



L-2018-136
10 CFR 54.17

August 8, 2018

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555-0001

Re: Florida Power & Light Company
Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
Turkey Point Units 3 and 4 Subsequent License Renewal Application
Environmental Report Requests for Additional Information (RAI) Responses

Reference:

1. FPL Letter L-2018-004 to NRC dated January 30, 2018, Turkey Point Units 3 and 4 Subsequent License Renewal Application (ADAMS Accession No. ML18037A812)
2. FPL Letter L-2018-086 to NRC dated April 10, 2018, Turkey Point Units 3 and 4 Subsequent License Renewal Application – Appendix E Environmental Report Supplemental Information (ADAMS Accession Nos. ML18102A521 and ML1811A132)
3. NRC RAI E-Mail to FPL dated July 9, 2018, Requests for Additional Information for the Environmental Review of the Turkey Point Subsequent License Renewal Application – Set 1 (EPID No. L-2018-LNE-0001) (ADAMS Accession No. ML18190A499)
4. NRC RAI E-Mail to FPL dated July 17, 2018, Requests for Additional Information for the Environmental Review of the Turkey Point Subsequent License Renewal Application – Set 2 (EPID No. L-2018-LNE-0001) (ADAMS Accession No. ML18198A274)

Florida Power & Light Company (FPL) submitted a subsequent license renewal application (SLRA) for Turkey Point Units 3 and 4 to the NRC on January 30, 2018 (Reference 1), and also supplemental information for the SLRA Environmental Report (ER) on April 10, 2018 (Reference 2).

The purpose of this letter is to provide, as attachments to this letter, responses to the environmental review RAIs issued by the NRC on July 9, 2018 and July 17, 2018 (References 3 and 4). Each RAI response and its corresponding attachment are indexed on page 3 of this letter. These attachments include associated information on the enclosed Optical Storage Media (OSM) as indexed on page 4 of this letter. The enclosed OSM is not intended to comply with the recommendations for electronic

Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
L-2018-136 Page 2 of 4

submission in NRC Guidance Document, Guidance for Electronic Submissions to the NRC.

If you have any questions, or need additional information, please contact me at 561-691-2294.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on August 8, 2018.

Sincerely,



William Maher
Senior Licensing Director
Florida Power & Light Company

WDM/RFO

Attachments: 55 RAI Responses (refer to Letter Attachment Index)

Enclosure: OSM Disk 1 – RAI Response Enclosures (refer to OSM Enclosures Index)

cc:

Regional Administrator, Region II, USNRC (w/o Enclosure)
Senior Resident Inspector, USNRC, Turkey Point Plant (w/o Enclosure)
Regional Administrator, USNRC, Region II (w/o Enclosure)
Project Manager, USNRC, Turkey Point Nuclear (w/o Enclosure)
Senior Resident Inspector, USNRC, Turkey Point Nuclear (w/o Enclosure)
Plant Project Manager, USNRC, SLRA (w/Enclosure)
Plant Project Manager, USNRC, SLRA Environmental (w/Enclosure)
Ms. Cindy Becker, Florida Department of Health (w/o Enclosure)

LETTER ATTACHMENT INDEX			
Attachment	NRC RAI	Attachment	NRC RAI
1	AQ-1	29	T-3
2	A-1	30	T-4
3	A-2	31	T-5
4	A-3	32	T-6
5	A-4	33	T-7
6	CU-1	34	T-8
7	CU-2	35	T-9
8	CU-3	36	SOC-1
9	EJ-1	37	SOC-2
10	HC-1	38	SOC-3
11	HC-2	39	SOC-4
12	HC-3	40	WM-1
13	HC-4	41	WM-2
14	HC-5	42	WR-1
15	HC-6	43	WR-2
16	HC-7	44	WR-3
17	AL-1	45	WR-4
18	AL-2	46	WR-5
19	AL-3	47	WR-6
20	SS-FWS-1	48	WR-7
21	SS-FWS-2	49	WR-8
22	SS-FWS-3	50	WR-9
23	SS-FWS-4	51	WR-10
24	SS-FWS-5	52	WR-11
25	SS-NMFS-1	53	WR-12
26	SS-NMFS-2	54	WR-13
27	T-1	55	LU-1
28	T-2		

OSM ENCLOSURES INDEX			
Attachment	Enclosure	Attachment	Enclosure
5	1	43	5
5	2	43	6
5	3	43	7
5	4	43	8
5	5	43	9
16	1	43	10
19	1	43	11
20	1	43	12
20	2	43	13
21	1	43	14
21	2	43	15
22	1	43	16
22	2	43	17
22	3	43	18
22	4	43	19
25	1	43	20
28	1	44	1
32	1	46	1
43	1	46	2
43	2	53	1
43	3	53	2
43	4		

Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
FPL Response to NRC RAI No. AQ-1
L-2018-136 Attachment 1 Page 1 of 1

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 9, 2018

Air Quality and Meteorology (AQ)

NRC RAI Number: 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).

FPL Response:

Turkey Point is composed of two separate but co-located plants, the fossil plant (Unit 5) and the nuclear plant (Units 3 & 4). The nuclear operations are addressed in 0250003-028-AV (Title V Air) and the fossil operations are addressed in 0250003-027-AC (Air Construction Permit for Unit 5 upgrades) and 0250003-025-AV (Title V Operating Permit). The non-nuclear support equipment for Units 3 and 4 is only permitted under the 0250003-028-AV Title V permit and the combustion equipment and Unit 5 support equipment is only permitted under 0250003-025-AV.

References:

None

Associated Enclosures:

None

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 9, 2018

Aquatic Resources (A)

NRC RAI Number: 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).

FPL Response:

The cooling canal system (CCS) was designed and constructed as an industrial wastewater facility (IWW). As stated in ER Section 3.6.1.4.1, the IWW permit and the federal National Pollution Discharge Elimination System (NPDES) permit (delegated to State of Florida) are jointly issued under Permit No. FL0001562. An IWW permit renewal application was submitted on October 21, 2009, and the 2005 IWW permit has been administratively continued and is still valid. Under the terms of FPL's Clean Water Act permit, the cooling canal system is an industrial wastewater facility exempt from regulation as waters of the United States.

The flow of water through the discharge canal to the cooling canal system with return to intake canal is shown on ER Figure 2.2-3. The intake canal feeds eight intake channels. The maximum flow per intake channel is 225,375 gallons per minute. The intake system has eight multi-disk traveling screens. The through-screen velocity is 4.48 feet/second. FPL has not calculated an approach velocity. The intake screens' mesh size is 9.5 mm. Screen rotation is controlled by differential pressure in front of and behind the screen, causing the screen to automatically rotate.

There is no fish return system.

References:

None

Associated Enclosures:

None

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 9, 2018

Aquatic Resources (A)

NRC RAI Number: 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.

FPL Response:

The CCS was designed and constructed as an industrial wastewater facility (IWW). As stated in ER Section 3.6.1.4.1, the IWW permit and the federal National Pollution Discharge Elimination System (NPDES) permit (delegated to State of Florida) are jointly issued under Permit No. FL0001562. An IWW permit renewal application was submitted on October 21, 2009, and the 2005 IWW permit has been administratively continued. Under the terms of FPL's Clean Water Act permit, the cooling canal system is an industrial wastewater facility exempt from regulation as waters of the United States.

The discharge moves through the CCS from the discharge on the north end to the south end. In 2015, FPL determined the reduction in temperature from the discharge point to the south end of the CCS to be 13.7°F (108.7°F to 95.0°F).

The requested average monthly temperature is not a monitoring parameter calculated by FPL. FPL reports the highest average daily temperature of the cooling water discharge at Outfall 001 (ER Figure 3.6-3) for the calendar month to the Florida Department of Environmental Protection as required by the Turkey Point IWW Permit FL0001562. These temperatures for 2012–2017 are presented below.

Highest Average Daily Temperature for a Calendar Month, Degrees Fahrenheit

Month	2012	2013	2014	2015	2016	2017
January	97.3	90.6	89.9	89.1	95.7	91
February	94.7	68.8	106.5	100.3	94.1	98.6
March	94.7	83.6	101.1	105	103.2	95.4
April	91.2	93.6	106.7	109	90.1	94.8
May	97.1	97.6	103.2	102.7	104.6	103.4
June	90	109.2	107.9	112.24	109.7	104.6
July	100.2	111.6	108.2	107.2	111.5	108.3
August	89.8	106.6	106.6	110.4	110.4	110
September	97.6	108.4	100.2	105.2	110.4	101.9
October	97.5	101.47	99	93.96	94.8	101.9
November	95	94.2	89	102.6	96.3	96.8
December	93.1	94.8	103.2	94.7	100.4	97.5

Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
FPL Response to NRC RAI No. A-2
L-2018-136 Attachment 3 Page 2 of 2

References:

None

Associated Enclosures:

None

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 9, 2018

Aquatic Resources (A)

NRC RAI Number: 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.

FPL Response:

The cooling canal system (CCS) was designed and constructed as an industrial wastewater facility (IWW). As stated in ER Section 3.6.1.4.1, the IWW permit and the federal National Pollution Discharge Elimination System (NPDES) permit (delegated to State of Florida) are jointly issued under Permit No. FL0001562. An IWW permit renewal application was submitted on October 21, 2009, and the 2005 IWW permit has been administratively continued. Under the terms of FPL's Clean Water Act permit, the cooling canal system is an industrial wastewater facility exempt from regulation as waters of the United States.

No analysis has been performed to determine how impingement, entrainment, and/or thermal effluents during the proposed license renewal term would affect aquatic resources in the cooling canal system (CCS). There is no expectation that the effects of continued operation will differ from current operations or from past operational conditions approved by previous licensing activities.

References:

None

Associated Enclosures:

None

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 9, 2018

Aquatic Resources (A)

NRC RAI Number: 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.
5. FPL Turkey Point Cooling Canal System Characterization Study, December 2016.

FPL Response:

The requested documents are enclosed.

References:

None

Associated Enclosures:

OSM Disk 1 – L-2018-136 Attachment 5 Enclosure 1

FPL (Florida Power & Light). 2016. Joint Application for Individual Environmental Resource Permit/Authorization to us State-Owned Submerged Lands/Federal Dredge and Fill Permit, Turtle Point and Barge Canal/Basin Water Quality Improvement Projects. August 2, 2016.

OSM Disk 1 – L-2018-136 Attachment 5 Enclosure 2

USACE (U.S. Army Corps of Engineers). 2018. Department of the Army Permit SAJ-2016-02462 (SP-MLC). May 7, 2018.

OSM Disk 1 – L-2018-136 Attachment 5 Enclosure 3

USACE. 2017. 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. June 29, 2017.

Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
FPL Response to NRC RAI No. A-4
L-2018-136 Attachment 5 Page 2 of 2

OSM Disk 1 – L-2018-136 Attachment 5 Enclosure 4

FDEP (Florida Department of Environmental Protection). 2016. Environmental Resource Permit No. 13-0127512-013. September 21, 2016.

OSM Disk 1 – L-2018-136 Attachment 5 Enclosure 5

FPL (Florida Power & Light). No date. FPL Turkey Point Cooling Canal System Characterization Study. Report on a study conducted December 5–7, 2016.

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 9, 2018

Cumulative Impacts (CU)

NRC RAI Number: 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.

FPL Response:

A project in the vicinity with the potential for cumulative impacts that has recently come to FPL's attention is a private project at the SDI Quarry, located approximately 5.5 miles west of FPL Turkey Point. The project, named Atlantic Civil, is a plan for a series of injection wells to mitigate the progression of saltwater intrusion westward. A consumptive use permit was issued by the South Florida Water Management District in 2017 (SFWMD 2017).

FPL's criteria for considering potential projects as reasonably foreseeable was that the project has both at least conceptual plans and funding identified. These criteria are in line with Regulatory Guide 4.2, Supplement 1, Rev. 1 (NRC 2013, page 48), "Future actions are those that are 'reasonably foreseeable;' that is, they are ongoing (and will continue into the future), are funded for future implementation, are included in firm, near-term plans, or generally have a high probability of being implemented." The Miami-Dade County wastewater treatment facility addressed in Attachment 7 was not considered as a project in cumulative impacts analysis in ER Section 4.12 because no decision has been made concerning the facility and its funding, location, or design.

References:

NRC (U.S. Nuclear Regulatory Commission). 2013. Regulatory Guide 4.2, Supplement 1, *Preparation of Environmental Reports for Nuclear Power Plant License Renewal Applications*, Rev. 1. June 2013.

SFWMD (South Florida Water Management District). 2017. Atlantic Civil Freshwater Injection System Permit 13-063430W, May 8, 2017.

Associated Enclosures:

None

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 9, 2018

Cumulative Impacts (CU)

NRC RAI Number: 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?

FPL Response:

FPL and Miami-Dade County (MDC) have agreed to investigate the potential to create a tertiary wastewater treatment facility that could provide up to 60 million gallons per day of reclaimed wastewater for use at the Turkey Point site. Possible uses would include makeup water for Unit 5 forced draft cooling towers and freshening water to assist in managing salinity the cooling canals system (CCS). No commitments have been made at this very early stage of this agreement. If FPL and MDC were to reach agreement on such a facility the process would proceed through a rigorous federal, state and local permitting process including opportunity for public involvement. At this time, the regulatory requirements for approval are undefined, the technology and design of the facility is undetermined, and the terms of any agreement have not been discussed in any detail. If these uncertainties are addressed, it is possible that the facility could provide reclaimed water to freshen the CCS during the period of continued operations.

Also see Attachment 48.

References:

None

Associated Enclosures:

None

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 9, 2018

Cumulative Impacts (CU)

NRC RAI Number: 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.

FPL Response:

ER Section 4.6.5.3 is a background discussion of the land disturbances considered by the NRC in the GEIS (NUREG-1437, Rev 1) Section 4.6.1.1 for license renewal. As stated in ER Section 2.1, an expansion of the ISFSI (i.e., construction of new ISFSI pad) during the SLR period is not needed unless the DOE does not begin to take ownership of the spent nuclear fuel. FPL has assumed that in 2031 DOE will take ownership and 3,000 metric tons would be transferred to DOE ownership each year (FPL 2017).

The existing ISFSI capacity will accommodate up to 130 horizontal storage modules (HSMs) using the existing storage systems. FPL's current spent fuel management plan would result in 120 HSMs being in position on the ISFSI pad after all spent fuel has been removed from the spent fuel pools, representing approximately 82 percent of the total spent fuel projected to be generated during the current licensing period. The current plan assumes 32 assemblies per dry storage cask. (FPL 2017) Additional storage capacity may be achieved using a higher density storage system.

An expansion of the ISFSI was not considered as a project in cumulative impacts analysis in ER Section 4.12 because the need had not yet been determined. FPL's criteria for considering potential projects as reasonably foreseeable was that the project has both at least conceptual plans and funding identified. These criteria are in line with Regulatory Guide 4.2, Supplement 1, Rev. 1 (NRC 2013, page 48), "Future actions are those that are 'reasonably foreseeable'; that is, they are ongoing (and will continue into the future), are funded for future implementation, are included in firm, near-term plans, or generally have a high probability of being implemented."

For a future ISFSI expansion, FPL would conduct a siting study to identify candidate sites within PTN's NRC-licensed site (the host area required by 10 CFR 72.106, for an ISFSI general license under 10 CFR 72.210). The site selection process would consider regulations for, and commitments to, the protection of endangered species, wetlands and coastal areas, and archeological findings. The preferable candidate site would be located on developed/disturbed land within or adjacent to the Units 3 and 4 protected area as shown on ER Figure 3.1-1.

Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
FPL Response to NRC RAI No. CU-3
L-2018-136 Attachment 8 Page 2 of 2

References:

FPL (Florida Power & Light). 2017. St. Lucie Units 1 and 2, Turkey Point Units 3 and 3, Seabrook Station, Duane Arnold Energy Center, Point Beach Units 1 and 2 Decommissioning Funding Status Reports/Independent Spent Fuel Storage Installation (ISFSI) Financial Assurance Update. March 30, 2017. ADAMS Ascension No. ML17093A688.

NRC (U.S. Nuclear Regulatory Commission). 2013. Regulatory Guide 4.2, Supplement 1, *Preparation of Environmental Reports for Nuclear Power Plant License Renewal Applications*, Rev. 1. June 2013.

Associated Enclosures:

None

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 9, 2018

Environmental Justice (EJ)

NRC RAI Number: 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?

FPL Response:

ER Section 3.11.3 describes outreach conducted in support of the Units 6 and 7 combined license application. This outreach identified no unusual resource dependencies, practices, or health conditions in the PTN region. As noted in Section 4.10.1.4.1, no license renewal-related refurbishment activities have been identified therefore no off-site impacts are anticipated. Section 4.10.1.4.2 describes how FPL's analyses of the Category 2 issues defined in 10 CFR 51.53(c)(3)(ii) determined that environmental impacts from the continued operation of PTN during the SLR period would either be SMALL or non-adverse. Based on this, there will be no disproportionately high and adverse effects of continued operation to minority and low-income populations. As such, no additional outreach was conducted.

That said, FPL is very active in its outreach to surrounding communities and residents. Some of these activities include: outreach to local primary, middle and high schools; nuclear science workshops for local science teachers; outreach to area colleges (e.g. Miami Dade College, University of Miami, University of Florida, Florida International University); plant and canal tours for local business leaders (through the chambers of commerce), local, state and federal officials, and employee's families; participation in local festivals to inform neighbors regarding plant and canal operations; hosting or presenting at luncheons to provide plant and canal updates, and hosting an annual public information officer plant and canal tour and tabletop emergency planning simulation.

References:

None

Associated Enclosures:

None

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 9, 2018

Historic and Cultural Resources (HC)

NRC RAI Number: 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 a summary of the discussions.

FPL Response:

- a) The Muscogee (Creek) Nation and the Choctaw Nation of Oklahoma responded to the consultation letter indicating they have no concerns with SLR for PTN and deferred to other consulted tribes. The Florida SHPO responded to the consultation letter indicating that the project is unlikely to adversely affect cultural resources as there are no ground-disturbing activities. The Seminole Tribe of Oklahoma requested face-to-face consultation with FPL and requested information regarding past underwater archaeological surveys.
- b) FPL followed up with the Miccosukee Tribe of Indians of Florida in regard to SLR for PTN and was informed that the tribe has no historic or cultural interest in the area of the project. No further contact with the Miccosukee Tribe of Indians of Florida is required regarding SLR.

FPL met in person with the Seminole Tribe of Oklahoma on June 20, 2018. It was discussed that the project is the renewal of the operating license for two existing nuclear units originally licensed and constructed in the early 1970s. Also discussed was the inability to meet the Seminole Tribe of Oklahoma's requests for underwater cultural surveys that may have been performed prior to construction of Units 3&4 as no surveys of that type were required or performed at the time. The representative for the Seminole Tribe of Oklahoma informed FPL that his interest was piqued by the recent discovery of underwater cultural resources off the west coast of Florida. He completely understood that those types of investigations would not have been performed at Turkey Point during that timeframe (1970s). He is satisfied with the project and no further consultation is required.

Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
FPL Response to NRC RAI No. HC-1
L-2018-136 Attachment 10 Page 2 of 2

References:

None

Associated Enclosures:

None

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 9, 2018

Historic and Cultural Resources (HC)

NRC RAI Number: 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.

FPL Response:

From an archaeological perspective and based on inspection of early and current aerial photographs and maps, approximately 28 percent (2,685 acres) of the 9,640-acre FPL Turkey Point property is undeveloped and undisturbed. Approximately 64 percent (6,200 acres) is comprised of the cooling canals and is relatively disturbed. The remaining 8 percent (755 acres) consists of developed property including the main power station, parking lots, roads, canals, and other structures. The developed property would have varying depths of disturbance based on construction methods which were not examined. At least a portion of the undeveloped land (northwest portion) was used for agriculture based on aerial images with unknown depth of disturbance. The quantification of the disturbance is approximate and would require field verification, precise geographic information system (GIS) mapping, and additional background research to refine. With the exception of the soils along the bay, the undeveloped land has relatively shallow limestone bedrock, reducing the probability for deeply buried cultural deposits. Approximately 93 percent of the site consists of wetlands and open water (ER Section 3.2.1). FPL does not have a map of previous and existing ground disturbance.

References:

None

Associated Enclosures:

None

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 9, 2018

Historic and Cultural Resources (HC)

NRC RAI Number: 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.

FPL Response:

- a) Based on the reported acreages surveyed from Janus Research, Inc. (JRI) 2004, JRI 2009, and JRI 2013, approximately 10 percent (961 acres) have been surveyed for cultural resources.
- b) FPL does not have a comprehensive map of the Turkey Point site property that identifies site locations previously surveyed. The locations of the previous surveys within PTN are in JRI 2004, JRI 2009, and JRI 2013.
- c) The Lewis and Davis (1996) survey was conducted on FPL property, but is outside of the PTN 9,460-acre site.
- d) FPL has not conducted submerged or underwater cultural resources surveys along the PTN site coast. The Southeastern Archeological Center-NPS (SEAC) inventoried submerged cultural resources within Biscayne Bay National Park boundaries in 1984, which based on FMSF geographic information system (GIS) site data, did not result in any sites directly adjacent to the PTN site coast.

Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
FPL Response to NRC RAI No. HC-3
L-2018-136 Attachment 12 Page 2 of 2

References:

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.

JRI. 2009. FPL Turkey Point Units 6 & 7 Site and Associated Non-Linear Facilities Cultural Resource Assessment. Unpublished manuscript on file with the Florida Master Site File.

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.

Associated Enclosures:

None

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 9, 2018

Historic and Cultural Resources (HC)

NRC RAI Number: 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?

FPL Response:

- a) FPL does not have a cultural resources management plan.
- b) Section 6.2.2 includes an incorrect statement regarding a cultural resources protection plan. FPL does not have a cultural resources protection plan.
- c) For future projects that have the potential for ground-disturbing activities, FPL has methods and procedures in place for the management of cultural resources. For contracted projects with the possibility of ground disturbance, the contractor coordinator identifies and ensures contractors are trained on all appropriate procedures for the work to be performed. A contractor checklist is used to further ensure that field activities are performed in accordance with station procedures, the contract, established methods and programmatic and technical requirements.

There are preconstruction environmental training sessions for FPL staff that, based on the work being performed, includes presentations in which examples of common artifact types are presented and actions to be taken if cultural resources are identified.

References:

None

Associated Enclosures:

None

Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
FPL Response to NRC RAI No. HC-5
L-2018-136 Attachment 14 Page 1 of 1

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 9, 2018

Historic and Cultural Resources (HC)

NRC RAI Number: 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?

FPL Response:

FPL is not aware of studies regarding the visibility of PTN from the Jones Family Historic District.

References:

None

Associated Enclosures:

None

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 9, 2018

Historic and Cultural Resources (HC)

NRC RAI Number: 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.

FPL Response:

There are no refurbishment activities planned. The SLR project, relative to historic and cultural resources, is an administrative action with no anticipated direct or indirect activities that could adversely affect cultural resources.

- a) Section 4.6.5.3 adopts the GEIS Background ER Section 4.6.1.1. Section 2.0 of the ER correctly states that refurbishment is not anticipated for PTN.
- b) There are no refurbishment activities planned.

References:

None

Associated Enclosures:

None

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 9, 2018

Historic and Cultural Resources (HC)

NRC RAI Number: 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.

FPL Response:

- a) There are three “original” red wooden buildings that were part of a Boy Scout camp but have subsequently been used for storage. They have been maintained and repaired, which has affected their integrity to an unknown degree. The exterior siding appears to consist of vertical boards. Two of the structures have gable roofs and the third has a pyramid hip roof. None of the Boy Scout camp structures appear to have distinguishing architectural features. Based on available information, there is no known historical significance of the Boy Scout structures and the three red buildings do not appear to meet the criteria for listing to the National Register of Historic Places (NRHP).

The cottage is also known as the Ranger House and the McGregor Smith Cottage. The vernacular frame structure is painted white with a hip roof. Based on the screened front porch across the entire front of the house and being raised with posts, it appears to have been built in the Conch/Bahamian architectural styles. The cottage does not appear to have distinguishing architectural features. The association with McGregor Smith, the past president of FPL who is credited with construction of PTN, is unknown. McGregor Smith is also known for his involvement in environmental issues and the Boy Scouts, as well as southern Florida economic development (Davis 2013; FM 2018; MH 2009).

- b) Neither the “original” red wooden buildings or the cottage have been evaluated for eligibility to be listed to the NRHP, or local and state listings. The structures have not been documented by an architectural historian as meeting Secretary of Interior standards.
- c) FPL has not contacted the Florida State Historic Preservation Office regarding any structures at the Turkey Point site. In 2012, FPL contacted Ms. Kathleen Kauffman, Director of the Miami-Dade Historic Preservation Office, to discuss

FPL's interest in activities to designate the McGregor Smith Cottage (Ranger House) for historical landmark status and potential restoration of the cottage (see Enclosure 1). On August 8, 2012, a letter was mailed to Ms. Kauffman inviting her to visit Turkey Point to assess if the house portion of the cottage was restorable to its original structure. Ms. Kauffman, subsequent to the visit, confirmed the house was restorable and it is the choice of FPL to restore or designate the structure. There are no additional records of consultation with the Miami-Dade Historic Preservation Office and no subsequent actions have been made relative to evaluating the cottage for historic landmark status or for NRHP listing. No steps have been taken towards restoration of the cottage.

References:

Davis, Winston R. 2013. Men of Schiff: A History of the Professional Scouters Who Built the Boy Scouts of America. Retrieved from <<https://books.google.com/books?id=F6xTCAAQBAJ&dq=mccgregor+smith+boy+scout+s+men+of+schiff>>, after entering "McGregor Smith Boy Scouts" in the "Search Inside" field, selecting the "Search Records" button (accessed July 21, 2018).

FM (Florida Memory). 2018. McGregor Smith, President of Florida Power & Light. Retrieved from <<https://www.floridamemory.com/items/show/154889>> (accessed July 21, 2018).

MH (Miami Herald). 2009. Struggles in U.S. were few for three lucky brothers. Retrieved from <<https://www.miamiherald.com/news/special-reports/operation-pedro-pan/article1933066.html>> (accessed July 21, 2018).

Associated Enclosures:

OSM Disk 1 – L-2018-136 Attachment 16 Enclosure 1

FPL (Florida Power & Light). 2012. Turkey Point Power: McGregor Smith Ranger House potential restoration project. Letter to Miami-Dade County Historic & Archeological Resources. August 8, 2012.

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 9, 2018

Replacement Power Alternatives (AL)

NRC RAI Number: 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).

FPL Response:

As discussed in ER Section 2.6.1, FPL used the following screening criteria to identify reasonable alternatives to the continued operation of PTN:

1. The purpose of the SLR (proposed action) is the continued production of 1,632-MWe of base-load generation. Based on 2014–2016 average capacity factors for PTN of 90.4 percent for Unit 3 and 93.5 percent for Unit 4 (NEI 2017a), PTN's annual generation is 13,154,016 megawatt-hours (MWhs).
2. Alternatives or combinations of alternatives evaluated in the ER would need to provide equivalent capacity and energy.
3. Alternatives considered must maintain a balance between generation and electrical demand within the service area of Miami-Dade and Broward counties.
4. Alternatives considered must be fully operational by 2032 considering development of the technology, permitting, construction of the facility, and connection to the grid.
5. Alternatives must be electricity-generating sources that are technically feasible and commercially viable.

A desktop review of the full range of alternatives discussed in the GEIS (NRC 2016) was conducted to determine if any individual or a combination of alternatives could meet the above criteria. ER Chapter 7 discusses the results of this screening process.

As illustrated by these criteria, there was a focus on generation capacity and geographic location, as well as the ability to meet the timeline for replacing PTN by its license expiration regarding development of technology, permitting, construction, and connection to the grid.

Regional Considerations

Criterion 3 concerns maintaining a balance between generation and electrical demand within the service area of Miami-Dade and Broward counties. From the generation side of the balancing act, the balance can be maintained by installing generating capacity within the two-county region or installing additional transmission capacity capable of delivering more electricity from generating sources outside the two-county region (FPL

2018, Section IIIC). Therefore, a replacement alternative for PTN could be located within the two counties and utilize the existing transmission capability, or a replacement alternative could be located outside the two-county region and require siting and construction of additional transmission capacity to import the electricity into the two-county region. Constructing and maintaining new transmission infrastructure would increase the impacts of the replacement alternative, so the desktop review first considered opportunities for siting replacement alternatives within the two-county region. The acreage needs of the alternative plants would be a challenge for these counties given their urban character. The acreage needed for a nuclear power plant favors the less developed portions of the two counties. Solar facilities do not have emissions, workforce commuting demands, etc. of those of an operating natural gas combined cycle (NGCC) or nuclear plant. However, solar facilities need substantial acreage, which is both difficult to locate and/or expensive in these two highly developed counties. Large tracts of undeveloped land in the two-county region are primarily in wetlands or set aside for agriculture.

Intrinsic in meeting the timeline of Criterion 4, there are many considerations, including:

- Acquiring ownership of the land for the facility footprint;
- Ownership or lease of temporary construction support lands;
- Obtaining the necessary state and local permits for construction and operation;
- Access to the transmission infrastructure (which could also require acquiring land, permitting, and construction);
- Access to adequate transportation routes to support construction and operation; and
- Establishing reliable fuel supply.

Therefore, locations that have already met some or all of these elements would increase its reasonableness. Thus, the Turkey Point site with its existing FPL ownership, transmission infrastructure, transportation routes, current zoning status and existing land use provided an advantage with regard to timeline.

Onsite Considerations

The Turkey Point site was evaluated to identify if there was adequate land area for development of the considered alternatives. The desktop review of the Turkey Point site looked at land not already hosting Units 1–5 facilities or earmarked for the proposed Units 6 and 7. The contiguous undeveloped land within the site boundary (see ER Figure 3.1-1) west of the L-31E Canal was considered a possibility. This area is approximately 1,655 acres. The estimated needed acreage was 75 acres for a NGCC (ER Section 7.2.3.1.1), 364 acres for new nuclear (ER Section 7.2.3.2.1), and 70 acres for a NGCC and 1,600 acres for solar photovoltaic (PV) for the combination alternative (ER Section 7.2.3.3.1). The area has adequate acreage for the alternatives.

The desktop review then considered the presence of recorded cultural sites and wetlands. As indicated in ER Section 3.8.3, desktop reviews and analyses indicated no previously recorded cultural resource sites within identified acreage, including archaeological resources, standing structures, human burials, historic bridges, or other resources that could be potentially eligible for inclusion to the National Register of Historic Places. However, the area does include wetlands. As indicated in ER Figure 3.7-1, the area is largely freshwater emergent and freshwater forested/shrub wetlands. Avoiding wetlands is a preferred siting criterion; however, CWA 404 permitting allows for the use of wetlands coupled with wetland mitigation. FPL maintains the Everglades Mitigation Bank to offset wetland impacts and operates it as a commercial mitigation bank. This mitigation bank could potentially be used to offset wetland impacts.

Considering the power generating alternatives, the combination alternative with all facilities at PTN was not viable because the wetland impact (approximately 1,670 acres) would be significant. The PV solar component of the combination alternative was then considered for siting at other locations within the two-county area with only a portion sited at PTN. Siting the NGCC and new nuclear alternatives and a portion of the combination alternative (NCGG power plant and 75 MW capacity PV solar facility) at PTN on the land coupled with wetlands mitigation was considered as meeting the screening criteria.

The desktop review also considered cooling water availability. The water approach used for Units 6 and 7 was applied. Cooling water makeup could be supplied by reclaimed water obtained from Miami-Dade County as considered in the proposed Units 6 and 7 EIS (NRC 2016). Therefore, PTN was found to meet cooling water needs.

Summary

As stated in ER Chapter 8, there are no reasonable alternatives superior to that of the continued operation of PTN, providing approximately 1,632 MWe of reliable base-load power generation. The continued operation of PTN would create significantly less environmental impact than the construction and operation of new alternative generating capacity.

In summary, the key siting opportunities and constraints afforded by siting replacement power generation at PTN include the following:

Opportunities:

- Meets power import constraint, thus avoids impacts of power transmission infrastructure development.
- Lower population than other portions of Miami-Dade and Broward counties.
- FPL does not have to acquire land for the facility or construction, which shortens timeline.
- Existing power generation site (co-location over greenfield location).

- Existing transportation infrastructure.
- Existing transmission lines to deliver power to the grid.
- Adequate acreage for generating facility to replace two reactors.
- Adequate acreage for buffer.
- Avoidance of cultural sites.
- Reclaimed water supply development availability.

Constraints:

- Wetlands

Offsite Location

Given the potential for wetlands permitting challenges, FPL has identified an offsite location offering similar opportunities but with less anticipated challenge in the wetlands permitting process. This offsite location is north of Palm Drive adjacent to the PTN site, is owned by FPL, and contains sufficient acreage for siting the three alternatives identified in the ER. This site, with approximately 778 acres total, is also constrained by wetlands; however, they are of significantly poorer quality because they have been degraded by ditching and are dominated by exotic invasive vegetation (e.g., Australian pine and Brazilian pepper). This offsite location would have the same opportunities as the onsite location described in the ER, assuming that cultural sites (if any) could be avoided.

References:

FPL (Florida Power & Light). 2018. Ten Year Power Plant Site Plan 2018–2027. April 2018.

NRC (U.S. Nuclear Regulatory Commission). 2016. Environmental Impact Statement for Combined Licenses (COLs) for Turkey Point Nuclear Plant Units 6 and 7. NUREG-2176, Volume 1. October 2016.

Associated Enclosures:

None

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 9, 2018

Replacement Power Alternatives (AL)

NRC RAI Number: 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.

FPL Response:

The existing natural gas pipeline into Miami-Dade County is fully subscribed. Therefore, if the replacement capacity were to be fueled by natural gas, a new natural gas pipeline would need to be constructed. A new pipeline would most likely originate at FPL's Martin Power Plant site in Martin County, Florida, and terminate in the general area of the FPL Turkey Point site. The estimated total distance of such a pipeline is approximately 135 miles.

In regard to the required acreage for such a pipeline, the recently constructed Florida Southeast Connection Project can be used as a guide. The 126-mile Florida Southeast Connection Project, which is a component of the multi-state Southeast Market Pipelines project, was estimated to require 1,833.7 acres for construction and retain 745.5 acres for the permanent right-of-way (FERC 2015, Section 2.1.3.1 and Table 2.2-1). The Florida Southeast Connection Project provides a pipeline connection to the FPL Martin Power Plant. The natural gas pipeline portion of the natural gas combined-cycle alternative required acreage is anticipated to be comparable to the acreage needs of the Florida Southeast Connection Project.

References:

FERC (Federal Energy Regulatory Commission) 2015. Final Environmental Impact Statement on Southeast Market Pipelines Project. Available online at <<https://www.ferc.gov/industries/gas/enviro/eis/2015/12-18-15-eis.asp>> (accessed June 7, 2018).

Associated Enclosures:

None

Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
FPL Response to NRC RAI No. AL-3
L-2018-136 Attachment 19 Page 1 of 1

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 9, 2018

Replacement Power Alternatives (AL)

NRC RAI Number: 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.

FPL Response:

FPL retained High Bridge Associates, Inc. to assess the Turkey Point Units 3 and 4 cooling towers cost estimate as presented in the May 14, 2018, expert report of Bill Powers (Powers) for plaintiffs in the case of *Southern Alliance for Clean Energy, et al. v. Florida Power & Light Co.*, Case No. 1:16-cv-23017 (S.D. Fla.). The result of that assessment, FPL's most recent consideration of cooling tower feasibility, is provided as Enclosure 1.

References:

None

Associated Enclosures:

OSM Disk 1 – L-2018-136 Attachment 19 Enclosure 1

High Bridge Associates, Inc. No date. Expert Report of Ron Seagraves for *Southern Alliance for Clean Energy, et al. v. Florida Power & Light Co.*, Case No. 1:16-cv-23017 (S.D. Fla.).

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 9, 2018

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

NRC RAI Number: 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.

FPL Response:

- a) Results from the least tern surveys conducted by the Florida Fish and Wildlife Conservation Commission in 2016, 2017, and 2018 are provided in Enclosures 1 and 2.
- b) Several berms in Section 3 [between the second and third transecting canals; see ER Figure 2.2-3] of the cooling canal system (CCS) support least tern nesting. FPL has preserved the berms to continue to be compatible for nesting least terns and has installed signs surrounding the berms to alert anyone conducting maintenance on the berms. Boat traffic is also limited around these berms during nesting season. FPL will continue these activities to minimize impacts to least terns during the subsequent period of extended operations.

References:

None

Associated Enclosures:

OSM Disk 1 – L-2018-136 Attachment 20 Enclosure 1

FFWCC (Florida Fish and Wildlife Conservation Commission). 2016. Email: R. Zambrano, FFWCC to M. Aldecoa, FPL. June 15, 2016.

OSM Disk 1 – L-2018-136 Attachment 20 Enclosure 2

FFWCC. 2018. Email: N. Warraich, FFWCC to K. Eaton, FPL. June 8, 2018.

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 9, 2018

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

NRC RAI Number: 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.

FPL Response:

- a) The eastern indigo snake survey forms for captures in 2013, 2014, and 2016 are provided as Enclosures 1 and 2.
- b) Copies of these surveys are no longer available.
- c) Formal surveys are not currently conducted at PTN. In the past, indigo snakes have been observed near the southern perimeter of the site, in the Everglades Mitigation Bank crocodile sanctuary, and around the meteorological tower. Generally, the snakes are seen from October through April, but are occasionally seen during other times of the year.
- d) FPL conducts training for indigo snake awareness prior to any construction activities that occur on the site. FPL also posts signs around construction zones that contain pictures, descriptions, warnings, and contact information should a snake be seen. FPL will continue these activities to minimize impacts to eastern indigo snakes during the subsequent period of extended operations.

References:

None

Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
FPL Response to NRC RAI No. SS-FWS-2
L-2018-136 Attachment 21 Page 2 of 2

Associated Enclosures:

OSM Disk 1 – L-2018-136 Attachment 21 Enclosure 1

FPL (Florida Power & Light). 2014. Eastern Indigo Snake Survey M-Rc survey forms for 2013 and 2014.

OSM Disk 1 – L-2018-136 Attachment 21 Enclosure 2

FPL. 2016. Eastern Indigo Snake Survey M-Rc survey forms for 2016.

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 9, 2018

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

NRC RAI Number: 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.

FPL Response:

- a)
- i. Nesting surveys and population studies were begun after the first nest was discovered in 1978. To minimize risk to the crocodiles, FPL started conducting surveys for nests. In order to conduct the surveys, permits were obtained from the U.S. Fish and Wildlife Service (USFWS) and/or the Florida Fish and Wildlife Conservation Commission (FFWCC). These surveys are not conducted as a requirement of another permit or a court-related requirement.

The capture and health surveys were conducted pre- and post-uprate of Units 3 and 4 per the Florida Department of Environmental Protection’s (FDEP’s) conditions of certification (FDEP 2016) Condition XVII.B.1. The survey’s objectives are twofold: to determine growth and survival of crocodiles at the Turkey Point Power Plant site, and to determine spatial patterns of crocodiles at Turkey Point Power Plant in relation to temperature and salinity.
 - ii. The population and nesting studies will continue through the subsequent period of extended operations (SPEO). As stated in (a)(ii), the capture and health surveys were required pre- and post-uprate. Condition XVII.B further states, “Surveys shall be initially conducted for a one-year period, after which protocols shall be reviewed for appropriateness. Any changes shall be submitted to the FWC.” In 2016, USFWS requested the surveys be conducted for another three to five years. FPL agreed in 2017 (FPL 2017) and again in 2018 (FPL 2018) to continue the capture and health surveys for one additional year.
 - iii. Annual monitoring reports prior to 1989 and the applicable survey methodology were not retained. A spreadsheet with nest numbers and hatchlings from 1978–2017 is provided as Enclosure 1. The spreadsheet’s data show a decline in nests in 2015 to 2017. While there is no mitigation required for the decline in nesting, FPL has been taking actions to reduce the temperature and salinity within the CCS. It is expected that the crocodiles will respond positively to improved habitat conditions.

- iv. Annual monitoring reports for 2011, 2012, and 2014 are available through NRC's online ADAMS portal by utilizing the advanced search option and specifying the ADAMS ascension numbers listed below:

ML14336A335 – FPL. 2011. Turkey Point Plant Annual American Crocodile (*Crocodylus acutus*) Report. Federal Permit TE092945-2, State Permits WS06468a and WX06467a. December 30, 2011.

ML14336A341- FPL. 2012. Turkey Point Plant Annual American Crocodile (*Crocodylus acutus*) Report. Federal Permit TE092945-2. December 20, 2012.

ML16216A223 – FPL. 2014. Turkey Point Plant Annual American Crocodile (*Crocodylus acutus*) Report for 2014. Federal Permit TE092945-2. December 19, 2014.

The annual reports for 2016 and 2017 are provided as Enclosures 2 and 3, respectively.

The annual reports pursuant to Site Certification Condition XVII.B.1 listed below are retrievable through the state of Florida online document portal at <http://prodenv.dep.state.fl.us/DepNexus/public/searchPortal>. Use search parameters - Permit/Application: PA03-45 and the Document Date in both FROM and TO cells in the format MM/DD/YYYY.

2013 Annual Report: American Crocodile Monitoring Program for the Turkey Point Uprate. July 3, 2014.

2014 Annual Report: American Crocodile Monitoring Program for the Turkey Point Uprate. March 19, 2015.

2015 Annual Report: American Crocodile Monitoring Program for the Turkey Point Uprate. July 11, 2016.

2016 Annual Report: American Crocodile Monitoring Program for the Turkey Point Uprate. July 9, 2018.

- v. A spreadsheet with hatchling measurement data from 1978 to 2014 is provided as Enclosure 4. Other measurement data collected prior to 2005 were not retained by FPL. Historical measurement data for captures at Turkey Point were published in Volume 2 of a scientific paper prepared for the National Park Service by the University of Florida (Mazzotti and Cherkiss 2003).
- vi. The historical survey methodology was not retained by FPL. Scientific articles addressed surveys at Turkey Point (Brandt et. al. 1995; Gaby et. al. 1985; and Mazzotti et. al. 1986) and included discussions of their survey methodology.

- b) All crocodile management activities are described in FPL's crocodile management program. A summary of the crocodile management program was included as an appendix of the site certification application for Units 6 & 7 (FPL 2009). This document applies to Units 3 and 4 and the proposed Units 6 and 7. These activities are expected to continue during the SPEO. Excerpts from this summary are included below.

This section discusses the existing Turkey Point crocodile management program, the conservation and management plan for the project, the status of the American crocodiles within the site, effects of the action, mitigation activities, and cumulative effects. FPL initiated a formal comprehensive crocodile management program for the industrial wastewater facility in the early 1980s, consisting of a combination of:

- Habitat preservation and creation of habitat suitable for crocodile nesting and basking;
- Establishment of exclusion zones at known nesting sites (nest sanctuaries);
- Daytime and nighttime monitoring surveys to document nesting activity and utilization of the cooling canals/industrial wastewater facility;
- Capture and tagging of hatchlings using American Veterinary Identification Devices (AVID) microchip technology;
- Relocation of hatchlings to low-salinity habitat during early life stages to increase survival; and
- Recapture, monitoring, and release of individuals to document growth and survival.

In addition to the monitoring and habitat enhancement activities that directly benefit the crocodile, FPL has enacted an extensive crocodile awareness program to educate the public as to the status of the crocodile in South Florida.

FPL administers the site in accordance with a management program for crocodiles that was initially prepared in 1983 and revised in 1991 and 2007. The management program addresses:

- Constraints on vehicular traffic within the cooling canals/industrial wastewater facility at night and during critical periods of the nesting season;

- Constraints on road maintenance and construction activities at night, during critical periods of the nesting season, and within known crocodile crossing sites;
- Identification and avoidance of nest site sanctuaries;
- Population monitoring program (nests, hatchlings, hatchling growth, and survival); and
- Training requirements for site personnel handling hatchlings and using equipment in the area.

FPL also has been active in removing exotic plants, particularly Brazilian pepper (*Schinus terebinthifolius*) and Australian pine (*Casuarina equisetifolia*), as recommended by the USFWS (South Florida Multi-Species Recovery Plan, 1999). FPL is currently implementing many of the plan's recommendations for the American crocodile, including:

- Conducting a long-term monitoring program;
- Conducting a mark-recapture program to quantify growth and survival;
- Protecting nesting, basking, and nursery habitat; and
- Maintaining current nesting sites.

- c) The SPEO is not expected to require any changes to the nesting or foraging habitat for the American crocodile. Likewise, the likelihood for "takes" is not expected to change.

References:

Brandt, L.A., F. J. Mazzotti, J. R. Wilcox, P. D. Barker, Jr., G. L. Hasty, Jr., and J. Wasilewski. "Status of the American Crocodile (*Crocodylus acutus*) at a Power Plant Site in Florida, USA." *Herpetological Natural History*, Vol. 3, No. 1. 1995.

FDEP (Florida Department of Environmental Protection). 2016. Conditions of Certification, Florida Power & Light Company, Turkey Point Plant, Units 3 and 4 Nuclear Power Plant, Unit 5 Combined Cycle Plant, Facility ID No. 0250003, Miami-Dade County, Title V Air Operation Permit Renewal, PA 03-45E. March 29, 2016. (Provided as ER reference FDEP 2016a.)

FPL (Florida Power & Light). 2009. FPL Turkey Point Units 6 & 7 Threatened and Endangered Species Evaluation and Management Plan, included as Site Certification Application for the Turkey Point Units 6 & 7 Project, Appendix 10.7.1.3, T&E Species Evaluation, pdf. June 2009. Publicly available at <http://publicfiles.dep.state.fl.us/Siting/Outgoing/Web/TurkeyPt/Applications/FPL_Turkey_Point_Units_6_7_SCA/Appendices_SCA/SCA%20Appendix%2010.7_Monitoring%20

Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
FPL Response to NRC RAI No. SS-FWS-3
L-2018-136 Attachment 22 Page 6 of 6

Programs/SCA%20APPENDIX%2010.7.1.3_T&E%20Species%20Evaluation.pdf>
(accessed July 25, 2018).

FPL. 2017. Florida Power & Light Company, Turkey Point Plant Units 3 & 4, Power Plant Site Certification No. PA 03-45E, Post-Certification Submittal, Conditions of Certification No. XVII.B.1. January 19, 2017. (Publicly available through the state of Florida online document portal at <<http://prodenv.dep.state.fl.us/DepNexus/public/search>>. Use search parameters – Permit/Application: PA03-45 and the Document Date).

FPL. 2018. Florida Power & Light Company, Turkey Point Plant Units 3 & 4, Power Plant Site Certification No. PA 03-45E, Post-Certification Submittal, Conditions of Certification No. XVII.B.1. March 20, 2018. (Publicly available through the state of Florida online document portal at <http://prodenv.dep.state.fl.us/DepNexus/public/search>. Use search parameters – Permit/Application: PA03-45 and the Document Date).

Gaby, R., M. P. McMahon, F. J. Mazzotti, W. N. Gillies, and J. R. Wilcox. "Ecology of a Population of *Crocodylus acutus* at a Power Plant Site in Florida." *Journal of Herpetology*, Vol. 19, No. 2. June 1985. Stable URL: <<http://www.jstor.org/stable/1564172>> (accessed July 19, 2018).

Mazzotti, F. J., B. Bohsack, M. P. McMahon, and J. R. Wilcox. "Field and Laboratory Observations on the Effects of High Temperature and Salinity on Hatchling *Crocodylus acutus*." *Herpetologica*, Vol. 42, No. 2. June 1986. Stable URL: <<http://www.jstor.org/stable/3892387>> (accessed July 19, 2018).

Mazzotti, F. J. and M. S. Cherkiss. 2003. Status and Conservation of the American Crocodile in Florida: Recovering an Endangered Species While Restoring an Endangered Ecosystem. 2003. Published as University of Florida, Ft. Lauderdale Research and Education Center 2003 Technical Report. Volume 1 is publicly available at <<https://www.nps.gov/ever/learn/nature/crocodile.htm>> (accessed July 20, 2018).

Associated Enclosures:

OSM Disk 1 – L-2018-136 Attachment 22 Enclosure 1

FPL (Florida Power & Light). 2018. American Crocodile Yearly Numbers: Numbers of Successful Nests and Hatchlings Marked. Microsoft Excel file.

OSM Disk 1 – L-2018-136 Attachment 22 Enclosure 2

FPL. 2017. Turkey Point Plant Annual American Crocodile (*Crocodylus acutus*) Report for 2016. Federal Permit TE092945-2. January 31, 2017.

OSM Disk 1 – L-2018-136 Attachment 22 Enclosure 3

FPL. 2018. Turkey Point Plant Annual American Crocodile (*Crocodylus acutus*) Report for 2017. Federal Permit TE092945-2. January 31, 2018.

OSM Disk 1 – L-2018-136 Attachment 22 Enclosure 4

FPL. 2018. Turkey Point Hatchling Data, 1978–2014. Microsoft Excel spreadsheet.

Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
FPL Response to NRC RAI No. SS-FWS-4
L-2018-136 Attachment 23 Page 1 of 1

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 9, 2018

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

NRC RAI Number: 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.

FPL Response:

There are no known occurrences of Carter's mustard at the PTN site or within the Everglades Mitigation Bank property.

The most recent U.S. Fish and Wildlife Service five-year review for the species is from 2008 (USFWS 2018). The 2008 review indicated that Carter's mustard had been extirpated from Miami-Dade County. The review also states that "It is unlikely to persist outside of conservation lands that are specifically managed to maintain a regime of frequent prescribed fires." (USFWS 2008, pgs.2 and 8)

References:

USFWS (U. S. Fish and Wildlife Service). 2008. Carter's mustard (*Warea carteri*) 5-Year Review: Summary and Evaluation. September 15, 2008.

USFWS. 2018. Environmental Conservation Online System, Species Profile for Carter's mustard (*Warea carteri*). Retrieved from <<https://ecos.fws.gov/ecp0/profile/speciesProfile?sPCODE=Q2MA>> (accessed July 14, 2018).

Associated Enclosures:

None

Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
FPL Response to NRC RAI No. SS-FWS-5
L-2018-136 Attachment 24 Page 1 of 1

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 9, 2018

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

NRC RAI Number: 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.

FPL Response:

There are no known occurrences of the ivory-billed woodpecker on or within the vicinity of Turkey Point.

References:

None

Associated Enclosures:

None

Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
FPL Response to NRC RAI No. SS-NMFS-1
L-2018-136 Attachment 25 Page 1 of 1

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 9, 2018

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

NRC RAI Number: 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.

FPL Response:

The dredge and backfill activities described in Section 9.5.3.1 are associated with the barge-turning basin and Turtle Point Canal restoration projects. The permit application, the permits, and the letter of concurrence are provided as enclosures to Attachment 5. The letter of concurrence is included as an enclosure to this RAI response.

References:

None

Associated Enclosures:

OSM Disk 1 – L-2018-136 Attachment 25 Enclosure 1

USACE (U.S. Army Corps of Engineers). 2017. 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. June 29, 2017.

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 9, 2018

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

NRC RAI Number: 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.

FPL Response:

Barge traffic supporting Turkey Point operations is anticipated to be infrequent during the proposed subsequent license renewal term. The anticipated barge traffic frequency for Turkey Point operations for the proposed subsequent license renewal term is up to five barges in a single year at intervals of four to five years. This anticipated number accounts for Units 1, 2, 3, 4, and 5 and independent spent fuel storage installation operations.

FPL does not hire barge companies for shipments; instead, the barge company would be hired by the FPL vendor to transport the shipment. Standard FPL legal contracts with suppliers require legal compliance in the following sections: Compliance with Laws, Rules and Regulations, Health and Safety and Protection of Property.

FPL does not have any procedures governing barge movement and mooring. The barge transport companies themselves would be subject to and responsible for compliance with federal, state, and local rules and regulations that would be protective of aquatic communities and Biscayne Bay.

The federal, state, and local requirements that the barge transport companies would be subject to include, but are not limited to, the following:

Federal:

Marine Mammal Protection Act

Endangered Species Act

Magnuson-Stevens Fishery Conservation and Management Act

Federal Water Pollution Control Act

State:

Florida Manatee Sanctuary Act

Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
FPL Response to NRC RAI No. SS-NMFS-2
L-2018-136 Attachment 26 Page 2 of 2

Florida Statutes, Title 24, Vessels, Chapters 326 to 328

Florida Administrative Code (FAC) Title 62-150, Hazardous Substance Release Notification

FAC 68C-22.025 State Manatee Protection Zones

FAC 68D-24.013 State Boating Restricted Areas

Local:

Dade County [Miami-Dade County] Manatee Protection Plan (MDC DERM 1995)

References:

MDC DERM (Miami-Dade County Department of Environmental Resources Management). 1995. Metropolitan Dade County, Florida Department of Environmental Resources Management Dade County Manatee Protection Plan, DERM Technical Report 95-5. Retrieved from <<https://www.miamidade.gov/environment/library/reports/manatee-protection-plan.pdf>> (accessed July 16, 2018).

Associated Enclosures:

None

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 9, 2018

Terrestrial Resources (T)

NRC RAI Number: 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.

FPL Response:

- a) FPL does not collect records of nonindigenous plant species within the cooling canal system (CCS) or within the PTN site. However, the following nonindigenous species have been observed by FPL staff within the CCS or within the PTN site. These species are common invasive species that colonize disturbed sites and have been observed for many years in the area; however, the date they were first observed is unknown.
 - Australian pine (*Casuarina equisetifolia*)
 - Beach naupaka (*Scaevola sericea*)
 - Brazilian pepper (*Schinus terebinthifolius*)
 - Burma reed (*Neyraudia reynaudiana*)
 - Melaleuca (*Melaleuca quinquenervia*)
- b) FPL has a maintenance plan to annually remove exotics (e.g., Australian pines, Brazilian pepper) from within CCS canals and berms, along the access roads, and CCS perimeter roads. Equipment used includes an amphibious excavator backhoe and a D-3 Dozer, which uses a 1,000-pound chopper wheel. Removed vegetation from within the CCS is stockpiled on the berms and burned in accordance with the FPL burn permit issued to FPL by the Florida Department of Agriculture and Consumer Services, Permit 1373498. Work in or around active American crocodile nests sites is prohibited from March to August.

The groundskeeping activities for other Turkey Point areas also control invasive species; see Attachment 32.

Construction activities within the PTN certified boundary [as certified under Florida Statute 403.509 (FS 2018), Florida Statutes, and the Florida Electrical Power Plant Siting Act] are required by procedure to have an environmental control program. Construction activities are defined as any clearing of land, excavation, or other action which would alter the physical environment or ecology of the site, but does not include those activities essential for surveying, preliminary site evaluation or environmental studies. The project engineer is further required to meet with the applicable environmental manager to discuss environmental aspects and potential environmental impacts from a project and its compliance with plant procedures, permits, conditions, commitments, etc. The control of exotic species is one of the PTN site's environmental stewardship principles.

References:

FS (Florida Statue) 2018. Title XXIX, Public Health, Chapter 403, Environmental Control, Section 509, Final disposition of application. Retrieved from <<http://www.flsenate.gov/Laws/Statutes/2018/403.509>> (accessed July 21, 2018).

Associated Enclosures:

None

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 9, 2018

Terrestrial Resources (T)

NRC RAI Number: 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.

FPL Response:

In 2008, vegetation surveys were conducted in preparation of the Turkey Point Units 6 & 7 combined licenses application. The vegetation was described in Section 2.4 of the U.S. Nuclear Regulatory Commission's (NRC's) October 2016 environmental impact statement (NRC 2016).

Florida Power & Light (FPL) conducts monitoring of terrestrial vegetation (marsh and mangroves) at 32 plots located north, west, and south of the cooling canal system (CCS). This monitoring was established as a condition of the State of Florida site certification (FPL 2009). The data and summaries of results for surveys conducted prior to the PTN uprate are found in FPL's 2012 initial ecological condition characterization report (EEI 2012). FPL summarized the results and reported data for vegetation surveys conducted annually from 2014 through 2017. The 2017 annual report states that the overall trends in species diversity and evenness have remained consistent to pre-uprate conditions. The structure and composition of the scrub mangrove and sawgrass marsh communities within the study areas have remained stable throughout the entire monitoring effort. The 2018 is currently under review and will be submitted to the agencies August 31, 2018.

In 2011, FPL completed a native tree survey of upland areas potentially impacted by the proposed Turkey Point Units 6 & 7 project in response to an RAI from the Miami-Dade County (MDC) Department of Environmental Resource Management (DERM) for the Florida Department of Environmental Protection's site certification application. The survey was requested for MDC DERM's understanding of the existing canopy coverage and presence of non-exempt trees (as defined by MDC DERM) for onsite areas potentially impacted by the proposed Turkey Point Units 6 & 7 project. The survey report is provided in Enclosure 1. The enclosure also includes a tabular summary of the trees observed.

Portions of the area between SW 328th Street between SW 137th Avenue and SW 117th Avenue were also surveyed in response to the MDC DERM RAI. No non-exempt trees were observed within this area, as it is dominated by the existing roadway, associated cleared right-of-way, wetlands, exotic species, and adjacent tree nurseries.

Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
FPL Response to NRC RAI No. T-2
L-2018-136 Attachment 28 Page 2 of 2

References:

EEl (Ecology and Environment, Inc.). 2012. Turkey Point Plant Comprehensive Post-Uprate Monitoring Report Units 3 & 4 Uprate Project. October 31, 2012. Publicly available at <https://www.sfwmd.gov/documents-by-tag/fpltpsurvey?sort_by=title&sort_order=ASC> (accessed July 31, 2018).

EEl. 2016. Turkey Point Plant Comprehensive Post-Uprate Monitoring Report Units 3 & 4 Uprate Project. March 31, 2016. Publicly available at <<http://prodenv.dep.state.fl.us/DepNexus/public/searchPortal> using Document Search with document date 03/31/2016 and Permit/Application Number PA03-45> (accessed July 31, 2018).

EEl. 2017. Turkey Point Plant Annual Monitoring Report, September 2017. (Provided as ER reference EEl 2017.)

FPL (Florida Power & Light). 2009. FPL Turkey Point Power Plant Groundwater, Surface Water, and Ecological Monitoring Plan, Exhibit B. October 14, 2009. ADAMS Ascension No. ML12193A539.

NRC (U.S. Nuclear Regulatory Commission). 2016. *Environmental Impact Statement for Combined Licenses (COLs) for Turkey Point Nuclear Plant Units 6 and 7*. NUREG-2176, Volume 1. October 2016.

Associated Enclosures:

OSM Disk 1 – L-2018-136 Attachment 28 Enclosure 1

Golder (Golder Associates). 2011. Tree Survey, Turkey Point Units 6 & 7 Project. June 27, 2011.

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 9, 2018

Terrestrial Resources (T)

NRC RAI Number: 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.

FPL Response:

Surveys were conducted within the vicinity of the Turtle Point and barge-turning basin water quality improvement projects on May 23, 2016. The results are provided in Table 2.2 of the joint application (FPL 2016, provided as Enclosure 1 of Attachment 5). A comparison with the list of state-protected species (FNAI 2018) indicated no state-listed species were observed during those surveys other than the state and federally listed American crocodile (*Crocodylus acutus*).

State-listed avian species were observed during the Florida Power & Light (FPL) Turkey Point Cooling Canal System Characterization Study conducted December 5-7, 2016, at the PTN cooling canals. The state-listed avian species observed were wood storks (*Mycteria americana*) (also federally listed), little blue herons (*Egretta caerulea*), tricolored herons (*Egretta tricolor*), reddish egrets (*Egretta rufescens*), and roseate spoonbills (*Platalea ajaja*) (EAI 2017, provided as Enclosure 5 of Attachment 5).

Information on observations of avian species, including state-listed reddish egrets and roseate spoonbills, are included in Attachment 5. Based on the professional judgement of FPL staff, reddish egrets and roseate spoonbills are among the 10 most often observed birds protected under the Migratory Bird Treaty Act at the PTN site.

The species discussed above are included on Table 2-15 of NRC's final EIS for Units 6 and 7 (NRC 2016) with the exceptions of the American crocodile and the wood stork, which as species that are federally listed as well as state listed, are included on FEIS Tables 2-12 and 2-28.

References:

FNAI (Florida Natural Areas Inventory). 2018. FNAI Tracking List Florida All Counties. March 2018. Retrieved from <<http://fnai.org/trackinglist.cfm>> after selecting the button next to "County" and selecting "Miami-Dade" from the dropdown menu and clicking the "Perform search" button (accessed July 21 and 23, 2018).

Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
FPL Response to NRC RAI No. T-3
L-2018-136 Attachment 29 Page 2 of 2

FPL (Florida Power & Light). 2016. Joint Application for Individual Environmental Resource Permit/Authorization to us State-Owned Submerged Lands/Federal Dredge and Fill Permit, Turtle Point and Barge Canal/Basin Water Quality Improvement Projects. August 2, 2016. Provided as Enclosure 1 of Attachment 5.

FPL (Florida Power & Light). No date. FPL Turkey Point Cooling Canal System Characterization Study. Report on a study conducted December 5–7, 2016. Provided as Enclosure 5 of Attachment 5.

NRC (U.S. Nuclear Regulatory Commission). 2016. *Environmental Impact Statement for Combined Licenses (COLs) for Turkey Point Nuclear Plant Units 6 and 7*. NUREG-2176, Volume 1. October 2016.

Associated Enclosures:

None

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 9, 2018

Terrestrial Resources (T)

NRC RAI Number: 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 forticatus*)
 - 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).

FPL Response:

- a) The species listed in Table 1, below, have been observed on site at Turkey Point (PTN). The table lists the species, the relative frequency the species has been observed on site at PTN, and how the species uses the site. The table provides information on species listed in Part A of the RAI.

Table 2 provides information on species listed in the RAI that were not observed on site or if positive species identification has not been confirmed (e.g. Unknown) on site.

- b) Table 3 lists other commonly observed species that are protected under the MBTA. The most commonly observed species are the roseate spoonbill, the green heron, the belted kingfisher, the little blue heron, the great blue heron, the cattle egret, the snowy egret, the white ibis, the killdeer, and the common nighthawk.

Several species have been observed breeding on the site as indicated in Table 1 and Table 3. The least turn, killdeer, and the common nighthawk tend to breed on the cooling canal system (CCS) berms and near gravel roads within the CCS. The great horned owl, red bellied woodpecker, and screech owl breed in wooded undisturbed areas on site. The green heron typically breeds near the mangroves

on the western boundary of Biscayne Bay, adjacent to Card Sound Canal, and along the interceptor ditch. Birds occasionally visit the industrial areas but generally prefer to stay in the more natural areas.

Table 1

MBTA Species	Observations at PTN	Use of Onsite Habitat
Bald eagle (<i>Haliaeetus leucocephalus</i>)	Rarely observed onsite	Foraging
Brown pelican (<i>Pelecanus occidentalis</i>)	Occasionally observed onsite	Resting and foraging
Common loon (<i>Gavia immer</i>)	Rarely observed onsite	Unknown how species uses site
Double-crested cormorant (<i>Phalacrocorax auritus</i>)	Frequently observed onsite	Resting and foraging
Least tern (<i>Sterna antillarum</i>)	Frequently observed onsite	Resting, foraging, breeding
Lesser yellowlegs (<i>Tringa flavipes</i>)	Occasionally observed onsite	Resting and foraging
Reddish egret (<i>Egretta rufescens</i>)	Frequently observed onsite	Resting and foraging
Royal tern (<i>Thalasseus maximus</i>)	Frequently observed onsite	Resting and foraging
Smooth-billed ani (<i>Crotophaga ani</i>)	Rarely observed onsite	Resting and foraging
Swallow-tailed kite (<i>Elanoides forticatus</i>)	Rarely observed onsite	Resting and foraging
White-crowned pigeon (<i>Patagioenas leucocephala</i>)	Frequently observed onsite	Resting and foraging

Table 2

MBTA Species	Observations at PTN
American oystercatcher (<i>Haematopus palliatus</i>)	Unknown
Arctic tern (<i>Sterna paradisaea</i>)	Not observed onsite
Audubon's shearwater (<i>Puffinus lherminieri</i>)	Unknown
Band-rumped storm-petrel (<i>Oceanodroma castro</i>)	Not observed onsite
Black rail (<i>Laterallus jamaicensis</i>)	Unknown
Black scoter (<i>Melanitta nigra</i>)	Not observed onsite
Black skimmer (<i>Rynchops niger</i>)	Unknown
Black-whiskered vireo (<i>Vireo altiloquus</i>)	Unknown

Table 2

MBTA Species	Observations at PTN
Bonaparte's gull (<i>Chroicocephalus philadelphia</i>)	Not observed onsite
Bridled tern (<i>Onychoprion anaethetus</i>)	Not observed onsite
Clapper rail (<i>Rallus crepitans</i>)	Unknown
Common eider (<i>Somateria mollissima</i>)	Not observed onsite
Common tern (<i>Sterna hirundo</i>)	Not observed onsite
Cory's shearwater (<i>Calonectris diomedea</i>)	Not observed onsite
Great black-backed gull (<i>Larus marinus</i>)	Not observed onsite
Herring gull (<i>Larus argentatus</i>)	Not observed onsite
King rail (<i>Rallus elegans</i>)	Unknown
Limpkin (<i>Aramus guarauna</i>)	Unknown
Long-tailed duck (<i>Clangula hyemalis</i>)	Not observed onsite
Magnificent frigatebird (<i>Fregata magnificens</i>)	Not observed onsite
Mangrove cuckoo (<i>Coccyzus minor</i>)	Not observed onsite
Manx shearwater (<i>Puffinus puffinus</i>)	Not observed onsite
Nelson's sparrow (<i>Ammodramus nelson</i>)	Unknown
Northern gannet (<i>Morus bassanus</i>)	Not observed onsite
Parasitic jaeger (<i>Stercorarius parasiticus</i>)	Not observed onsite
Pomarine jaeger (<i>Stercorarius pomarinus</i>)	Not observed onsite
Prairie warbler (<i>Dendroica discolor</i>)	Unknown
Prothonotary warbler (<i>Protonotaria citrea</i>)	Unknown
Razorbill (<i>Alca torda</i>)	Not observed onsite
Red phalarope (<i>Phalaropus fulicarius</i>)	Not observed onsite
Red-breasted merganser (<i>Mergus serrator</i>)	Not observed onsite
Red-headed woodpecker (<i>Melanerpes erythrocephalus</i>)	Unknown
Red-necked phalarope (<i>Phalaropus lobatus</i>)	Not observed onsite
Ring-billed gull (<i>Larus delawarensis</i>)	Not observed onsite
Roseate tern (<i>Sterna dougallii</i>)	Not observed onsite
Seaside sparrow (<i>Ammodramus maritimus</i>)	Unknown
Semipalmated sandpiper (<i>Calidris pusilla</i>)	Unknown
Short-billed dowitcher (<i>Limnodromus griseus</i>)	Unknown
Short-tailed hawk (<i>Buteo brachyurus</i>)	Unknown
Sooty tern (<i>Onychoprion fuscatus</i>)	Not observed onsite

Table 2

MBTA Species	Observations at PTN
Whimbrel (<i>Numenius phaeopus</i>)	Unknown
White-winged scoter (<i>Melanitta fusca</i>)	Unknown
Willet (<i>Tringa semipalmata</i>)	Unknown
Wilson's plover (<i>Charadrius wilsonia</i>)	Unknown
Wilson's storm-petrel (<i>Oceanites oceanicus</i>)	Not observed onsite

Note: An observation of "Unknown" indicates that positive species identification has not been confirmed on-site.

Table 3

MBTA Species	Observations at PTN	Use of Onsite Habitat
Anhinga (<i>Anhinga anhinga</i>)	Occasionally observed onsite	Resting and foraging
Belted kingfisher (<i>Megaceryle alcyon</i>)	Frequently observed onsite	Resting and foraging
Cattle egret (<i>Bubulcus ibis</i>)	Frequently observed onsite	Resting and foraging
Flycatcher (<i>Empidonax sp.</i>)	Occasionally observed onsite	Resting and foraging
Gray kingbird (<i>Tyrannus dominicensis</i>)	Frequently observed onsite	Resting and foraging
Great blue heron (<i>Ardea herodias</i>)	Frequently observed onsite	Resting and foraging
Great egret (<i>Ardea alba</i>)	Frequently observed onsite	Resting and foraging
Great horned owl (<i>Bubo virginianus</i>)	Rarely observed onsite	Resting, foraging, breeding
Great white pelican (<i>Pelecanus erythrorhynchos</i>)	Frequently observed onsite	Resting and foraging
Green heron (<i>Butorides virescens</i>)	Frequently observed onsite	Resting, foraging, breeding
Killdeer (<i>Charadrius vociferus</i>)	Frequently observed onsite	Resting, foraging, breeding
Little blue heron (<i>Egretta caerulea</i>)	Frequently observed onsite	Resting and foraging
Common nighthawk (<i>Chordeiles minor</i>)	Frequently observed onsite	Resting, foraging, breeding
Northern harrier (<i>Circus hudsonius</i>)	Frequently observed onsite	Resting and foraging

Table 3

MBTA Species	Observations at PTN	Use of Onsite Habitat
Osprey (<i>Pandion haliaetus</i>)	Frequently observed onsite	Resting and foraging
Peregrine falcon (<i>Falco peregrinus</i>)	Occasionally observed onsite	Resting and foraging
Red bellied woodpecker (<i>Melanerpes carolinus</i>)	Frequently observed onsite	Resting, foraging, breeding
Roseate spoonbill (<i>Platalea ajaja</i>)	Frequently observed onsite	Resting and foraging
Screech owl (<i>Megascops asio</i>)	Occasionally observed onsite	Resting, foraging, breeding
Snowy egret (<i>Egretta thula</i>)	Frequently observed onsite	Resting and foraging
Tri-colored heron (<i>Egretta tricolor</i>)	Frequently observed onsite	Resting and foraging
White ibis (<i>Eudocimus albus</i>)	Frequently observed onsite	Resting and foraging
Woodstork (<i>Mycteria americana</i>)	Occasionally observed onsite	Resting and foraging

References:

None

Associated Enclosures:

None

Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
FPL Response to NRC RAI No. T-5
L-2018-136 Attachment 31 Page 1 of 1

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 9, 2018

Terrestrial Resources (T)

NRC RAI Number: 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).

FPL Response:

There have been no known occurrences or nesting of golden eagles at the PTN site. There are no known bald eagle nests on the site. As indicated in Attachment 30, bald eagles are rarely observed at PTN and use the site for foraging.

References:

None

Associated Enclosures:

None

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 9, 2018

Terrestrial Resources (T)

NRC RAI Number: 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.

FPL Response:

- a) For the purposes of ER Section 4.6.5, maintenance activities are defined as groundskeeping activities and routine upkeep of the plant grounds, infrastructure, and monitoring stations. FPL has landscaped areas and maintains these areas by groundskeeping activities (e.g., mowing, weed-eating, hedge trimming, weed removal, herbicide application, tree trimming, brush removal, and debris removal). A list of landscaping activities, frequency, and locations is enclosed. These maintenance activities take place within landscaped areas and at or in close proximity to areas of continuous or frequent human activity; therefore, they are not activities that would be anticipated to impact terrestrial resources. Routine upkeep that could occur in the more natural areas of PTN includes hand and mechanical vegetative control, hand and mechanical debris removal, maintenance of the cooling canal system (CCS) access roads (e.g., mechanical scrapping and aggregate placement), underground piping repair (e.g., digging and equipment staging), and equipment replacement at groundwater wells and monitoring stations. While these activities would be in closer proximity to terrestrial habitat areas, their limited nature and the mobility of terrestrial faunal species would minimize the potential for impacting terrestrial resources.

FPL has a maintenance plan for the CCS that addresses maintenance activities on berms and specific activities and restrictions for those berms identified as crocodile sanctuaries based on historic nesting behavior. FPL annually removes exotics (e.g., Australian pines, Brazilian pepper) from the CCS canals and berms, along the access roads, and CCS perimeter roads. On crocodile sanctuary berms, native vegetation is maintained and all exotics are removed. On all other berms, power equipment is used to maintain small brush, grass, and weeds to a

low and consistent level. In addition, all moderately sized vegetation is removed. Equipment used includes an amphibious excavator backhoe and a D-3 Dozer, which uses a 1,000-pound chopper wheel. Removed vegetation from within the CCS is stockpiled on the berms and burned in accordance with the FPL burn permit issued to FPL by the Florida Department of Agriculture and Consumer Services, Permit 1373498.

- b) Maintenance activities within the PTN certified boundary¹ that involve ground disturbance or other alteration of the physical environment or ecology (i.e., those with the potential to impact terrestrial resources) would have an environmental control program as required by the FPL construction activities procedure due to the broad definition of construction activities. Construction activities are defined in the procedure as any clearing of land, excavation, or other action which would alter the physical environment or ecology of the site, but does not include those activities essential for surveying, preliminary site evaluation, or environmental studies.

The construction activities procedure also instructs that if the construction project disturbs one or more acres of land, a stormwater permit and stormwater pollution prevention plan will be required per Florida Department of Environmental Protection (FDEP) regulations. Applicable BMPs for controlling stormwater runoff would include those listed in the FDEP generic stormwater permit, which includes soil stabilization such as seeding and structural controls such as silt fences.

The CCS berm maintenance plan includes procedures specific to crocodile sanctuary berm maintenance. The procedure addresses scheduling of maintenance procedures to minimize impacts during nesting season as well as pre- and post-nesting activities. Work in or around active American crocodile nests sites during March to August is prohibited. Furthermore, work on any crocodile sanctuary or critical habitat must receive approval by the onsite crocodile program biologist, and only trained operators can work on crocodile sanctuaries or critical habitat. The crocodile sanctuary berm maintenance procedure also addresses the need to avoid leaving ruts and depressions in the earth of crocodile sanctuary berms as well as avoiding compaction of the earth that would inhibit a crocodile's ability to dig to prepare its nesting site. As discussed in Attachment 20, FPL has installed signs surrounding the berms that support least tern nesting to alert anyone conducting maintenance on the berms.

FPL's crocodile management plan discussed in Attachment 22 includes protective measures near nesting sites and constraints on construction maintenance activities at night (FPL 2009).

¹ PTN certified boundary: Certified under Chapter 403.509, Florida Statutes, and the Florida Electrical Power Plant Siting Act.

Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
FPL Response to NRC RAI No. T-6
L-2018-136 Attachment 32 Page 3 of 3

References:

FPL (Florida Power & Light). 2009. FPL Turkey Point Units 6 & 7 Threatened and Endangered Species Evaluation and Management Plan, included as Site Certification Application for the Turkey Point Units 6 & 7 Project, Appendix 10.7.1.3, T&E Species Evaluation, pdf. June 2009. Publicly available at <http://publicfiles.dep.state.fl.us/Siting/Outgoing/Web/TurkeyPt/Applications/FPL_Turkey_Point_Units_6_7_SCA/Appendices_SCA/SCA%20Appendix%2010.7_Monitoring%20Programs/SCA%20APPENDIX%2010.7.1.3_T&E%20Species%20Evaluation.pdf> (accessed July 25, 2018).

Associated Enclosures:

OSM Disk 1 – L-2018-136 Attachment 32 Enclosure 1

FPL (Florida Power & Light). 2016. Exhibit B-1 Detailed Scope of Work for Grounds Keeping Duties in Support of the Turkey Point Plan Land Utilization Services and Cooling Canal System Maintenance Group.

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 9, 2018

Terrestrial Resources (T)

NRC RAI Number: 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.

FPL Response:

Section 4.6.5.3 is a background discussion of the land disturbances considered by the NRC (NRC 2013) in GEIS Section 4.6.1.1 for license renewal. As discussed in ER Section 4.6.5.4, the proposed action does not include construction of new facilities (e.g., parking areas for plant employees, access roads, buildings, and facilities and associated temporary project support areas).

References:

NRC (Nuclear Regulatory Commission). 2013. *Generic Environmental Impact Statement for License Renewal of Nuclear Power Plants*. NUREG-1437, Vols. 1 and 3, Revision 1. June 2013.

Associated Enclosures:

None

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 9, 2018

Terrestrial Resources (T)

NRC RAI Number: 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.

FPL Response:

FPL has administrative procedures that establish the policies and general requirements for ongoing operations, maintenance, and construction activities to be conducted in accordance with the PTN's Environmental Protection Plan (Appendix B to the PTN operating licenses), the Conditions of Certification (CoC) for PTN's site certification (FDEP 2016), and applicable federal, state, and local regulations and permit conditions. FPL's procedures specify the requirements and permits applicable to the various PTN facilities, operations and maintenance activities, and construction activities. These procedures assign responsibilities for compliance with these environmental requirements and make staff aware of the existing permits and the conditions for when a new permit is needed. The procedures include environmental review questions and checklists that screen activities for compliance with CoCs and identify activities that would cause any environmental impacts, such as changes in discharges/emissions, effects on existing storm water system, disturbance of natural areas or impacts to wetlands.

The administrative procedures for environmental protection/control specify responsibilities for carrying out and overseeing environmental reviews and ensuring compliance. FPL has appointed environmental managers for specific functional areas to be responsible for oversight of all the environmental activities at PTN including conducting reviews of proposed facility or operational changes that impact the environment and shepherding implementation plans of new regulations and permits and environmental training for plant personnel. The functional managers are supported by land utilization staff, fossil and nuclear plant staff, PTN licensing, and corporate environmental staff.

FPL carries out maintenance activities applying specific work practices, procedures, and scheduling (i.e., best management practices) to minimize impacts to terrestrial resources with an emphasis on the PTN's endangered species. Please see Attachment 32 for a discussion of the maintenance activities and the practices to reduce impacts to terrestrial resources.

Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
FPL Response to NRC RAI No. T-8
L-2018-136 Attachment 34 Page 2 of 2

FPL's administrative procedure addressing construction activities specifies the stormwater permitting requirements and includes the state-required best management practices, including stormwater pollution prevention plans applicable to construction sites. FPL maintenance activities that could require a construction stormwater permit would obtain the required permit and comply with the stormwater management and BMPs requirements. Ongoing stormwater management at the PTN site is discussed in ER Section 3.6.1.4.2.

See Attachment 27 for discussion of nonindigenous plant species control.

References:

FDEP (Florida Department of Environmental Protection). 2016. Conditions of Certification, Florida Power & Light Company, Turkey Point Plant, Units 3 and 4 Nuclear Power Plant, Unit 5 Combined Cycle Plant, Facility ID No. 0250003, Miami-Dade County, Title V Air Operation Permit Renewal, PA 03-45E. March 29, 2016. Provided as ER reference FDEP 2016.

Associated Enclosures:

None

Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
FPL Response to NRC RAI No. T-9
L-2018-136 Attachment 35 Page 1 of 1

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 9, 2018

Terrestrial Resources (T)

NRC RAI Number: 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.

FPL Response:

No restoration activities are planned at the PTN site during the subsequent period of extended operations. The current restoration projects at Turtle Point and the barge-turning basin (see federal and state permits for these at OSM Disk 1 – L-2018-136 Attachment 5 Enclosures 2 and 4) could have ongoing post-completion monitoring extending into the subsequent license renewal period. The Everglades Mitigation Bank has completed all of its permitted habitat enhancement activities and is in maintenance mode.

References:

None

Associated Enclosures:

None

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 9, 2018

Socioeconomics (SOC)

NRC RAI Number: 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.

FPL Response:

SOC-1 UPDATED Tax Table Information 2017						
	2012	2013	2014	2015	2016	2017
FPL Total Property Tax Paid (Real and Tangible Personal Property)	\$15,651,284	\$38,323,568	\$48,493,514	\$48,081,261	\$46,466,750	\$42,363,214
Fossil Units 1-2	\$1,339,433	\$941,380	\$583,403	\$2,063,697	\$2,018,405	Decommissioned
Gas Unit 5	\$7,658,639	\$7,769,143	\$7,315,900	\$7,021,587	\$6,565,399	\$5,793,164
Nuclear Units 3-4	\$6,653,212	\$29,613,045	\$40,594,211	\$38,995,977	\$37,882,946	\$36,570,050
Miami-Dade County Operating Property Tax Revenues (Actual)	\$1,297,333,000	\$1,264,643,000	\$1,351,331,000	\$1,468,496,000	\$1,585,671,000	\$1,731,538,000
School Property Tax (Levied)	\$1,525,140,000	\$1,584,376,000	\$1,647,236,000	\$1,872,320,000	\$1,995,314,000	\$2,085,643,000
Percent Payment Assigned to County	51.8	51.6	52.0	52.3	53.4	54.3
Percent Payment Assigned to School District	42.6	43.2	42.8	42.7	41.7	40.9
Percent Payment Assigned to Special Districts	5.6	5.2	5.1	4.9	4.9	4.8

(Sources: MDC 2018a, MDC 2018b, MDCPS 2017)

References:

MDC (Miami-Dade County). 2018a. Business Plan, Adopted Budget, and Five-Year Financial Outlook, Volume 1, "Adopted Budget and Multi-Year Capital Plan," 2016–2017. Retrieved from <<http://www.miamidade.gov/budget/fy16-17-adopted-volume-1.asp>> see display header Volume 1, select "The FY 2016-17 Adopted Budget" (accessed June 8, 2018).

MDC. 2018b. Comprehensive Annual Financial Report FY 2016-2017. Retrieved from <<http://www.miamidade.gov/finance/annual-reports.asp>> see display header Comprehensive Annual Financial Reports, select "Comprehensive Annual Financial Report 2017" (accessed June 8, 2018).

Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
FPL Response to NRC RAI No. SOC-1
L-2018-136 Attachment 36 Page 2 of 2

MDCPS (Miami-Dade County Public Schools). 2017. Comprehensive Annual Financial Reports—FY Years Ended (June 30) 2017. Retrieved from <<http://financialaffairs.dadeschools.net/manuals.asp>> see display header M-DCPS Financial Services, scroll to Comprehensive Annual Financial Report sub header, select “2017 Comprehensive Annual Financial Report” (accessed June 8, 2018).

Associated Enclosures:

None

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 9, 2018

Socioeconomics (SOC)

NRC RAI Number: 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.

FPL Response:

- a) FPL contributes to the Miami-Dade community through \$1.5 million in annual contributions and hundreds of volunteer hours logged by employees. These contributions are provided to organizations throughout the community who focus on health and human services, civic, education, the environment, and arts and culture.
- b) In 2017, PTN paid approximately \$224K in local option taxes to Miami-Dade County from PTN operations expenses.

References:

None

Associated Enclosures:

None

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 9, 2018

Socioeconomics (SOC)

NRC RAI Number: 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.

FPL Response:

The contract worker information requested is provided below. Please note that the increase in the 2013 value is associated with the extended power uprate (EPU) project.

Year	Contract Workers
2013	763
2014	390
2015	386
2016	397
2017	378

Note: The ER Section 2.5 cited 366 contract workers includes staff badged by FPL (as of August 2017) for the PTN work location for over 365 days.

References:

None

Associated Enclosures:

None

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 9, 2018

Socioeconomics (SOC)

NRC RAI Number: 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?

FPL Response:

Note:

- a) The tax payment increases from 2012 to 2013 and 2013 to 2014 are due to the timing of having the EPU investment in service on the lien date. When the investment is made in one year, it will not be taxable until the next year. For PTN Units 3 & 4, the lien date is January 1, so whatever was in service on that date was taxed.
- b) Additional equipment modifications (e.g. reactor plant equipment, turbogenerator units, accessory electric equipment, and miscellaneous power plant equipment) took place in 2013, which contributed to the 2014 tax increase.

Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
FPL Response to NRC RAI No. SOC-4
L-2018-136 Attachment 39 Page 2 of 2

References:

None

Associated Enclosures:

None

Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
FPL Response to NRC RAI No. WM-1
L-2018-136 Attachment 40 Page 1 of 1

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 9, 2018

Waste Management (WM)

NRC RAI Number: 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?

FPL Response:

Based on the listing of calls received by the U.S. Coast Guard National Response Center, there have been no reportable spills triggering the 40 CFR Part 110 notification requirement at Turkey Point since the ER was written (USCG 2018).

References:

USCG (U.S. Coast Guard). 2018. 2018 Reports. Excel spreadsheet. Retrieved from <<http://www.nrc.uscg.mil/>> (accessed July 20, 2018). Click on the link for "2018 Reports" and the spreadsheet downloads automatically.

Associated Enclosures:

None

Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
FPL Response to NRC RAI No. WM-2
L-2018-136 Attachment 41 Page 1 of 1

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 9, 2018

Waste Management (WM)

NRC RAI Number: 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?

FPL Response:

There have been no reportable spills triggering the FAC 62-780.110 notification requirement since the ER was submitted.

References:

None

Associated Enclosures:

None

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 9, 2018

Water Resources (WR)

NRC RAI Number: 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).

FPL Response:

FPL began operational testing of the underground injection control well DIW-1 on September 28, 2016, under the Florida Department of Environmental Protection (FDEP) operational testing authorization dated September 21, 2016. The operational testing phase utilized four interim extraction wells until the full 10-well (RW-1 through RW-10) RWS was constructed and began operation on May 15, 2018.

The RWS will pump up to 15 million gallons per day (MGD) of recovered hypersaline groundwater from the Biscayne Aquifer into the deep injection well (DIW) to control the saline plume in the Biscayne Aquifer in the vicinity of PTN.

The locations of the DIW and dual zone monitoring well (DZMW) are included in the FPL report "Report on the Mechanical Integrity Testing of Deep Injection Well DIW-1 at the Florida Power & Light Turkey Point Power Plant" (FPL 2017).

The ten RWS wells (extraction wells) are located northwest and west of the cooling canal system (CCS).

- RW-1 is located on the southeast side of the FPL day care center, on the south side of East Palm Drive (SW 344 Street), approximately 1,200 feet west of its intersection with L-31E/Biscayne Trail. Piping from RW-1 runs eastward along the south side of East Palm Drive, then turns south to SW 360th Street at the discharge canal entrance to the CCS.
- RW-2 is located on a gravel road 1,450 feet north of SW 360th Street (bordering the north side of the CCS), approximately 3,700 feet west of its intersection with Palm Drive on the north side of the discharge canal bridge. Piping runs south along the gravel road to join the header on the north side of SW 360th Street.
- RW-3 is located on a gravel road approximately midway between the north end of the interceptor ditch and the L-31 canal. Piping runs east along the gravel road to join the header on the west side of the interceptor ditch.

- RW-4 through RW-10 are located on the west side of the interceptor ditch, approximately spaced every 4,100 feet south of RW-3. Piping runs along the west side of the interceptor ditch.
- All piping from the recovery wells runs south from the discharge canal entrance to the CCS to the DIW.
- The ten extraction wells are installed into the Biscayne Aquifer at approximately 100 feet below ground surface. The extraction wells are connected in parallel with 14-inch diameter, fusion-welded HDPE DR15 piping to a common 28-inch diameter HDPE DR15 main header used to transmit recovered hypersaline water to a permitted Class I underground DIW. Approximately 9.5 miles of fusion-welded HDPE pressure-rated water piping is used to transmit the recovered hypersaline water to the DIW. A pipe bridge is installed to allow the HDPE piping to cross the CCS discharge canal.
- Each extraction well is equipped with a 1.5 MGD electric power driven well pump, sealed well head, variable frequency drive (VFD), pump controls, and telemetry. Each extraction well pump discharge is fitted with backflow prevention, a magnetic flow meter, a pressure transducer, a pump discharge pressure transmitter, sample tap, and an air release valve. Water quality monitoring stations at each recovery well obtain specific conductance and temperature data (transmitted via the attached telemetry system).
- The extraction wells are operated with programmable logic controllers and variable frequency driven well motor pump sets. All ten extraction wells are controlled and continuously monitored via remote secure radio communication telemetry to a main control building located at the DIW. The electrical equipment for each well is located in a control enclosure (sea-land cargo container).
- The well pump motors, VFDs, and other electrical equipment, are powered by a new 6.5-mile 13.2-kv feeder that is an aerial (pole-mounted), oil-filled 3-167 kVA transformer banks provided by PTN Transmission & Distribution, and one existing transformer bank near the practice range.

The final recovery well design drawings (well location and construction figures) have not yet been published and are not currently available for release. It is anticipated that the plans will be submitted to state agencies within the RWS start-up report.

References:

FPL (Florida Power & Light). 2017. Report on the Mechanical Integrity Testing of Deep Injection Well DIW-1 at the Florida Power & Light Turkey Point Power Plant. June 2017. Retrieved from [https://depedms.dep.state.fl.us:443/Oculus/servlet/shell?command=getEntity&\[guid=35.102286.1\]&\[profile=Discovery_Compliance\]](https://depedms.dep.state.fl.us:443/Oculus/servlet/shell?command=getEntity&[guid=35.102286.1]&[profile=Discovery_Compliance]). Link brings the viewer to the Oculus login page, must select button "PUBLIC OCULUS LOGIN", then select the Acrobat symbol under "File Type" to open the file (accessed July 17, 2018).

Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
FPL Response to NRC RAI No. WR-1
L-2018-136 Attachment 42 Page 3 of 3

Associated Enclosures:

None

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 9, 2018

Water Resources (WR)

NRC RAI Number: 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.

FPL Response:

Monthly volumes, operational status (installed/operational/off) for the wells requested are provided in Enclosure 20.

Copies of water withdrawal reports and online pumpage reports (after March 2017) submitted to the South Florida Water Management District (SFWMD) from January 2015 through the second quarter of 2018 are included as Enclosures 1 through 19. These reports include information regarding monthly operations of each well (FPL 2015a through 2015c, FPL 2016a through 2016f, FPL 2017a through 2017f, FPL 2018a, FPL 2018b).

References:

None

Associated Enclosures:

OSM Disk 1 – L-2018-136 Attachment 43 Enclosure 1

FPL (Florida Power & Light). 2015a. FPL Turkey Point Unit 5 Groundwater Monitoring Plan, Thirty-Ninth Quarterly Well Report. February 12, 2015.

OSM Disk 1 – L-2018-136 Attachment 43 Enclosure 2

FPL. 2015a. FPL Turkey Point Unit 5 Groundwater Monitoring Plan, Fortieth Quarterly Well Report. May 12, 2015.

OSM Disk 1 – L-2018-136 Attachment 43 Enclosure 3

FPL. 2015b. FPL Turkey Point Unit 5 Groundwater Monitoring Plan, Forty-First Quarterly Well Report. August 6, 2015.

Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
FPL Response to NRC RAI No. WR-2
L-2018-136 Attachment 43 Page 2 of 3

OSM Disk 1 – L-2018-136 Attachment 43 Enclosure 4

FPL. 2015c. FPL Turkey Point Unit 5 Groundwater Monitoring Plan, Forty-Second Quarterly Well Report. November 13, 2015.

OSM Disk 1 – L-2018-136 Attachment 43 Enclosure 5

FPL. 2016a. FPL Turkey Point Unit 5 Groundwater Monitoring Plan, Forty-Third Quarterly Well Report. February 16, 2016.

OSM Disk 1 – L-2018-136 Attachment 43 Enclosure 6

FPL. 2016b. FPL Turkey Point Unit 5 Groundwater Monitoring Plan, Forty-Fourth Quarterly Well Report. May 16, 2016.

OSM Disk 1 – L-2018-136 Attachment 43 Enclosure 7

FPL. 2016c. FPL Turkey Point Unit 5 Groundwater Monitoring Plan, Forty-Fifth Quarterly Well Report. August 9, 2016.

OSM Disk 1 – L-2018-136 Attachment 43 Enclosure 8

FPL. 2016d. Conditions of Certification PA 03-45E for Turkey Point Units 3-5. Monthly Water Withdrawal Report. September 30, 2016.

OSM Disk 1 – L-2018-136 Attachment 43 Enclosure 9

FPL. 2016e. FPL Turkey Point Unit 5 Groundwater Monitoring Plan, Forty-Sixth Quarterly Well Report. November 15, 2016.

OSM Disk 1 – L-2018-136 Attachment 43 Enclosure 10

FPL. 2016f. Conditions of Certification PA 03-45E for Turkey Point Units 3-5. Monthly Water Withdrawal Report. December 21, 2016.

OSM Disk 1 – L-2018-136 Attachment 43 Enclosure 11

FPL. 2017a. FPL Turkey Point Unit 5 Groundwater Monitoring Plan, Forty-Seventh Quarterly Well Report. February 13, 2017.

OSM Disk 1 – L-2018-136 Attachment 43 Enclosure 12

FPL. 2017b. Conditions of Certification PA 03-45E for Turkey Point Units 3-5. Monthly Water Withdrawal Report. March 17, 2017.

OSM Disk 1 – L-2018-136 Attachment 43 Enclosure 13

FPL. 2017c. Conditions of Certification PA 03-45E for Turkey Point Units 3-5. Monthly Water Withdrawal Report. June 23, 2017.

OSM Disk 1 – L-2018-136 Attachment 43 Enclosure 14

FPL. 2017d. Pumpage Report for Water Use Permit, Permit Number 13-00003-W. July 27, 2017.

OSM Disk 1 – L-2018-136 Attachment 43 Enclosure 15

FPL. 2017e. FPL Turkey Point Unit 5 Quarterly Well Report. August 6, 2017.

Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
FPL Response to NRC RAI No. WR-2
L-2018-136 Attachment 43 Page 3 of 3

OSM Disk 1 – L-2018-136 Attachment 43 Enclosure 16

FPL. 2017f. Pumpage Report for Water Use Permit, Permit Number 13-00003-W.
October 17, 2017.

OSM Disk 1 – L-2018-136 Attachment 43 Enclosure 17

FPL. 2018a. Pumpage Report for Water Use Permit, Permit Number 13-00003-W.
January 23, 2018.

OSM Disk 1 – L-2018-136 Attachment 43 Enclosure 18

FPL. 2018b. Pumpage Report for Water Use Permit, Permit Number 13-00003-W.
April 18, 2018.

OSM Disk 1 – L-2018-136 Attachment 43 Enclosure 19

FPL. 2018d. Pumpage Report for Water Use Permit, Permit Number 13-00003-W.
July 23, 2018.

OSM Disk 1 – L-2018-136 Attachment 43 Enclosure 20

FPL. 2018c. Supporting Monthly Volume Tables.

NRC RAI E-Mail No. EPID No. L-2018-LN E-0001 Dated July 9, 2018

Water Resources (WR)

NRC RAI Number: 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.

FPL Response:

As discussed in Attachment 42, normal recovery operations commenced using the ten recovery well system (RWS) plume extraction wells (RW-1 through RW-10) on May 15, 2018. The RWS will pump up to 15 million gallons per day (MGD) of recovered hypersaline groundwater from the Biscayne Aquifer into the deep injection well (DIW) to control the saline plume in the Biscayne Aquifer in the vicinity of PTN.

The volume of hypersaline water removed and associated salt mass on a monthly basis is provided as a table in Enclosure 1. These data are collected, processed, and maintained by FPL.

The dual-zone monitor well DZMW-1 is located approximately 75 feet south of the deep injection well DIW-1. DZMW-1 was constructed in accordance with the Florida Department of Environmental Protection (FDEP) construction permit number 293962-001-UC. The monitor well was constructed with three concentric steel casings (34-, 24-, and 16-inch outside diameters) and a nominal 6-5/8 inch diameter fiberglass reinforced plastic (FRP) final casing. The well was constructed to monitor for upward migration of injected fluid from the Boulder Zone into overlying zones.

The upper monitor zone of DZMW-1 monitors the interval from 1,450 to 1,490 feet below ground surface (bgs). Background water samples indicate the native water in this interval is brackish, with chloride concentrations between 3,800 and 4,360 milligrams per liter (mg/L) and total dissolved solids (TDS) concentrations between 3,500 and 7,400 mg/L (FPL 2017a, Table 1).

The lower monitor zone of DZMW-1 monitors the interval from 1,860 to 1,905 feet bgs. Native water in the interval is saline and the artesian hydraulic head is approximately 1 psi. Background water samples in this interval reported chloride concentrations between 16,100 and 20,800 mg/L and TDS concentrations between 17,200 and 30,500 mg/L (FPL 2017a, Table 2).

Samples of the injected fluids during construction and testing of DIW-1 reported injectate chloride concentrations between 32,500 and 40,800 mg/L and TDS concentrations between 41,300 and 64,400 mg/L (FPL 2017a, Table 3). Similarly, the native waters within the Boulder Zone are reported to have an average TDS concentration of 37,000 mg/L (ER Section 3.6.4.2).

If injected fluids were to migrate upward from the Boulder Zone, the mixed injectate and native Boulder Zone fluids would move upward into the monitor zones. In such an event, water quality changes within the affected monitor zone will occur. These water quality changes would include an increase in chloride and TDS concentration and an increase in specific conductivity. An increase in water level of the affected monitor zone would also occur if injected fluid were to migrate to intervals monitored by DZMW-1.

A summary of the water quality monitoring, injectate monitoring, and sampling data from September 2016 to April 2017 is provided in the publicly available FPL report, *Report on the Mechanical Integrity Testing of Deep Injection Well DIW-1 at the Florida Power & Light Turkey Point Power Plant* (FPL 2017a, Tables 1-3).

Condition VI.B.2, in the FDEP Underground Injection Control Class I Injection Well System Construction and Testing Permit 293962-002-UC (Construction Permit) lists the injection well performance data and monitor zone data reported in the monthly operating reports (FDEP 2018a).

The Construction Permit required a weekly sampling frequency. In May 2017, FPL requested a reduction in the sampling frequency to monthly, as detailed in a frequency reduction letter from FPL to FDEP (FPL 2017b). This letter details the changes to the frequency of collection of parameters in the monitoring program.

The Underground Injection Control Class I Injection Well System Operation Permit (Operation Permit) was issued to FPL on July 12, 2018. Condition III.B.1 lists the injection well performance data and monitor zone data to be recorded and reported in the monthly operating reports (FDEP 2018b).

References:

FDEP (Florida Department of Environmental Protection). 2018a. All monthly operating reports are publicly available on the FDEP Oculus website at <<https://depedms.dep.state.fl.us/Oculus/servlet/search>>. The link brings the viewer to the Oculus login page to select the button "PUBLIC OCULUS LOGIN." The following search criteria lead to the MORs:

- Catalog = Underground Injection Control
- Search by = Profile
- Profile = Sampling
- Facility-Site ID = 101172

Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
FPL Response to NRC RAI No. WR-3
L-2018-136 Attachment 44 Page 3 of 4

Select SEARCH. On the list that follows, select the envelope symbol under “File Type” to download an email message containing the MOR as an attachment.

FDEP. 2018b. Underground Injection Control Class I Injection Well System Operation Permit 293962-004-UO/11. July 12, 2018. Publicly available on the FDEP Oculus website at <<https://depedms.dep.state.fl.us/Oculus/servlet/search>>. The link brings the viewer to the Oculus login page to select the button “PUBLIC OCULUS LOGIN.” Use the following search criteria:

- Catalog = Underground Injection Control
- Search by = Profile
- Profile = Permitting Authorization
- Facility-Site ID = 101172
- Document Date: From = 07-11-2018
- Document Date: To = 07-13-2018

Select SEARCH. On the line with “Document Type “PERMIT-FINAL,” select the Acrobat symbol under “File Type” to open the file (accessed July 31, 2018).

FPL (Florida Power & Light). 2017a. *Report on the Mechanical Integrity Testing of Deep Injection Well DIW-1 at the Florida Power & Light Turkey Point Power Plant*. June 2017. Retrieved from <[https://depedms.dep.state.fl.us:443/Oculus/servlet/shell?command=getEntity&\[guid=35.102286.1\]&\[profile=Discovery_Compliance\]](https://depedms.dep.state.fl.us:443/Oculus/servlet/shell?command=getEntity&[guid=35.102286.1]&[profile=Discovery_Compliance])>. The link brings the viewer to the Oculus login page to select the button “PUBLIC OCULUS LOGIN.” Select the Acrobat symbol under “File Type” to open the file (accessed July 17, 2018).

FPL. 2017b. Florida Power & Light Company (FPL) – Underground Injection Control Class I Injection Well System Construction and Testing Permit 293962-002-UC; Turkey Point Injection Well System Sample Frequency Reduction Request. April 20, 2017. Publicly available on the FDEP Oculus website at <<https://depedms.dep.state.fl.us/Oculus/servlet/search>>. The link brings the viewer to the Oculus login page to select the button “PUBLIC OCULUS LOGIN.” Use the following search criteria:

- Catalog = Underground Injection Control
- Search by = Profile
- Profile = Permitting Authorization
- Facility-Site ID = 101172
- Document Date: From = 05-15-2017

Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
FPL Response to NRC RAI No. WR-3
L-2018-136 Attachment 44 Page 4 of 4

- Document Date: To = 05-15-2017

Select SEARCH. Select the envelope symbol under “File Type” to download an email message containing the approval of the frequency reduction request as an attachment.

Associated Enclosures:

OSM Disk 1 - L-2018-136 Attachment 44 Enclosure 1

FPL (Florida Power & Light). 2018. Monthly Hypersaline Extraction Summary.

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 9, 2018

Water Resources (WR)

NRC RAI Number: 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.

FPL Response:

One documented inadvertent release has occurred at PTN since December 31, 2017.

On January 22, 2018, during a line-up of the 4D demineralizer resin fill isolation valve on the auxiliary building roof, two radiation workers (non-licensed operators) removed the weather-protective enclosure over the valve to verify the valve position. Upon removal of the enclosure, approximately half a gallon of contaminated water spilled onto the auxiliary building roof. The initial response efforts by the workers were ineffective, and as a result, the contamination spread into a larger area and into the site storm drain system.

Corrective actions included a complete replacement of the demineralizer rubber diaphragm valve with a new ball valve with stainless steel internals in order to eliminate valve leakage. Related corrective actions have been captured in the site's corrective action plan (NRC 2018, page 13 and 14).

In accordance with site procedural processes, PTN performed a causal analysis and increased sampling of the surrounding monitoring wells to weekly events for a three-month period following the release. Prior to the January 2018 release, groundwater tritium concentrations (MW-8s, east of the auxiliary building roof) during the fourth quarter of 2017 ranged from 371 to 13,000 picoCuries per liter (pCi/L) and storm drain samples ranged from 9,990 to 13,000 pCi/L. Following the release and completion of the increased monitoring (April 2018), groundwater tritium concentrations in MW-8s were reported at 566 pCi/L. Storm drain sampling was not conducted due to the storm drain being dry; therefore, storm drain samples were not available following completion of the increased monitoring period. Based on the sampling data, PTN concluded that no significant impact to groundwater was observed following the January 2018 release.

References:

NRC (U.S. Nuclear Regulatory Commission). 2018. Letter, Mr. Randall A Musser, NRC, to Mr. Mano Nazar, Turkey Point Nuclear Generating Station – Nuclear Regulatory Commission Integrated Inspection Report, 05000250/2018001 and 05000251/2018001. May 10, 2018.

Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
FPL Response to NRC RAI No. WR-4
L-2018-136 Attachment 45 Page 2 of 2

Associated Enclosures:

None

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 9, 2018

Water Resources (WR)

NRC RAI Number: 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.

FPL Response:

Since August 2016, no further NOVs; nonconformance notifications; or related infractions associated with the described activities have been received from any regulatory agency.

One self-discovered event associated with the sanitary sewage systems was reported in March 2016, as discussed below:

On March 23, 2016, while compiling monthly discharge monitoring data for the domestic wastewater operation permit for the PTN sewage treatment plant, the sample for total suspended solids (TSS) was found to be 38 parts per million (ppm). This condition exceeds the required Florida Department of Environmental Protection (FDEP) discharge limit of 30 ppm (monthly average) and Department of Environmental Resources Management (DERM) limit of 15.0 ppm. The report was compiled for the month of February 2016, for electronic submittal to FDEP and a written copy to the Department of Regulatory and Economic Resources—Division of Environmental Resources Management (DERM).

Upon discovering this condition, FPL Land Utilization instructed the licensed operator and contractor to perform maintenance activities and scheduled resampling for TSS. The resampling was conducted on March 24, 2016. Analytical results of the sample were 2.1 ppm; therefore, the total duration of the out-of-specification event was less than 24 hours.

The domestic wastewater plant has not had an exceedance of total suspended solids since 2004. The annual average requirement remains within specification. Our rolling yearly average is 7.62 ppm versus a required maximum limit of 20 ppm.

On July 10, 2018, FPL received a letter from the DERM with review comments from the March 17, 2017, site assessment report (SAR) and November 11, 2017, SAR supplemental information submission. This letter is part of the ongoing compliance by

Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
FPL Response to NRC RAI No. WR-5
L-2018-136 Attachment 46 Page 2 of 2

FPL with the Consent Agreement Addendum of April 15, 2016. The required actions in the letter are being reviewed at this time.

References:

None

Associated Enclosures:

OSM Disk 1 – L-2018-136 Attachment 46 Enclosure 1

FPL (Florida Power & Light). 2016. Letter to Florida Department of Environmental Protection, Turkey Point Power Plant (Facility ID #FLA013612). March 25, 2016.

OSM Disk 1 – L-2018-136 Attachment 46 Enclosure 2

DERM (Department of Regulatory and Economic Resources–Division of Environmental Resources Management). 2018. Letter to Florida Power & Light, Site Assessment Report (SAR) dated March 17, 2017 and the SAR Supplemental Information dated November 11, 2017, submitted pursuant to Addendum 1 dated August 15, 2016 of the Consent Agreement between Florida Power & Light (FPL) and Miami-Dade County, Division of Environmental Resources Management for FPL's Turkey Point facility located at, near, or in the vicinity of 9700 SW 344 Street, Unincorporated Miami-Dade County, Florida (DERM IW-3, IW-16, IW5-6229, DW0-10, CLI-2014-0312, CLI-2016-0303, HWR-851).

Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
FPL Response to NRC RAI No. WR-6
L-2018-136 Attachment 47 Page 1 of 1

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 9, 2018

Water Resources (WR)

NRC RAI Number: 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).

FPL Response:

The figures requested are part of the site conceptual model (SCM) report. The SCM report is currently in draft format pending FPL review.

Due to the draft status of the report, the figures requested are not available at this time and the current date for completion is under review.

References:

None

Associated Enclosures:

None

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 9, 2018

Water Resources (WR)

NRC RAI Number: 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.]

FPL Response:

In April 2018, FPL and Miami-Dade County (MDC) entered into a joint participation agreement (JPA) to develop a preliminary plan for a wastewater treatment facility that could provide reclaimed wastewater as additional sources for cooling and freshening in connection with the operation of the existing Turkey Point Units 3, 4, and 5, as well as other MDC regional needs. A copy of the JPA can be found online at <http://www.miamidade.gov/govaction/legistarfiles/Matters/Y2018/180761.pdf>.

As noted in the JPA, FPL and MDC have engaged only in preliminary, non-binding discussions related to the facility and that further substantial effort is necessary to evaluate the economic and technical feasibility of the project before any decision is made to move forward with the effort. Therefore, there is currently no agreement on funding for the project, location of the facility, design of the facility, water treatment standards, schedule for construction or operation, or uses of the treated wastewater. The JPA also makes clear that any decision to move forward with the project would require negotiation and approval of a separate project agreement and would require FPL and MDC to pursue and receive all permits, approvals, and licenses from applicable national, state, regional, and local governmental authorities. Neither party is bound to proceed with the project unless and until all necessary approvals are obtained.

Accordingly, operation of Turkey Point Units 3 and 4 during the period of continued operation does not rely on or assume operation of the wastewater facility.

References:

None

Associated Enclosures:

None

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 9, 2018

Water Resources (WR)

NRC RAI Number: 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.

FPL Response:

The Upper Floridan Aquifer, via water supply wells PW-1, PW-3, and PW-4, supplies untreated well water to combined cycle Unit 5 and nuclear Units 3 and 4. FPL began using approximately 1.1 million gallons per day (MGD) of Upper Floridan well supply in March 2018 for demineralized/ultrapure water for PTN Units 3 and 4. This usage offsets the need for approximately 0.65 MGD of potable water from the Newton Wellfield.

Unit 5 has never been connected to the municipal supply since its construction in 2007; therefore, no change in public municipal supply is associated with Unit 5 use of Upper Floridan Aquifer groundwater.

The new Units 3 and 4 water treatment system solely produces demineralized water for Units 3 and 4 primary and secondary plant use. Another similar but smaller water treatment system serves the same function for Unit 5. The CCS still provides raw water to Units 3 and 4 condensers, turbine plant cooling water (TPCW) heat exchangers, and component cooling water (CCW) heat exchangers.

There has been no significant change to the CCS budget from the conversion to Upper Floridan Aquifer well water to the new water treatment system. The CCS still serves the condenser, TPCW heat exchangers, and CCW heat exchangers. Both the old and new water treatment systems divert reverse osmosis (RO) reject water to the CCS at comparable rates with a difference in the RO reject constituent makeup when using well versus municipal water. The RO reject water stream is normally in the range of 200 to 300 gallons per minute (gpm) (approximately 0.4 MGD).

Upper Floridan well water is supplied to the Units 3 and 4 makeup water treatment system, depicted on ER Figure 2.2-1.

The new water treatment facility produces nominally 450 gpm effluent. That is both units at 100 percent steady-state power and no unusual condition requiring additional specific gravity required blowdown, such as elevated secondary sodium. To produce that, being

Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
FPL Response to NRC RAI No. WR-8
L-2018-136 Attachment 49 Page 2 of 2

an RO-based system, it takes in approximately 750 gpm of Upper Floridan Aquifer well water.

References:

None

Associated Enclosures:

None

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 9, 2018

Water Resources (WR)

NRC RAI Number: 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).

FPL Response:

The Turtle Point and barge-turning basin restoration project is intended to improve the water quality within an approximately 1.9-acre remnant canal (Turtle Point Canal) and 5.6 acres of the barge-turning basin immediately adjacent to the cooling canal system (CCS). Currently, the bottoms of the Turtle Point Canal and barge-turning basin are approximately -28 feet North American Vertical Datum 1988 (NAVD88) and -30 feet NAVD88, respectively (FPL 2016, Page 11 of 108).

FPL has received all necessary permits and authorizations associated with the Turtle Point and barge-turning basin restoration project except for the Miami-Dade County Class I permit, which requires contractor information.

FPL is in the final stages of selecting a contractor to perform the work. The final restoration project construction contract will be issued in August 2018, at which point the contractor information will be provided to Miami-Dade County and the final permit will be issued.

Once the final permit is received, the contractor will begin construction at the Turtle Point Canal to fill the western one-third of the canal to -0.33 feet NAVD88 for mangrove planting (approximately 1,700 mangroves) and the remaining two-thirds to -7 feet NAVD88. Once work in the Turtle Point Canal area is complete, the contractor will begin work in the barge-turning basin area, filling the entire area to a final depth of -15 feet NAVD88. (FPL 2016, Page 14 of 108) Both projects will be complete within the two-year timeframe required by the Florida Department of Environmental Protection Consent Order.

For additional restoration specifications, including maps of the project locations, please see the enclosures for Attachment 5, which include the USACE application, USACE permit, and USFWS letter of determination.

References:

FPL (Florida Power & Light). 2016. Joint Application for Individual Environmental Resource Permit/Authorization to us State-Owned Submerged Lands/Federal Dredge

Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
FPL Response to NRC RAI No. WR-9
L-2018-136 Attachment 50 Page 2 of 2

and Fill Permit, Turtle Point and Barge Canal/Basin Water Quality Improvement
Projects. August 2, 2016.

Associated Enclosures:

None

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 9, 2018

Water Resources (WR)

NRC RAI Number: 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.

FPL Response:

ER Section 2.2, page 2-1 states, "Units 1 and 2 were formerly operated as natural-gas/oil steam-generating units. However, Units 1 and 2 have been repurposed in the synchronous condenser mode to support transmission reliability and will be maintained in this condition through the subsequent period of extended operation (SPEO)."

This statement continues to be valid. Likewise, the water flow volume, source, and discharge for Units 1 and 2 has not changed from that stated in ER Section 2.2.3 and depicted on Figure 2.2-2.

References:

None

Associated Enclosures:

None

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 9, 2018

Water Resources (WR)

NRC RAI Number: 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.

FPL Response:

The 2018 site conceptual model (SCM) report is being prepared to identify and characterize groundwater flow and the occurrence and migration of tritium at the FPL property including PTN Units 1, 2, and 5, the diesel storage tank area, and portions of the Intake and discharge canals in the vicinity of the above mentioned locations. The report does not directly address the area occupied by the cooling canals.

The specific objectives of this SCM are to:

- Characterize the geologic and hydrogeologic conditions within the assessed property, including subsurface soil types, and the direction and rate of groundwater flow;
- Characterize the groundwater/surface water interaction at the assessed property;
- Evaluate groundwater quality at the assessed property including the vertical and horizontal extent, quantity, concentrations and potential sources of tritium in the groundwater;
- Define the probable sources of any tritium release at the assessed property;
- Evaluate potential human, ecological, or environmental receptors of tritium that might have been released to the groundwater; and
- Provide recommendations for additional investigations and long-term monitoring.

The SCM report is currently in draft format pending FPL review.

Due to its draft status, the SCM report is not available at this time and the current date for completion is under review.

References:

None

Associated Enclosures:

None

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 9, 2018

Water Resources (WR)

NRC RAI Number: 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.

FPL Response:

1. The requested document, *Report on the Mechanical Integrity Testing of Deep Injection Well DIW-1 at the Florida Power & Light Turkey Point Power Plant*, June 2017, is available from the Florida Department of Environmental Protection (FDEP) public Oculus website at [https://depdms.dep.state.fl.us:443/Oculus/servlet/shell?command=getEntity&\[guid=35.102286.1\]&\[profile=Discovery_Compliance\]>](https://depdms.dep.state.fl.us:443/Oculus/servlet/shell?command=getEntity&[guid=35.102286.1]&[profile=Discovery_Compliance]>). The link brings the viewer to the Oculus login page, must select button "PUBLIC OCULUS LOGIN", then select the Acrobat symbol under "File Type" to open the file (accessed July 17, 2018).
2. The FPL's June 20, 2018, presentation to FDEP: TetraTech presentation "Variable Density Ground Water Flow and Salinity Transport Model Analysis, Attribution Analysis Results," June 19, 2018, is provided as Enclosure 1.
3. The 2018 site conceptual model (SCM) report is currently in draft format pending FPL review. Due to its draft status, the SCM report is not available at this time and the current date for completion is under review.
4. The current spreadsheet with recent values used to model and project water levels and salinities within the CCS is provided in Enclosure 2.

Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
FPL Response to NRC RAI No. WR-12
L-2018-136 Attachment 53 Page 2 of 2

References:

None

Associated Enclosures:

OSM Disk 1 – L-2018-136 Attachment 53 Enclosure 1

TetraTech. 2018. "Variable Density Ground Water Flow and Salinity Transport Model Analysis, Attribution Analysis Results." June 19, 2018.

OSM Enclosure 1 – L-2018-136 Attachment 53 Enclosure 2

FPL (Florida Power & Light). 2018. CCS 2017 Water Salt Budget. Excel spreadsheet.

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 17, 2018

Water Resources (WR)

NRC RAI Number: WR-13

For the NRC's federal licensing action (issuance of renewed operating licenses), provide documentation of Clean Water Act (CWA) 401 certification from the State of Florida to FPL. In Section 9.5.3.2 of the ER it is stated that PTN has fulfilled the regulatory requirement to provide certification by the state. The ER references a 401 certification letter from the Florida Department of Environmental Protection to the U.S. Army Corps of Engineers dated March 9, 2012, which does not appear to be related to renewal of FPL's NRC operating licenses for Turkey Point, Units 3 and 4. Further documentation is needed to support NRC's review.

FPL Response:

The operating agreement between the Florida Department of Environmental Protection (FDEP), the U.S. of Army Corps of Engineers (USACE), and Florida's water management districts (USACE 2012), specifically provides, in Section A.1.,

Each of the following will constitute the granting of water quality certification by the Department or Districts, unless a State permit is issued pursuant to the net improvement provisions for water quality provided by section 373.414(1)(b), F.S., or unless otherwise specifically stated in the State permit or authorization ... (f) A written final order granting "certification" under one of the following siting acts by the Governor and Cabinet as the Siting Board, the Florida Land and Water Adjudicatory Commission, or by the Department of Environmental Protection, as appropriate: (1) The Florida Electric Power Plant Siting Act, sections 403.501-.519(2011), as amended...

The Power Plant Siting Act (PPSA) certification is a non-expiring permit for the life of the facility. Under the PPSA, FPL is not required to obtain a new certification for the federal subsequent license renewal, and the certification will remain effective, as will any legal effects of the certification, including the certification compliance with state water quality standards. Therefore, there is no requirement to obtain a new determination of compliance with state water quality standards.

References:

USACE (U.S. Army Corps of Engineers). 2012. Operating Agreement between the Jacksonville District of the U.S. Army Corps of Engineers, the Florida Department of Environmental Protection, Northwest Florida Water Management District, the South Florida Water Management District, the St. Johns River Water Management District, Southwest Florida Water Management District, and the Suwannee River Water Management District Concerning Regulatory Programs for Activities in Wetlands and Other Surface Waters, including Waters of the United States. September 4, 2012.

Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
FPL Response to NRC RAI No. WR-13
L-2018-136 Attachment 54 Page 2 of 2

Retrieved from <https://floridadep.gov/sites/default/files/CorpsAgr-v79_9-4-12.pdf>
(accessed July 23, 2018).

Associated Enclosures:

None

NRC RAI E-Mail No. EPID No. L-2018-LNE-0001 Dated July 17, 2018

Land Use (LU)

NRC RAI Number: 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 [Florida Department of Environmental Protection] to the USACE (FDEP 2012). The operating agreement between the FDEP and participating agencies identifies the final order issued as part of the PPSA [Florida Power Plant Siting Act] 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 National Oceanic and Atmospheric Administration (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.

FPL RESPONSE:

As indicated in the Florida Department of Environmental Protection's (FDEP's) letter of March 9, 2012 (FDEP 2012), the Turkey Point Power Plant (Units 3–5) was certified on October 29, 2008, under the Florida Power Plant Siting Act (PPSA), Sections 403.501-403.5185, Florida Statute (FS 403.501-403.5185). The letter also notes that pursuant to the operating agreement between the FDEP and the U.S. Army Corps of Engineers (USACE) and water management districts (USACE 2012), the PPSA order of certification also constitutes a finding of consistency with the Florida Coastal Management Program, as required by Section 307 of the CZMA.

This provision is based directly on Florida statutes. The Florida Coastal Management Plan, adopted pursuant to Chapter 380 of the Florida statutes, was approved by the NOAA in 1981, thereby delegating activities under the CZMA to the State of Florida. FS §403.511(7) provides that "Pursuant to §380.23, electrical power plants are subject to the federal coastal consistency review program. Issuance of certification shall constitute the state's certification of coastal zone consistency." Furthermore, pursuant to FS 380.23(1), "When a federally licensed or permitted activity subject to federal consistency review requires a state license, the issuance or renewal of a state license

shall automatically constitute the state's concurrence that the licensed activity or use, as licensed, is consistent with the federally approved program.”

The PPSA certification is a non-expiring permit for the life of the facility. Under the PPSA, FPL is not required to obtain a new certification for the federal subsequent license renewal, and the certification will remain effective, as will any legal effects of the certification, including the certification of coastal zone consistency. Therefore, there is no requirement to obtain a new determination of consistency for purposes of the CZMA.

References:

FDEP (Florida Department of Environmental Protection). 2012. Turkey Point Plant Units 3–5, PA 03-45, Water Quality Certification, March 9, 2012.

FS (Florida Statute). Title XXVIII Natural Resources; Conservation, Reclamation, and Use, Chapter 380, Land and Water Management, Part II, Coastal Planning and Management (ss. 380.20-380.285).

FS Title XXIX Public Health Chapter 403, Electrical Power Plant and Transmission Line Siting (ss.403-501-403.539).

USACE (United States of Army Corps of Engineers). 2012. Operating Agreement between the Jacksonville District of the U.S. Army Corps of Engineers, the Florida Department of Environmental Protection, Northwest Florida Water Management District, the South Florida Water Management District, the St. Johns River Water Management District, Southwest Florida Water Management District, and the Suwannee River Water Management District Concerning Regulatory Programs for Activities in Wetlands and Other Surface Waters, including Waters of the United States. September 4, 2012. Retrieved from <https://floridadep.gov/sites/default/files/CorpsAgr-v79_9-4-12.pdf> (accessed July 23, 2018).

Associated Enclosures:

None