned operation during the period of subsequent license renewal. Identify the amount of water that will be used by these units, its source, and to where it will be discharged.

WR-11 It is the NRC staff's understanding that FPL is currently (as of 2018) developing a Site Conceptual Model for the PTN site. Provide a brief description of the purpose, scope, and status of the development effort.

WR-12 Document Needs:

As specifically referenced in the applicant's Environmental Report or identified during the Environmental Site Audit, provide the following documents for review (or provide a specific web location (URL) for a publicly available repository where the document can be downloaded):

1. McNabb Hydrogeologic Consulting. Report on the Mechanical Integrity Testing of Deep Injection Well DIW-1 at the Florida Power and Light Turkey Point Power Plant. June 2017.
2. June 2018 presentation by FPL to FDEP regarding operational impacts of the CCS on the saltwater interface.
3. FPL 2018 Site Conceptual Model Report for PTN, if available.
4. Provide an electronic copy of the current spreadsheet with recent values used to model and project water levels and salinities within the CCS.