PMTurkeyCOLPEm Resource

From: Madden, George [George.Madden@fpl.com]
Sent: Wednesday, December 15, 2010 1:46 PM
To: Kugler, Andrew; Brown, Alison; Bortone, Pilar; Matthews, David; Fernandez, Antonio; Franzone, Steve; Hamrick, Steven; Reyes, Luis; Madden, George; Maher, William; Comar, Manny; Orthen, Richard; Stewart, Scott
Subject: FPL Letter L-2010-295 dated 12-15-2010 - NRC June 2010 Environmental Audit Supplemental Information Request Response 2 Part 2
Attachments: L-2010-295 Signed 12-15-2010 ER Information Needs Letter 2-02.pdf

Re: Florida Power & Light Company
Proposed Turkey Point Units 6 and 7
Docket Nos. 52-040 and 52-041
NRC June 2010 Environmental Audit
Supplemental Information Request Response 2 Part 2

Reference:

1. FPL Letter L-2009-144 to NRC, dated June 30, 2009, Application for Combined Licenses for Turkey Point Units 6 and 7
2. NRC Memorandum A. Kugler to R. Whited, dated September 21, 2010, Summary of the Environmental Site Audit Related to the Review of the Combined License Application for Turkey Point Units 6 and 7
3. FPL Letter L-2010-172 to NRC dated November 1, 2010, NRC June 2010 Environmental Audit Supplemental Information Request Response 1
4. FPL Letter L-2010-294 to NRC dated December 15, 2010, NRC June 2010 Environmental Audit Supplemental Information Request Response 2 Part 1

Florida Power & Light Company (FPL) submitted a Combined License (COL) Application for two AP1000 pressurized water reactor units to be located at the Turkey Point site, designated Turkey Point Units 6 and 7, located in Miami-Dade County, FL on June 30, 2009 (Reference 1).

During the week of June 7, 2010, an NRC team conducted a site audit to assist their review of the Environmental Report submitted as part of the COL Application. The NRC issued the site audit summary on September 21, 2010 (Reference 2). The audit summary identified 210 information need items discussed during the audit and classified them as resolved, pending, open, or new.

FPL submitted the responses to 49 of the early submittal information need items on November 1, 2010 (Reference 3). Reference 4 provides responses to information need items G-5 and G-8.

The purpose of this letter is to provide responses to 28 information need items. The 28 responses are provided in 22 attachments to this letter.

Distributed Without Enclosures
OSM Enclosures:

1. Environmental Audit and Information Needs NRC Request ALT-27, 29, 30-32 GIS Screening Database (1 OSM)
2. Environmental Audit and Information Needs NRC Request H-42 Water Level Data Files (1 OSM)
3. Environmental Audit and Information Needs NRC Request HP-9 LADTAP & GASPAR Input/Output Files (1 OSM)

v/r

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Subject: FPL Letter L-2010-295 dated 12-15-2010 - NRC June 2010 Environmental Audit Supplemental Information Request Response 2 Part 2
Sent Date: 12/15/2010 1:45:43 PM
Received Date: 12/15/2010 1:45:52 PM
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December 15, 2010

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

Re: Florida Power & Light Company
Proposed Turkey Point Units 6 and 7
Docket Nos. 52-040 and 52-041
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FPL submitted the responses to 49 of the early submittal information need items on November 1, 2010 (Reference 3). Reference 4 provides responses to information need items G-5 and G-8.

The purpose of this letter is to provide responses to 28 information need items. The 28 responses are provided in 22 attachments to this letter.

Three responses identified in the individual attachments reference electronic files on Optical Storage Media (OSM). These attachments are provided to assist the NRC staff with their review and are included as Enclosures 1, 2, and 3 of this letter.

The enclosed OSM are not intended to comply with the recommendations for electronic 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 561-691-7490.

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

Executed on December 15, 2010

Sincerely,

William Maher
Senior Licensing Director – New Nuclear Projects

OSM Enclosures:

1. Environmental Audit and Information Needs NRC Request ALT-27, 29, 30-32 GIS Screening Database (1 OSM)
2. Environmental Audit and Information Needs NRC Request H-42 Water Level Data Files (1 OSM)
3. Environmental Audit and Information Needs NRC Request HP-9 LADTAP & GASPAR Input/Output Files (1 OSM)

cc:

PTN 6 & 7 Project Manager, AP1000 Projects Branch 1, USNRC DNRL/NRO (w/o Enclosures)
PTN 6 & 7 Environmental Project Manager, USNRC DSER/NRO (w/Enclosures)
Regional Administrator, Region II, USNRC (w/o Enclosures)
Senior Resident Inspector, USNRC, Turkey Point Plant (w/o Enclosures)

Index of Attachments	
Attachment Number	ER Audit Information Item Number
1	ALT-3
2	ALT-27, ALT-29, ALT-30, ALT-31, ALT-32
3	ALT-33
4	AQ-1
5	AQ-2, TE-10
6	CR-11
7	H-42
8	H-43
9	H-51, H-52
10	H-63
11	HP-9
12	MET-6
13	MET-7
14	NR-4
15	NR-19
16	SE-10
17	SE-11
18	SE-14
19	SE-15
20	SE-18
21	SE-20
22	TE-1

SRP Section: Environmental Report Section 9.3 – Alternative Sites

Question from Environmental Audit Data and Information Needs

NRC RAI Number: Environmental Audit Data and Information Need No. ALT-3

Have available the subject matter expert responsible for the ER site screening methodology and use of screening criteria as discussed in Section 9.3, as well as the application of exclusionary criteria. Have available the documentation supporting the siting study.

FPL RESPONSE:

Clarification will be provided regarding how the scoring for County Population, Distance to Population Centers, and Proximity to Densely Populated Areas within the Site Screening Report (page C-36) was derived and how the Proximity to Densely Populated Areas was scaled a future revision to the Environmental Report.

The EPRI section citations on Table 9.3-4 and Table 9.3-5 (ER Rev. 0 pages 9.3-125 &126) are based on the section numbers contained in the Electric Power Research Institute, Inc. (EPRI) *Siting Guide: Site Selection and Evaluation Criteria for an Early Site Permit Application* (March 2002).

Clarification will be provided regarding the definition of "Population center" used in Criterion P3, Table 9.3-2, (ER Rev. 0, page 9.3-122) in a future revision to the Environmental Report.

Clarification is provided below regarding the use of various distances to the City of Homestead.

In all but one case, there is not a discrepancy in the distance from the site to the City of Homestead, but rather a difference in the reference point—that is, in some cases the distance is measured to the municipal limits of Homestead and in other cases the distance from the site is measured to the center of the City of Homestead. When the distance is measured to the municipal limits, it is noted as such. Below are the identified excerpts from the indicated FSAR/ER Sections:

- ER page 2.1-1, states "The Turkey Point plant property is approximately 25 miles south of Miami, 8 miles east of Florida City, and *4.5 miles east of the southeastern municipal limits of Homestead*." [emphasis added]
- FSAR page 2.5.0-1 and 2.5.1-57 state "Units 6 & 7 are located within Miami-Dade County, Florida, approximately 25 miles south of Miami, 8 miles east of Florida City, and *9 miles southeast of Homestead, Florida*..." [emphasis added]
- FSAR page 2.1-6 states "Figure 2.1-206 shows the general location of the municipalities and other features within 10 miles of the Turkey Point site. According to the 2000 census, Homestead, which had a population of 31,909 in 2000, is the largest community *within 10 miles of the site*." [emphasis added] Note, in this instance, there is no discrepancy as the statement was not meant to give a measured distance, but merely state which communities were within 10 miles—not that the distance from the site is 10 miles.

- FSAR page 2.1-13 states "The closest population center (population of greater than 25,000) is the city of Homestead, which is approximately *8 miles west-northwest of Units 6 & 7*." In this case there is a discrepancy; this has been revised to read for consistency with the other sections.

With regard to expanding the text to further explain how the location of the population was determined, the FSAR text will be revised to indicate the location of the center from which the population radii were determined.

With regard to how the LPZ was determined, as stated on FSAR, page 2.1-5, the LPZ was determined in the following manner:

"The LPZ for Units 3 & 4 and Units 6 & 7 is a circle with a radius of 5 miles with its center located at the midpoint of Units 3 & 4."

Because the center is located at the midpoint of Units 3 & 4, the distance from the midpoint of Units 6 & 7 to the LPZ may be either slightly more or less than 5 miles depending on the directional sector.

The *Site Selection Study Report* is available for inspection in the Reading Room.

This response is PLANT SPECIFIC.

References:

None.

ASSOCIATED COLA REVISIONS:

FSAR 2.1.3 will be updated in a future revision as follows:

The closest population center (population of greater than 25,000) is the city of Homestead. ~~which is approximately 8 miles west-northwest of Units 6 & 7~~. **Units 6 & 7 are approximately 4.5 miles east of the southeastern municipal limits of Homestead.**

The population surrounding the Turkey Point site, to a 50-mile radius, was estimated based on 2000 United States Census Bureau (USCB) decennial census data. The population was estimated on a sector basis in a series of 10 concentric rings. The concentric rings were divided into 16 directional sectors, each sector consisting of 22.5 degrees. The rings were spaced at 0 to 1 mile, 1 to 2 miles, 2 to 3 miles, 3 to 4 miles, 4 to 5 miles, 5 to 10 miles, 10 to 20 miles, 20 to 30 miles, 30 to 40 miles, and 40 to 50 miles ~~from the Turkey Point site~~ **with its center located at the midpoint of Units 6 & 7**. The populations for years 2010 through 2090 have been projected by calculating a growth rate using state population projections (by county) as the base. The projected population for the expected first year of plant operation (2022 for Unit 6 and 2023 for Unit 7) is conservatively selected as that for the year 2030."

ASSOCIATED ENCLOSURES:

None.

SRP Section: Environmental Report Section 9.3 – Alternative Sites

Question from Environmental Audit Data and Information Needs

NRC RAI Number: Environmental Audit Data and Information Needs No. ALT-27, ALT-29, ALT-30, ALT-31, & ALT-32

The staff is considering whether to request additional information regarding FPL's site screening methodology. (ALT-27)

The staff is considering whether to request additional information regarding the exclusionary criteria and Candidate Areas in FPL's site screening process. (ALT-29)

The staff is considering whether to request additional information regarding the details of the alternative site screening processes summarized in ER Rev. 0 Section 9.3.2 used by FPL's consultant as referred to in the ER. (ALT-30)

The staff is considering whether to request additional information regarding the application of exclusionary criteria independently identified by FPL's consultant. (ALT-31)

The staff is considering whether to request additional information regarding the basis for dismissing the sites/areas independently identified by FPL's consultant from further consideration. (ALT-32)

FPL RESPONSE:

The *Project Bluegrass GIS Data Development* report is available for inspection in the Reading Room.

The *GIS Screening Database* is on the enclosed OSM.

This response is PLANT SPECIFIC.

References:

None.

ASSOCIATED COLA REVISIONS:

None.

ASSOCIATED ENCLOSURES:

Environmental Audit and Information Needs NRC Request ALT-27, 29, 30, 31- 32 (GIS Screening Database) (1 OSM) (Enclosure 1)

The files on the enclosed OSM are listed in the following tables.

Calculated Files	Type	Description	Projection
Charlotte (1)	Polygon	Township / Section / Range Identification	NAD 1983 UTM 17N
Charlotte (2)	Polygon	Township / Section / Range Identification	NAD 1983 UTM 17N
Glades	Polygon	Township / Section / Range Identification	NAD 1983 UTM 17N
Greenfield Sites	Polygon	Township / Section / Range Identification	NAD 1983 UTM 17N
Hendry (1)	Polygon	Township / Section / Range Identification	NAD 1983 UTM 17N
Hendry (2)	Polygon	Township / Section / Range Identification	NAD 1983 UTM 17N
Highlands (Hardee)	Polygon	Township / Section / Range Identification	NAD 1983 UTM 17N
Highlands	Polygon	Township / Section / Range Identification	NAD 1983 UTM 17N
Okeechobee (1)	Polygon	Township / Section / Range Identification	NAD 1983 UTM 17N
Okeechobee (2)	Polygon	Township / Section / Range Identification	NAD 1983 UTM 17N
Regional Screening Areas	Polygon	FPL Service Territory minus National Wildlife Refuges, Parks, ESRI Dedicated Land Use, Railroad Buffer, and Airport Buffer	NAD 1983 UTM 17N

File Name	File Type	Source	Projection
Aquifers	Polygon	USGS Water Resources Division	NAD 1983 UTM 17N
Bald Eagle Nests	Point	Florida Power & Light	NAD 1983 UTM 17N
Existing FPL Sites	Point	Florida Power & Light	NAD 1983 UTM 17N
Desoto Plant	Point	Florida Power & Light	NAD 1983 UTM 17N
Andytown	Point	Florida Power & Light	NAD 1983 UTM 17N
Florida Counties	Polygon	US Census Bureau (BOC)/TIGER	NAD 1983 UTM 17N
FPL Service Territory	Polygon	Florida Power & Light	NAD 1983 UTM 17N
Major Roads	Line	Federal Highway Administration (FHWA)	NAD 1983 UTM 17N
Major Transportation Routes - Interstates	Line	Federal Highway Administration (FHWA)	NAD 1983 UTM 17N
Military Bases	Polygon	Military Traffic Command Transportation Engineering Agency (MTMCTEA)	NAD 1983 UTM 17N
Dedicated Land Use	Polygon	US National Atlas, Federal and Indian Land Areas	NAD 1983 UTM 17N
Parks	Polygon	US National Atlas, Federal and Indian Land Areas	NAD 1983 UTM 17N
Commercial Airports	Point	US National Atlas, Airports	NAD 1983 UTM 17N
Public Land Survey System	Polygon	Florida Resources and Environmental Analysis Center	NAD 1983 UTM 17N
Railroads	Line	Federal Railroad Administration (FRA)	NAD 1983 UTM 17N
Urbanized Areas	Polygon	US Census Bureau (BOC)/TIGER	NAD 1983 UTM 17N
Water Use Caution Area	Polygon	Southwest Florida Water Management District	NAD 1983 UTM 17N
WUCA 10-Mile Buffer	Polygon	Southwest Florida Water Management District	NAD 1983 UTM 17N
West County Energy Center	Point	Florida Power & Light	NAD 1983 UTM 17N
Population > 300 people	Polygon	US Census Bureau 2000 Data	NAD 1983 UTM 17N
Mines	Point	USGS	NAD 1983 UTM 17N

File Name	File Type	Source	Projection
Railroad 1-Mile Buffer	Polygon	Enercon	NAD 1983 UTM 17N
Airport 10-Mile Buffer	Polygon	Enercon	NAD 1983 UTM 17N
Major Rivers	Line	US Department of Transportation	NAD 1983 UTM 17N
Waterbodies	Polygon	ESRI	NAD 1983 UTM 17N
Save Our Rivers Project Boundary	Polygon	South Florida Water Management District	NAD 1983 UTM 17N
Critical Restoration Project Areas	Polygon	South Florida Water Management District	NAD 1983 UTM 17N
CERP - Regions	Polygon	South Florida Water Management District	NAD 1983 UTM 17N
CERP - Projects	Polygon	South Florida Water Management District	NAD 1983 UTM 17N
CERP - Conceptual Planning Areas	Polygon	South Florida Water Management District	NAD 1983 UTM 17N
CERP - Study Area	Polygon	South Florida Water Management District	NAD 1983 UTM 17N

File Name	File Type	Source/Description	Projection
Strategic Habitat and Conservation Areas	Polygon	Florida Fish and Wildlife Conservation Commission (FFWCC)	NAD 1983 UTM 17N
Threatened and Endangered Species Models			
American Alligator	Raster	Florida Fish and Wildlife Conservation Commission (FFWCC)	NAD 1983 UTM 17N
American Crocodile	Raster	Florida Fish and Wildlife Conservation Commission (FFWCC)	NAD 1983 UTM 17N
American Oystercatcher	Raster	Florida Fish and Wildlife Conservation Commission (FFWCC)	NAD 1983 UTM 17N
Atlantic Snake	Raster	Florida Fish and Wildlife Conservation Commission (FFWCC)	NAD 1983 UTM 17N
Bald Eagle	Raster	Florida Fish and Wildlife Conservation Commission (FFWCC)	NAD 1983 UTM 17N
Big Cypress Fox Squirrel	Raster	Florida Fish and Wildlife Conservation Commission (FFWCC)	NAD 1983 UTM 17N
Black Bear	Raster	Florida Fish and Wildlife Conservation Commission (FFWCC)	NAD 1983 UTM 17N
Bog Frog	Raster	Florida Fish and Wildlife Conservation Commission (FFWCC)	NAD 1983 UTM 17N
Brown Pelican	Raster	Florida Fish and Wildlife Conservation Commission (FFWCC)	NAD 1983 UTM 17N
Cape Sable Seaside Sparrow	Raster	Florida Fish and Wildlife Conservation Commission (FFWCC)	NAD 1983 UTM 17N
Everglade Snail Kite	Raster	Florida Fish and Wildlife Conservation Commission (FFWCC)	NAD 1983 UTM 17N
Everglades Mink	Raster	Florida Fish and Wildlife Conservation Commission (FFWCC)	NAD 1983 UTM 17N
Florida Gopher Frog	Raster	Florida Fish and Wildlife Conservation Commission (FFWCC)	NAD 1983 UTM 17N
Florida Salt Marsh Vole	Raster	Florida Fish and Wildlife Conservation Commission (FFWCC)	NAD 1983 UTM 17N
Florida Sandhill Crane	Raster	Florida Fish and Wildlife Conservation Commission (FFWCC)	NAD 1983 UTM 17N
Homosassa Shrew	Raster	Florida Fish and Wildlife Conservation Commission (FFWCC)	NAD 1983 UTM 17N
Limpkin	Raster	Florida Fish and Wildlife Conservation Commission (FFWCC)	NAD 1983 UTM 17N
Little Blue Heron	Raster	Florida Fish and Wildlife Conservation Commission (FFWCC)	NAD 1983 UTM 17N
Lower Keys Marsh Rabbit	Raster	Florida Fish and Wildlife Conservation Commission (FFWCC)	NAD 1983 UTM 17N
Marian's Marsh Wren	Raster	Florida Fish and Wildlife Conservation Commission (FFWCC)	NAD 1983 UTM 17N

File Name	File Type	Source/Description	Projection
Pine Barrens Treefrog	Raster	Florida Fish and Wildlife Conservation Commission (FFWCC)	NAD 1983 UTM 17N
Reddish Egret	Raster	Florida Fish and Wildlife Conservation Commission (FFWCC)	NAD 1983 UTM 17N
Roseate Spoonbill	Raster	Florida Fish and Wildlife Conservation Commission (FFWCC)	NAD 1983 UTM 17N
Sanibel Island Rice Rat	Raster	Florida Fish and Wildlife Conservation Commission (FFWCC)	NAD 1983 UTM 17N
Scotts Seaside Sparrow	Raster	Florida Fish and Wildlife Conservation Commission (FFWCC)	NAD 1983 UTM 17N
Silver Rice Rat	Raster	Florida Fish and Wildlife Conservation Commission (FFWCC)	NAD 1983 UTM 17N
Snowy Egret	Raster	Florida Fish and Wildlife Conservation Commission (FFWCC)	NAD 1983 UTM 17N
Tricolored Heron	Raster	Florida Fish and Wildlife Conservation Commission (FFWCC)	NAD 1983 UTM 17N
White Ibis	Raster	Florida Fish and Wildlife Conservation Commission (FFWCC)	NAD 1983 UTM 17N
White-Crowned Pigeon	Raster	Florida Fish and Wildlife Conservation Commission (FFWCC)	NAD 1983 UTM 17N
Wood Stork	Raster	Florida Fish and Wildlife Conservation Commission (FFWCC)	NAD 1983 UTM 17N
Worthington's Marsh Wren	Raster	Florida Fish and Wildlife Conservation Commission (FFWCC)	NAD 1983 UTM 17N

SRP Section: Environmental Report Section 9.3 – Alternative Sites

Question from Environmental Audit Data and Information Needs

NRC RAI Number: Environmental Audit Data and Information Need No. ALT-33

The staff is considering whether to request additional information regarding the process by which FPL "canvassed" (ER Rev. 0 p. 9.3-5) its employees to identify the initial 23 sites submitted to the detailed screening process.

FPL RESPONSE:

ER 9.3 will be updated in a future revision to include a discussion on the "canvassing" process.

This response is PLANT SPECIFIC.

References:

None

ASSOCIATED COLA REVISIONS:

ER 9.3 will be updated in a future revision to include a discussion on the "canvassing" process.

ASSOCIATED ENCLOSURES:

None

SRP Section: Environmental Report Section 2.4 – Ecology

Question from Environmental Audit Data and Information Needs

NRC RAI Number: Environmental Audit Data and Information Need No. AQ-1 (Supplement 1)

Have available the subject matter expert responsible for the ER analysis of aquatic resource monitoring that has been conducted for the following areas: 1. Proposed new transmission line corridors 2. Onsite areas including new reactor site, industrial wastewater facility, and other onsite waterbodies, including ponds and canals 3. Biscayne Bay and Card Sound 4. Barge channel and docking area, and 5. Turkey Point peninsula adjacent to area proposed for radial collector wells.

FPL RESPONSE:

In an earlier response to this Audit Item, FPL identified the availability of one of the requested technical reports in the Reading Room. This supplemental response is to advise an additional requested report entitled, *Turkey Point Plant (Units 6 & 7) Baseline Aquatic Biological Characterization Study (March 2008 - February 2009),* is available for inspection in the Reading Room.

This response is PLANT SPECIFIC.

References:

None

ASSOCIATED COLA REVISIONS:

None

ASSOCIATED ENCLOSURES:

None

SRP Section: Environmental Report Section 5.3 – Cooling System Impacts

Question from Environmental Audit Data and Information Needs

NRC RAI Number: Environmental Audit Data and Information Need No. AQ-2,TE-10

Have available the subject matter expert responsible for the SACTI salt drift modeling and for the ER analysis of the impacts of cooling tower drift on surrounding flora and fauna (TE-10).

Have available the subject matter expert responsible for the ER analysis of Federal or State-listed threatened, endangered, or species of special concern that might occur on or adjacent to the Turkey Point Site or in proposed transmission corridors (AQ-2).

FPL RESPONSE:

The AERMOD computer code was used to model the annual salt deposition resulting from cooling tower operation on the Turkey Point Plant property. This annualized salt deposition range of 40 to 80 kg/ha/month was normalized to salinity based on the annual site rainfall (approximately 58 inches annually). The resulting salinity range was calculated to be approximately 0.03 to 0.06 parts per thousand (ppt).

The juvenile crocodile refugia, based on observations performed in 2008 are depicted on Figure 5.3-2 (see attached figure). Several types of refugia have been used, including refugia in the test canals north of the cooling canals of the industrial wastewater system, ponds excavated on berms of the active canals and test cooling canals, refugia resulting of dredging of berms, refugia at the Everglades Mitigation Bank, and natural refugia outside of the cooling canals of the industrial wastewater system. As is depicted in the figure, the majority of juvenile crocodile refugia are south of the area of maximum salt deposition.

Salinity levels in these juvenile crocodile refugia vary depending on conditions such as seasonal rainfall and evaporation rates. Additionally, due to precipitation, a freshwater lens typically develops in these refugia during the late summer months, during the post-hatching period when exposure to low-salinity water is necessary. The increase in salinity corresponding to the maximum salt deposition rate is approximately 0.06 ppt. No formal sampling of the juvenile crocodile refugia is performed.

Based on the locations of the juvenile crocodile refugia with respect to the predicted salt deposition, the predicted impact to salinity, and FPL's ongoing management activities that include monitoring and providing habitats for young crocodiles, predicted salt depositions from operation of the Units 6 & 7 cooling towers into the industrial wastewater facility and refugia would not sufficiently alter relevant salinity levels to impact crocodile growth and/or survival rates.

This response is PLANT SPECIFIC.

References:

None.

ASSOCIATED COLA REVISIONS:

The following text and figure will be added to Section 5.3.3.2.2 in a future revision.

This annualized salt deposition range of 40 to 80 kg/ha/month was normalized to salinity based on the annual site rainfall (approximately 58 inches annually). The resulting salinity range was calculated to be approximately 0.03 to 0.06 parts per thousand (ppt).

FPL's crocodile program collects hatchling crocodiles and transfers them to ~~freshwater sanctuaries~~ **juvenile refugia** constructed by FPL, many on the tops of the cooling canal berms. **The juvenile crocodile refugia, based on observations performed in 2008 are depicted on Figure 5.3-2. Several types of refugia have been used, including refugia in the test canals north of the cooling canals of the industrial wastewater system, ponds excavated on berms of the active canals and test cooling canals, refugia resulting of dredging of berms, refugia at the Everglades Mitigation Bank, and natural refugia outside of the cooling canals of the industrial wastewater system. As is depicted in Figure 5.3-2, the majority of juvenile crocodile refugia are south of the area of maximum salt deposition.**

Salinity levels in these juvenile crocodile refugia vary depending on conditions such as seasonal rainfall and evaporation rates. Additionally, due to precipitation, a freshwater lens typically develops in these refugia during the late summer months, during the post-hatching period when exposure to low-salinity water is necessary. The increase in salinity corresponding to the maximum salt deposition rate is approximately 0.06 ppt.

Growth rates of Turkey Point crocodile hatchlings are equal to or greater than those from reference populations. **Based on the locations of the juvenile crocodile refugia with respect to the predicted salt deposition, the predicted impact to salinity, and FPL's ongoing management activities that include monitoring and providing habitats for young crocodiles, predicted salt depositions from operation of the Units 6 & 7 cooling towers into the industrial wastewater facility and refugia would not sufficiently alter relevant salinity levels to impact crocodile growth and/or survival rates.**

Figure 5.3-2 Crocodile Areas in Relation to Salt Deposition Plume

ASSOCIATED ENCLOSURES:

None

SRP Section: Environmental Report Sections 4.1.3 and 5.1.3 –Cultural Resources

Question from Environmental Audit Data and Information Needs

NRC RAI Number: Environmental Audit Data and Information Need No. CR-11

Have available for review any documentation regarding the mitigation/avoidance plan for cultural and historic resources identified in the APE, including NAGRPA provisions for potential human remains on federal land, if appropriate.

FPL RESPONSE:

Several cultural resources documents, including both workplans and assessments, were provided to the NRC as part of Environmental Audit Data and Information Need No. CR-8 by FPL Letter L-2010-172 dated November 1, 2010.

This response is PLANT SPECIFIC.

References:

FPL Letter L-2010-172 to NRC, dated November 1, 2010, NRC June 2010 Environmental Audit, Supplemental Information Request Response 1

ASSOCIATED COLA REVISIONS:

None.

ASSOCIATED ENCLOSURES:

None.

SRP Section: Environmental Report Section 6.3 – Hydrologic Monitoring

Question from Environmental Audit Data and Information Needs

NRC RAI Number: Environmental Audit Data and Information Need No. H-42

Have available the subject matter expert responsible for the ER analysis of the monitoring equipment, data analysis procedures and documentation of data quality objectives for all stations monitoring groundwater and surface/coastal water properties. Have available for review the data associated with such monitoring locations.

FPL RESPONSE:

Water level data from twenty groundwater monitoring locations, located at the plant area, and two surface water monitoring locations, located in the cooling canals of the industrial wastewater facility, are included in electronic format (i.e. Microsoft Excel spreadsheet) on the attached OSM. The water level data includes hourly water level measurements from approximately June 2008 through June 2010. Readings were collected every 5 minutes at some locations for parts of the second and third quarters (October 2008 to May 2009) of data collection. The attached data represent the observed water levels and are not normalized to a reference fluid.

The included file is listed as follows:

- Water level data Jun_2008 to June_2010.xls

This response is PLANT SPECIFIC.

References:

None.

ASSOCIATED COLA REVISIONS:

No COLA changes have been identified as a result of this response.

ASSOCIATED ENCLOSURES:

Environmental Audit and Information Needs NRC Request H-42 (Water Level Data File) (1 OSM) (Enclosure 2)

SRP Section: Environmental Report Section 6.3 – Hydrologic Monitoring

Question from Environmental Audit Data and Information Needs

NRC RAI Number: Environmental Audit Data and Information Need No. H-43

Have available the subject matter expert responsible for the ER analysis of information related to chemical monitoring in the industrial wastewater facility and impacts of this facility on local groundwater and surface waters. Have available for review the data associated with this monitoring.

FPL RESPONSE:

As part of NPDES permit Number FL0001562, several parameters, including temperature, specific conductance, pH, salinity, and total suspended solids, are measured at an outfall to the cooling canals of the industrial wastewater facility. These measurements are available at the following website: http://oaspub.epa.gov/enviro/pcs_det_reports.pcs_tst?npdesid=FL0001562&rvalue=13&npvalue=7.

Additionally, soil and groundwater data have been collected as part of the Turkey Point Units 3 & 4 Extended Power Uprate (EPU) project. This information, which is available for inspection in the Reading Room, is summarized below:

Monitoring Plan

- Fifth Supplemental Agreement between the South Florida Management District and Florida Power & Light (October 2009). FPL Turkey Point Power Plant Groundwater, Surface Water, and Ecological Monitoring Plan (EXHIBIT B). October 14, 2009.

Monitoring Location Map

- Proposed Surface Water and Groundwater Monitoring Stations. August 3, 2010.

Reports

- Topographic & Bathymetric Survey, Turkey Point Cooling Canals, Miami-Dade County, Florida, June 2, 2010
- 2010 Annual Report Ground-Water Monitoring Program; Golder Associates, Inc., August 30, 2010
- Geology and Hydrogeology Report, JLA Geosciences, Inc., October 2010
- Monitoring Stations Survey Data, August 2, 2010
- Monitoring Wells Construction Details, September 10, 2010
- Benchmarks, September 10, 2010

Data Files

- Cooling Canal System – Bathymetric Survey Raw Data
- Groundwater Monitoring Wells – Field Notes; Geophysical Data; Photographs; Well Development Records
- Porewater Data – Broad Scale Dry/Wet Season Porewater Sampling

This response is PLANT SPECIFIC.

References:

None

ASSOCIATED COLA REVISIONS:

No COLA changes have been identified as a result of this response.

ASSOCIATED ENCLOSURES:

None

SRP Section: Environmental Report Section 9.3 – Alternative Sites

Question from Environmental Audit Data and Information Needs

NRC RAI Number: Environmental Audit Data and Information Need No. H-51, H-52

Have available the subject matter expert responsible for the ER analysis of impacts of potential land and water use and population changes for the Glades and Martin alternative sites. Have available for review the documents supporting the flow rates identified in the ER for Lake Okeechobee and the C-43 canal (H-51).

Have available the subject matter expert responsible for the ER analysis of siting considerations for the Glade site (H-52).

FPL RESPONSE:

ER Chapter 9.3 will be updated in a future revision to describe that Lake Okeechobee would not be considered a viable water source for any alternative site due to the restrictions put in place by the South Florida Water Management District (SFWMD). It was the practice of the SFWMD in 2006 to require no net increase in withdrawal from Lake Okeechobee. In 2008, the SFWMD formalized rules for regulating the consumptive use of water, which are set forth in Chapters 40E-2 and 40E-20, Florida Administrative Code. The rules identified Lake Okeechobee as a restricted allocation area and established a base water use volume for the lake. These rules require applicants for new water use permits to demonstrate that the requested allocation will not cause a net increase in the volume of surface water withdrawn from Lake Okeechobee. While unassigned and terminated allocations could be used to offset some of the water used by the proposed nuclear project, it is unlikely that sufficient unassigned allocations would be available to offset the entire volume used. Consequently, Lake Okeechobee is not considered a viable water source for any of the sites analyzed in detail.

This response is PLANT SPECIFIC.

References:

SFWMD 2010. South Florida Water Management District. Basis of Review for Water Use Permit Applications Within The South Florida Water Management District. March 18, 2010.

ASSOCIATED COLA REVISIONS:

ER Section 9.3 will be updated in a future revision to include updates for the use of Lake Okeechobee.

ASSOCIATED ENCLOSURES:

None.

SRP Section: Environmental Report Section 5.3 – Cooling System Impacts

Question from Environmental Audit Data and Information Needs

NRC RAI Number: Environmental Audit Data and Information Need No. H-63

FPL will provide revisions, if any, to documentation regarding the operation of the radial wells as a result of the ongoing and soon to be completed reliability study for reclaimed water.

This response is PLANT SPECIFIC.

FPL RESPONSE:

The *Reclaimed Water Reliability Study* will be available for inspection in the Reading Room when completed.

References:

None

ASSOCIATED COLA REVISIONS:

The Environmental Report may be updated in a future revision to incorporate the results of the *Reclaimed Water Reliability Study*.

ASSOCIATED ENCLOSURES:

None

SRP Section: Environmental Report Section 5.4 – Radiological Impacts of Normal Operation

Question from Environmental Audit Data and Information Needs

NRC RAI Number: Environmental Audit Data and Information Need No. HP-9

Have available for review the LADTAP II/GASPAR II calculation packages and have available the subject matter expert responsible for the calculations.

FPL RESPONSE:

The *Radiological Impacts of Normal Operation* calculation is available for inspection in the Reading Room. The input and output data files, in electronic format, are included on the enclosed OSM. The included files are listed as follows:

LADTAP II -; Liq.dat; Liq.out

GASPAR II - Gas.dat; Gas.out; Gas2.dat; Gas2.out; Gas_XOQ.DAT

The analysis conservatively assumed a receptor at the property boundary in the south-southeast (SSE) sector, where the maximum dispersion and deposition coefficients were observed for all property boundary sectors. These doses calculated at the SSE sector location bound the MEI doses calculated at the merged residence/garden/meat animal location.

This response is PLANT SPECIFIC.

References:

None

ASSOCIATED COLA REVISIONS:

ER Section 5.4.2 will be updated in a future revision to reflect the location of the MEI considered in the normal dose analysis.

Although Table 5.4-2 shows the vegetable garden is farther away than the residence and the meat animal, the garden doses were added to the doses from the other two pathways. ~~Furthermore, it was conservatively assumed that an individual resides at the Turkey Point plant property boundary, although the nearest actual residence is farther away, as shown in Table 5.4-2~~. **For comparison, Table 5.4-2 includes dose estimates at the limiting Turkey Point plant property boundary location, where no established human exposure pathways have been identified**. In effect, doses were calculated at two locations: Turkey Point plant property boundary and **the merged** residence/garden/meat animal **location**. **The latter location represents the MEI**. Table 5.4-3 shows that the maximum doses from each unit occur at the Turkey Point plant property boundary and that most of the dose is a result of the external **exposure** pathways.

ER Section 5.4.3 will be updated in a future revision to delete designation of the MEI at the site boundary.

Table 5.4-4 shows that **even the site boundary** ~~MEI~~ doses, **which bound the MEI**, are within the design objectives of 10 CFR Part 50, Appendix I.

ASSOCIATED ENCLOSURES:

Environmental Audit and Information Needs NRC Request HP-9 (LADTAP II and GASPAR II Input /Output Files) (1 OSM) (Enclosure 3)

SRP Section: Environmental Report Section 4.4 – Socioeconomic Impacts of Construction

Question from Environmental Audit Data and Information Needs

NRC RAI Number: Environmental Audit Data and Information Need No. MET-6

Have available the subject matter expert responsible for the ER analysis of construction emissions (criteria pollutants) associated with non-road and on-road construction equipment activity and workforce commuting, including the expected duration of these activities.

FPL RESPONSE:

The Environmental Report, Section 4.4, will be updated in a future revision to include a discussion regarding greenhouse gas (GHG) emissions from construction vehicular traffic.

This response is PLANT SPECIFIC.

References:

U.S. NRC 2010. Draft Environmental Impact Statement for Combined Licenses for Virgil C. Summer Nuclear Station Units 2 and 3; Draft Report for Comment. Available at http://adamswebsearch2.nrc.gov/idmws/doccontent.dll?library=PU_ADAMS^PBNTAD01&ID=101060088

NEI 2010. Nuclear Energy Institute. *Life-Cycle Emission Analysis.* http://www.nei.org/keyissues/protectingtheenvironment/lifecycleemissionsanalysis/

ASSOCIATED COLA REVISIONS:

The following text will be added to Subsection 4.4.1 in a future revision.

…The Southeast Florida Intrastate Air Quality Control Region is in attainment for criteria air pollutants. Attainment areas are areas where the ambient levels of criteria air pollutants are designated as being *better than, unclassifiable/attainment, or cannot be classified or better than* the EPA-promulgated National Ambient Air Quality Standards.

Aside from the six common "criteria pollutants" for which the EPA has set NAAQS (ozone, particulate matter, carbon monoxide, nitrogen oxides, sulfur dioxide, and lead), heat-trapping greenhouse gases, such as methane, nitrous oxide, and halocarbons would be produced during construction. The greenhouse gas of primary concern is carbon dioxide (CO2). The total carbon footprint, which is the total set of greenhouse gases (GHG) emissions caused by an organization, event or product, is estimated for single AP1000 reactor to be 185,000 metric tons. Construction equipment CO2 emissions account for about 19 percent of this total or approximately 35,000 metric tons. Workforce transportation accounts for a majority of the total, approximately 150,000 metric tons (NRC 2010). The estimated equipment usage for a multiple unit facility would be larger, but it is not likely that it would be a factor of 2 larger (NRC 2010). In order to provide a perspective, an International Energy Agency analysis found that nuclear power's life-cycle emissions range from 2 to 59 gram-equivalents of carbon dioxide per

kilowatt-hour. Nuclear energy's life-cycle greenhouse gas emissions are lower than wind (7 to 124 grams of carbon dioxide-equivalents), solar photovoltaic (13 to 731 grams of carbon dioxide-equivalents), natural gas-combined cycle (389 to 511 grams carbon dioxide-equivalents) and a modern coal plant (790 to 1182 grams of carbon dioxide equivalents). (NEI 2010) Based on greenhouse gas life-cycle emissions generated for a nuclear plant compared to a fossil fuel plant's life-cycle greenhouse gas emissions, the atmospheric impacts of greenhouse gases from plant construction would not be noticeable and therefore the impacts would be SMALL.

The following references will be added to Section 4.4 in a future revision.

U.S. NRC 2010. Draft Environmental Impact Statement for Combined Licenses for Virgil C. Summer Nuclear Station Units 2 and 3; Draft Report for Comment. Available at http://adamswebsearch2.nrc.gov/idmws/doccontent.dll?library=PU_ADAMS^PBNTAD01&ID=101060088

NEI 2010. Nuclear Energy Institute. *Life-Cycle Emission Analysis.* http://www.nei.org/keyissues/protectingtheenvironment/lifecycleemissionsanalysis/

ASSOCIATED ENCLOSURES:

None

SRP Section: Environmental Report Section 4.4 – Socioeconomic Impacts of Construction

Question from Environmental Audit Data and Information Needs

NRC RAI Number: Environmental Audit Data and Information Need No. MET-7

Have available the subject matter expert responsible for the ER analysis of GHG emission associated with preconstruction, construction, operation and decommissioning.

FPL RESPONSE:

The Environmental Report, Section 4.4.1 and 5.8.1, will be updated in a future revision to include a discussion regarding greenhouse gas (GHG) emissions associated with preconstruction, construction and operation.

This response is PLANT SPECIFIC.

References:

NEI 2010. Nuclear Energy Institute. *Life-Cycle Emission Analysis.* http://www.nei.org/keyissues/protectingtheenvironment/lifecycleemissionsanalysis/

U.S.EPA. 2009. Global Greenhouse Gas Data, Available at http://www.epa.gov/climatechange/emissions/globalghg.html

U.S. NRC 2010. Draft Environmental Impact Statement for Combined Licenses for Virgil C. Summer Nuclear Station Units 2 and 3; Draft Report for Comment. Available at http://adamswebsearch2.nrc.gov/idmws/doccontent.dll?library=PU_ADAMS^PBNTAD01&ID=101060088

ASSOCIATED COLA REVISIONS:

The following text will be added to ER Subsection 4.4.1 in a future revision.

…The Southeast Florida Intrastate Air Quality Control Region is in attainment for criteria air pollutants. Attainment areas are areas where the ambient levels of criteria air pollutants are designated as being *better than, unclassifiable/attainment, or cannot be classified or better than* the EPA-promulgated National Ambient Air Quality Standards.

Aside from the six common "criteria pollutants" for which the EPA has set NAAQS (ozone, particulate matter, carbon monoxide, nitrogen oxides, sulfur dioxide, and lead), heat-trapping greenhouse gases, such as methane, nitrous oxide, and halocarbons would be produced during construction. The greenhouse gas of primary concern is carbon dioxide (CO2). The total carbon footprint, which is the total set of greenhouse gases (GHG) emissions caused by an organization, event or product, is estimated for single AP1000 reactor to be 185,000 metric tons. Construction equipment CO2 emissions account for about 19 percent of this total or approximately 35,000 metric tons. Workforce transportation accounts for a majority of the total, approximately 150,000 metric tons (NRC 2010). The estimated equipment usage for a multiple unit facility would be larger, but it is not likely that it would be a factor of 2 larger (NRC 2010). In order to provide a perspective, an International Energy Agency analysis found that nuclear power's

life-cycle emissions range from 2 to 59 gram-equivalents of carbon dioxide per kilowatt-hour. Nuclear energy's life-cycle greenhouse gas emissions are lower than wind (7 to 124 grams of carbon dioxide-equivalents), solar photovoltaic (13 to 731 grams of carbon dioxide-equivalents), natural gas-combined cycle (389 to 511 grams carbon dioxide-equivalents) and a modern coal plant (790 to 1182 grams of carbon dioxide equivalents). (NEI 2010) Based on greenhouse gas life-cycle emissions generated for a nuclear plant compared to a fossil fuel plant's life-cycle greenhouse gas emissions, the atmospheric impacts of greenhouse gases from plant construction would not be noticeable and therefore the impacts would be SMALL.

The following references will be added to Section 4.4 in a future revision.

U.S. NRC 2010. Draft Environmental Impact Statement for Combined Licenses for Virgil C. Summer Nuclear Station Units 2 and 3; Draft Report for Comment. Available at http://adamswebsearch2.nrc.gov/idmws/doccontent.dll?library=PU_ADAMS^PBNTAD01&ID=101060088

NEI 2010. Nuclear Energy Institute. *Life-Cycle Emission Analysis.* http://www.nei.org/keyissues/protectingtheenvironment/lifecycleemissionsanalysis/

The following text will be added to ER Section 5.8.1 in a future revision.

The new units would have standby diesel generators. The diesel generators would be operated periodically on a limited short-term basis and the related emissions would be intermittent. Emissions from these sources are described in Subsection 2.7.2.2. The standby diesel generators would be operated under air permits issued by the state of Florida for cooling tower particulates. **The operation of a nuclear power plant involves the emission of some greenhouse gases, primarily carbon dioxide (CO_2). The NRC has conservatively estimated for a 1000 MW(e) nuclear plant that the total carbon footprint for the operation of a plant for 40 years is on the order of 320,000 metric tons of CO_2 equivalent (NRC, 2010). Thus, for two AP1000 reactors, the total carbon footprint would be on the order of 640,000 metric tons (not including uranium fuel cycle). Periodic testing of diesel generators and normal plant operation accounts for about 60 percent of the total or approximately 380,000 metric tons. Workforce transportation accounts for most of the rest or approximately 260,000 metric tons. As a comparison, the total United States annual CO_2 emission rate is 6,000,000,000 metric tons (EPA 2009). Additionally, Subsection 9.2.3.1.1 estimates a yearly CO_2 emission for comparable fossil fuel plants (coal- fired and natural gas fired) as 14,000,000 metric tons and 5,900,000 metric tons, respectively. Based on the relatively small plant operations carbon footprint compared to the United States annual CO_2 emissions and comparable fossil fuel plants annual CO_2 emissions, the atmospheric impacts of greenhouse gases from plant operation would not be noticeable and therefore impacts would be SMALL. Given the periodic and short-term operation of these pollution sources, the impact from the operation of Units 6 & 7 on air quality would be SMALL and would not warrant mitigation.**

The following references will be added to Section 5.8 in a future revision.

U.S. NRC 2010. Draft Environmental Impact Statement for Combined Licenses for Virgil C. Summer Nuclear Station Units 2 and 3; Draft Report for Comment. Available at http://adamswebsearch2.nrc.gov/idmws/doccontent.dll?library=PU_ADAMS^PBNTAD01&ID=101060088

U.S.EPA. 2009. Global Greenhouse Gas Data, Available at http://www.epa.gov/climatechange/emissions/globalghg.html

ASSOCIATED ENCLOSURES:

None

SRP Section: Environmental Report Section 5.3 – Cooling System Impacts

Question from Environmental Audit Data and Information Needs

NRC RAI Number: Environmental Audit Data and Information Need No. NR-4

Have available the subject matter expert responsible for the analysis in ER Sec. 5.3.1 with respect to use of reclaimed water.

FPL RESPONSE:

The *Reclaimed Water Reliability Study* will be available for inspection in the Reading Room when completed.

References:

None

This response is PLANT SPECIFIC.

ASSOCIATED COLA REVISIONS:

None

ASSOCIATED ENCLOSURES:

None

SRP Section: Environmental Report Section 9.3 – Alternative Sites

Question from Environmental Audit Data and Information Needs

NRC RAI Number: Environmental Audit Data and Information Need No. NR-19

Have available the subject matter expert responsible for the ER analysis of the nonradiological health effects at alternative sites, including cumulative impacts.

FPL RESPONSE:

The Environmental Report will be updated in a future revision to modify the cooling water discharge option for each alternative site with the exception of the St. Lucie site. The preferred option at each alternative site is discharge through deep well injection into the Boulder Zone, while at the St. Lucie site, cooling water discharge would be the same as the current operating nuclear plant - discharge into the Atlantic Ocean.

This response is PLANT SPECIFIC.

References:

None

ASSOCIATED COLA REVISIONS:

The following text will be revised as shown in a future revision.

Section 9.3.3.1.3

It is assumed that a closed loop, mechanical draft, tower-cooled system would be used for power cycle waste heat rejection, whereby blowdown waters **would be** ~~are either routed to a suitable surface water body or~~ injected into the Boulder Zone.

Section 9.3.3.2.3

For the Martin site, FPL assumed that a closed loop, mechanical draft, tower-cooled system would be used for power cycle waste heat rejection, whereby blowdown water **would be** ~~are either routed to a suitable surface water body or~~ injected into the Boulder Zone.

Section 9.3.3.3.3

For the Okeechobee 2 site, FPL assumed that a closed-loop, mechanical draft, tower-cooled system would be used for power cycle waste heat rejection, whereby blowdown water **would be** ~~are either routed to a suitable surface water body or~~ injected into the Boulder Zone.

ASSOCIATED ENCLOSURES:

None

SRP Section: Environmental Report Section 4.4 – Socioeconomic Impacts of Construction

Question from Environmental Audit Data and Information Needs

NRC RAI Number: Environmental Audit Data and Information Need No. SE-10

Have available the subject matter expert responsible for the ER analysis of the current distribution of tax revenues by jurisdiction and impacts from construction.

FPL RESPONSE:

The Environmental Report, Section 2.5.2.3.5, will be updated in a future revision to provide a general description of the Florida Education Finance Program and a source for the detailed equation used to determine each school district's allocation.

This response is PLANT SPECIFIC.

References:

FSBA Undated. Florida School Board Association, *FEFP 101.* Available at http://www.fsba.org/documents/educlegis/05understandingfefp.pdf

ASSOCIATED COLA REVISIONS:

The following will be added to Subsection ER 2.5.2.3.5 in a future revision.

Funding is based on the number of full-time equivalent students, and considers variations in several factors when determining funding for each district: local property tax bases, education program costs, costs of living, and costs for equivalent educational programs due to student population's density and distribution (FDOE 2008). **A detailed description of the FEFP equation used to determine school district allocations is found at the Florida School Board Association website (FSBA Undated).**

The following item will be added to the ER 2.5 references in a future revision.

FSBA Undated. Florida School Board Association, *FEFP 101.* Available at http://www.fsba.org/documents/educlegis/05understandingfefp.pdf

ASSOCIATED ENCLOSURES:

None

SRP Section: Environmental Report Section 4.4 – Socioeconomic Impacts of Construction

Question from Environmental Audit Data and Information Needs

NRC RAI Number: Environmental Audit Data and Information Need No. SE-11

Have available the subject matter expert responsible for the ER analysis of the Level of Service (LOS) designation of roads in the vicinity of the plant, before and during construction and operations.

FPL RESPONSE:

The traffic sections of the Environmental Report will be updated in a future revision to be consistent with the traffic analysis prepared for the Site Certification Application (FPL 2009; Appendices 10.7.4.1 and 10.7.4.2; available at http://publicfiles.dep.state.fl.us/Siting/Outgoing/FPL_Turkey_Point/Units_6_7/Application/SCA%20Appendix%2010.7_Monitoring%20Programs/. The maximum construction workforce will be considered in the analysis, which considers the level of service (LOS) that will be met with the proposed intersection improvements to the intersections they determined were most critical. However, the current or estimated future LOS are not available for other intersections that would be most affected by the construction at Turkey Point.

This response is PLANT SPECIFIC.

References:

Florida Power and Light, 2009. Turkey Point Units 6 & 7 Site Certification Application June 2009.

ASSOCIATED COLA REVISIONS:

The following text and tables will be added to Section 4.4.2.2.4 in a future revision.

4.4.2.2.4 Transportation

The Units 6 & 7 construction activities were assessed for impacts on transportation infrastructure and traffic from deliveries of materials and commuting workers. The assessment focuses on roadways; however, some components used in construction, such as the reactor vessel, would arrive by barge. The analysis focuses on the likely commuting routes east of the principal arterial roads. FPL believes that the excess capacity of U.S. Highway 1 and Florida's Turnpike is adequate to accommodate construction traffic (Table 4.4-16b).

A peak workforce during construction of 3983 workers would exceed the capacity of the local roads in the vicinity of the construction site. As described in Section 4.4.1.4 construction traffic would be routed to a new construction entrance. This will alleviate traffic congestion at the existing entrance to Turkey Point Units 1 through 5. In addition, a traffic study was conducted to determine road improvements to alleviate traffic congestion between the construction site, and the principal arterial roads west of the site, including U.S. Highway 1 and Florida's

Turnpike (Traf Tech 2009). The analysis presented below considers the impacts of traffic during the peak morning and evening commute hours and assumes a maximum workforce of 3983 and a conservative vehicle occupancy of 1.0 persons per vehicle. It was assumed that 70 percent of the construction workforce would be assigned to the day shift and would arrive between 5:00 and 6:00 am and leave between 4:30 and 5:30 pm. The evening shift would comprise 30 percent of the workforce and would arrive between 4:00 and 5:00 pm and leave between 3:00 and 4:00 am. The analysis further assumes that half of the shift would arrive in the first half hour of the peak hour and half would arrive in the second half hour. These assumptions result in the following trip generations for the construction workforce:

Shift 1 (6:00 am to 4:30 pm)

Percent of total workforce	**70**
Number of vehicles (3983 X 0.7)	**2788**
Inbound time	**5:00 – 6:00 am**
Inbound traffic	**2788**
Traffic distribution (5:00 – 5:30)/(5:30 – 6:00)	**1394/ 1394**
Outbound traffic (beginning of Shift 1)	**None**
Outbound time	**4:30 – 5:30 pm**
Outbound traffic (end of Shift 1)	**2788**
Traffic distribution (4:30 – 5:00)/(5:00 – 5:30)	**1394/ 1394**
Inbound traffic	**1195 (See Shift 2)**

Shift 2 (5:00 pm to 3:00am)

Percent of total workforce	**30**
Number of vehicles (3983 X 0.3)	**1195**
Inbound time	**4:00 – 5:00 pm**
Inbound traffic	**1195**
Traffic distribution (4:00 – 4:30)/(4:30 – 5:00)	**597/597**
Outbound traffic (beginning of Shift 2)	**2788 (See Shift 1)**
Outbound time	**3:00 – 4:00 am**
Outbound traffic (end of Shift 2)	**1195**
Inbound traffic	**None**

The time of maximum construction traffic would be from 4:30 to 5:00 pm when half of each shift was leaving or entering the site, resulting in a maximum construction commuting workforce of 1991. The analysis looks at the hour of greatest traffic (4:30 to 5:30 pm) when all the Shift 1 workforce and half of the Shift 2 workforce would be commuting to or from the site, or 3385 commuters in one hours.

Trip distributions and traffic assignments for construction traffic were based on the traffic patterns of the existing workforce. Most existing traffic arrives from and departs to the north via SW 137th Avenue/Tallahassee Road. The second most traveled access/egress route is SW 344th Street/ Palm Drive to U.S. Highway 1. Most of the remainder of the existing workforce uses SW 328th Street/North Canal Drive.

The Traf Tech conclusions and recommendations (Traf Tech 2009) are valid for a workforce during construction of 3983 people. The maximum workforce is expected to be onsite for 12 months.

4.4.2.2.4.1 Deliveries of Construction Materials to the Turkey Point Site

The traffic study assumed that a maximum of 36 trucks per hour would enter and leave the site for a total of 72 trips per hour. The Traf Tech (2009) analysis looked at the impact of 72 truck trips per hour during the peak traffic hours, identified above. Fifty percent of the trucks were assumed to come from a quarry north of the site and access the construction site using SW 137th Avenue/ Tallahassee Road and SW 359th Street. The other 50 percent were assumed to access the site via U.S. Highway 1 to SW 344th Street/Palm Drive to SW 137th Avenue/Tallahassee Road to SW 359th Street. The discussion of the impacts of the commuting construction workforce include these trucks.

For delivery of construction materials at other than peak construction commute times, the available capacity of relevant road was compared with estimated truck traffic. Given the flat terrain in Miami-Dade County, a standard of one large truck equivalent to 1.5 passenger cars was used. SW 344th Street/Palm Drive has available peak hour capacity of 2799 vehicles west of SW 137th Avenue/Tallahassee Road and SW 328th Street/North Canal Drive has available peak hour capacity of 2346 west of SW 137th Avenue/Tallahassee Road. If all the trucks arriving and departing the construction site use SW 344th Street/Palm Drive or North Canal Drive, the available peak hour capacity would decrease by 114 (76 trucks X 1.5 passenger vehicles) on each roadway. The remaining available vehicle capacity on SW 344th Street/Palm Drive would be 2685, and on SW 328th Street/North Canal Drive it would be 2232.

The impact from deliveries of fill and construction materials to the Turkey Point site would be SMALL and would not warrant mitigation.

4.4.2.2.4.2 Workers Commuting to the Turkey Point Site

As shown in Table 4.4-16b, the principal arterial roads have adequate surplus capacity to support construction traffic. Therefore the traffic study focused on the streets east of these arterial roads and the intersections that will be most impacted by construction traffic. The analysis considered existing intersection counts and seasonal adjustments (Traf Tech 2009).

The analysis concluded that, in general, the roadways between the plant and the principal arterial roads have adequate capacity to support construction-generated trips, based on a link analysis of the roadways which are part of the Miami-Dade Concurrency Management System (Table 4.4- 16c).

The analysis concluded that the six most affected intersections (all within 5 miles of Turkey Point) would need improvements to maintain the Miami-Dade level of service (LOS) standard of D.

LOS is a quality measure describing operating conditions within a traffic stream. LOS classes are assigned from "A" which represents the best operating conditions, to "F", the worst. Miami-Dade County uses LOS D as their standard for planning and operational analyses. If the LOS is D, Miami-Dade considers options to improve the LOS.

For these analyses, roadway improvements were identified in order to provide acceptable LOS at the six study intersections. Table 4.4-16d provides the LOS at the six intersections with the identified roadway improvements.

In addition to the intersection improvements described in Table 4.4-16d, the following improvements to roadway segments would be required to maintain acceptable operating conditions (FDOT's Generalized Capacity Tables use a link capacity of 1100 vehicles per hour per lane):

- **Widen North Canal Drive from two to four lanes between SW 137th Avenue/Tallahassee Road and SW 117th Avenue**
- **Widen SW 344th Street/Palm Drive from two to four lanes between SW 137th Avenue/Tallahassee Road (W) and SW 137th Avenue/Tallahassee Road (E)**
- **Widen SW 117th Avenue from two to four lanes between SW 328th Street/North Canal Drive and SW 344th Street/Palm Drive**
- **Improve SW 359th Street by constructing two eastbound lanes and one west bound lane between SW 137th Avenue/Tallahassee Road and SW 117th Avenue**
- **Improve SW 359th by constructing four lanes between SW 117th Avenue and the construction entrance**
- **Improve SW 137th Avenue/Tallahassee Road by constructing two southbound lanes and one north bound lane between SW 344th Street/Palm Drive and SW 359th Street**

- **Improve SW 117th Avenue by constructing four lanes between SW 344th Street/Palm Drive and SW 359th Street**

Table 4.4-16b

Existing Traffic Conditions (peak hour) for U.S. Highway 1 and Florida's Turnpike

Roadway	Existing Traffic	Capacity	Reserved Trips
U.S. Highway 1	2893	4068	1175
Florida's Turnpike	3967	6500	2533

Source: FPL 2009.

The capacity of U.S. highway 1 was obtained from Miami-Dade County's Concurrency Management System.

The capacity of Florida's Turnpike was obtained from FDOT's generalized tables.

Table 4.4-16c

Construction PM Peak Link Analysis

Miami-Dade County Traffic Count Station	Location	Previous Peak Hour Available Capacity[1]	Construction Trips During Peak Hour[2]	New Available Peak Hour Capacity
9956	SW 344thStreet/Palm Drive west of SW 137th Avenue/Tallahassee Road	2799	1227	1572
9952	SW 328th Street/North Canal Drive west of SW 137th Avenue/Tallahassee Road	2346	488	1858
9944	Campbell Dr E of Florida's Turnpike	1289	856	433

1 See Table 2.5-16.

2 Traf Tech 2009, based on traffic patterns of existing workforce.

Table 4.4-16d

Level of Service Achieved at Affected Intersections During Peak Construction Period, with Improvements

Intersection	LOS AM Peak Travel Hour	LOS PM Peak Travel Hour	Improvements
SW 328th Street/North Canal Drive /SW 137th Avenue/Tallahassee Road	C	D	• Signal or police control • One additional southbound left- turn lane • One additional westbound through lane • Two westbound right-turn lanes
SW 328th Street/North Canal Drive /SW 117th Avenue	C	D	• Signal or police control • Two northbound left-turn lanes • One eastbound right-turn lane • Restripe eastbound through lane to a shared through/ right-turn lane
SW 344th Street/Palm Drive/ SW 137th Avenue/Tallahassee Road (W)	C	B	• Signal or police control (pm only) • One separate eastbound through lane • One additional westbound left-turn lane
SW 344th Street/Palm Drive/ SW 137th Avenue/Tallahassee Road (E)	B	B	• This would be a new intersection • Signal or police control (pm only) • Two eastbound right-turn lanes • Two northbound approach lanes (one as an exclusive left-turn lane and one as a shared left-turn/ right-turn lane

Intersection	LOS AM Peak Travel Hour	LOS PM Peak Travel Hour	Improvements
SW 344thStreet/Palm Drive/ SW 117th Avenue	C	C	• Signal or police control • One eastbound left-turn lane • One eastbound right-turn lane • One westbound right-turn lane • One northbound left-turn lane • Two northbound through lanes • One southbound left-turn lane • One southbound through lane
SW 359 Street/ SW 117th Avenue	C	D	• This would be a new intersection • Signal or police control • Two eastbound approach lanes • One westbound through lane • One westbound right-turn lane • Two southbound approach lanes

Source: Traf Tech 2009.

The following will be added to the reference section:

Florida Power and Light, 2009. Turkey Point Units 6 & 7 Site Certification Application June 2009.

Traf Tech. 2009. Turkey Point Power Plant Peak Construction Analysis. Traffic Study. Prepared for Golder Associates, Inc by Traf Tech Engineering, Inc. June 2009.

ASSOCIATED ENCLOSURES:

None

SRP Section: Environmental Report Section 4.4 – Socioeconomic Impacts of Construction

Question from Environmental Audit Data and Information Needs

NRC RAI Number: Environmental Audit Data and Information Need No. SE-14

Have available the subject matter expert responsible for the ER analysis of school enrollment projections and analysis of impact of in-migration on local schools.

FPL RESPONSE:

The projected school system capacity is only available through 2013 and is revised every five years. Therefore, the projected school system capacity is still currently accurate as presented in the Environmental Report.

This response is PLANT SPECIFIC.

References:

M-DCPS 2009. *Five-Year Capital Plan Fiscal Years 2008–2013*. Available at http://facilities.dadeschools.net/capital/index.asp

ASSOCIATED COLA REVISIONS:

None

ASSOCIATED ENCLOSURES:

None

SRP Section: Environmental Report Section 4.4 – Socioeconomic Impacts of Construction

Question from Environmental Audit Data and Information Needs

NRC RAI Number: Environmental Audit Data and Information Need No. SE-15

Have available the subject matter expert responsible for the ER analysis of workforce impacts related to outages at existing Turkey Point Power Plant Units during construction and operations for the proposed units.

FPL RESPONSE:

The Environmental Report will be updated in a future revision to include further information on the refueling outages of all nuclear units on Turkey Point during construction and operation of Units 6 & 7.

This response is PLANT SPECIFIC.

References:

None

ASSOCIATED COLA REVISIONS:

The following text will be added to Section 4.4.2.2.4.3 in a future revision.

4.4.2.2.4.3 Refueling Outage

Refueling outages for the existing units would occur during construction. Of these outages, the outage in month 45 would occur when the most construction and operation staff are onsite. The estimated temporary refueling workforce would be 600. In addition to the temporary staff, the workforce for Units 1 through 5 at that time is estimated to be 1476. The operation workforce at Units 6 & 7 is estimated to be 33. The total workforce accessing Turkey Point during the outage would be 6059. At the time of the outage, access to the site would be available from SW 344th Street/Palm Drive and SW 359th Street. Therefore, impacts associated with this outage would be the maximum workforce impacts during Units 6 & 7 construction and would last approximately 30 days. Mitigation could include staggering the outage shifts to ensure they did not coincide with construction shifts, encouraging outage workers to carpool, or providing van service to remote parking facilities for outage.

The following text will be added to Section 5.8.2.2.4.2 in a future revision.

5.8.2.2.4.2 Workers Commuting to the Turkey Point Site – Outage

The traffic analysis assumed a maximum temporary outage workforce of 2000 for Units 6 & 7, or an increase of 213 percent over the 940 staff on site during the traffic counts on which this analysis is based. Elsewhere in this document, the number of outage workers is assumed to be 600 for regular outages and 1000 for extended outages. Because 2000 is larger than 1000, the traffic analysis is more conservative and bounds the study. The analysis assumes that access/egress patterns of the outage workforce would be similar to those of the operations

workforce. In addition, the normal workforce for Units 1-5 would be estimated to be 1476. The workforce at Units 6 & 7 is estimated to be 806. The total workforce accessing Turkey Point during a regular outage would be 2882 and for an extended outage would be 3282.

The analysis concluded that, in general, the roadways between the plant and the major arterials have adequate capacity to support outage plus new operation workforce-generated trips, based on a link analysis of the roadways which are part of the Miami-Dade Concurrency Management System (Table 5.8-10d). The two most critical intersections were evaluated for impacts of Units 6 & 7 outage operations (Table 5.8-10e).

The trips generated by the Units 6 & 7 workforce and outage workforce meet Miami-Dade County's traffic concurrency standards. With the roadway improvements implemented for construction, the most affected intersections will operate adequately during normal operation and outages.

Table 5.8-10d

Units 6 & 7 Outage Peak Link Analysis

Miami-Dade County Traffic Count Station	Location	Previous Peak Hour Available Capacity[1]	Unit 6 & 7 Trips During Peak Hour[2]	New Available Peak Hour Capacity
9956	Palm Dr W of Tallahassee Road	2,673	310	2,363
9952	N. Canal St W of Tallahassee Road	2,328	45	2,283
9944	Campbell Dr E of Florida Turnpike	1,253	89	1,164

[1] See Table 2.5-17.

[2] FPL 2009, based on traffic patterns of existing workforce.

Table 5.8-10e

Level of Service Achieved at Affected Intersections with Outage Workforce, with Improvements

Intersection	Existing Conditions Level of Service AM peak hour (PM peak hour)	With Units 6 & 7 and Improvements Made to Support Construction Traffic AM peak hour (PM peak hour)	Improvements
Palm Drive / SW 117th Avenue	B (B)	B (B)	• Signal or police control (if the traffic signal remains, it should be set to "normal") • One eastbound left-turn lane • One westbound right-turn lane • One southbound left-turn lane
North Canal Drive / SW 117th Avenue	A (B)	C (B)	• Signal or police control (if the traffic signal remains, it should be set to "normal") • One separate northbound left-turn lane • One eastbound right-turn lane

Source: FPL 2009, based on traffic patterns of existing workforce.

The following will be added to the reference section.

Florida Power and Light, 2009. Turkey Point Units 6 & 7 Site Certification Application June 2009.

ASSOCIATED ENCLOSURES:

None

SRP Section: Environmental Report Section 4.4 – Socioeconomic Impacts of Construction

Question from Environmental Audit Data and Information Needs

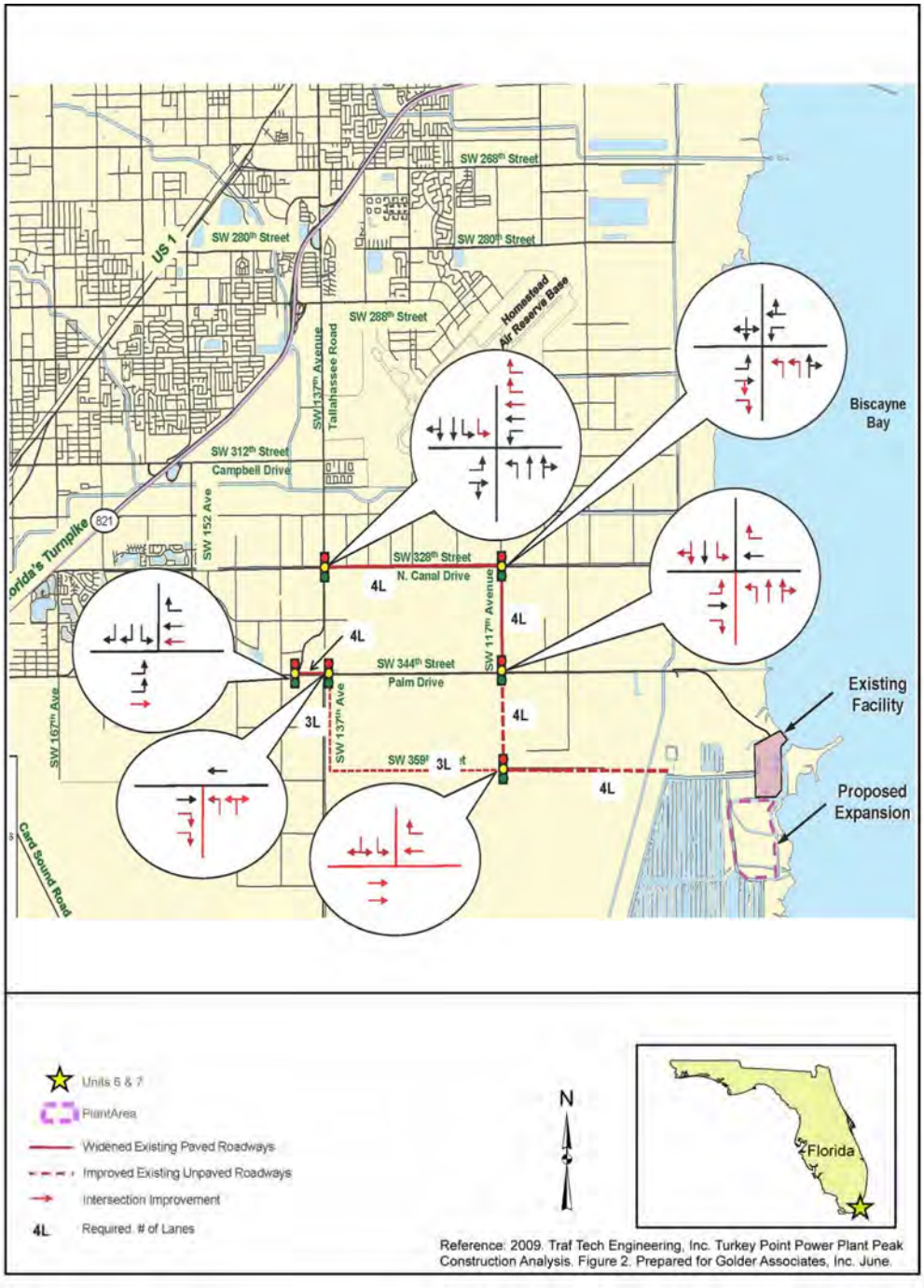
NRC RAI Number: Environmental Audit Data and Information Need No. SE-18

Have available the subject matter expert responsible for the ER analysis of the expected employee commuter routes to and from the site and percentage of construction and operation workers expected to use each road segment in the vicinity of the site.

FPL RESPONSE:

A figure of the roads (Appendix 10.7.4.1, FPL, 2009) in the vicinity of Turkey Point that will be most affected by construction traffic and their approved improvements will be added to the Environmental Report, Section 4.4, in a future revision.

Figure 4.4-2 Traffic Study of Construction Entrance



This response is PLANT SPECIFIC.

References:

Florida Power and Light, 2009. Turkey Point Units 6 & 7 Site Certification Application June 2009.

ASSOCIATED COLA REVISIONS:

Figure 4.4-2 will be added to ER 4.4 in a future revision.

ASSOCIATED ENCLOSURES:

None

SRP Section: Environmental Report Section 9.3 – Alternative Sites

Question from Environmental Audit Data and Information Needs

NRC RAI Number: Environmental Audit Data and Information Need No. SE-20

Have available the subject matter expert responsible for the ER analysis of cumulative impacts to socioeconomic and Environmental Justice resources at alternative sites.

FPL RESPONSE:

The Environmental Report will be updated in a future revision to update the discussion of the cumulative impacts to socioeconomic and Environmental Justice (EJ) within the 50 mile ROI for each alternative site.

This response is PLANT SPECIFIC.

References:

None

ASSOCIATED COLA REVISIONS:

The following new sections will be added to 9.3.3 in a future revision.

Section 9.3.3.1.9 Other Projects in the Vicinity of the Glades Site

The cumulative impacts of past, present, and reasonably foreseeable Federal (e.g. USCOE, USGS), non-Federal (e.g. FDEP, FDOT, county), and private projects within a 50-mile radius of the Glades site, excluding Brownfield and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) sites, that could have cumulative impacts with the proposed action are described in Table 9.3-7a. These projects have either requested an air or water permit/license or had an environmental impact statement complete. Projects included in the Table 9.3-7a met the screening criteria of being within the 50-mile radius of the Glades site and the appropriate timeframe for construction and operation of the new units (Figure 9.3-8a). The timeframe for potential projects that could contribute to cumulative impacts during construction and operation at the Glades site was 2013 to 2063, based on a construction start year of 2013 and construction completion/operational start date of 2023 (Unit 7), assuming a 40 year operational license. Nuclear power projects within 100 miles of the Glades site (i.e., St. Lucie) are also described in Table 9.3-7a. The Turkey Point site is more than 100 miles from the Glades site and was therefore not included in the Table. The only other nuclear power plant currently operating in Florida, Crystal River, is more than 170 miles from the Glades site and therefore is also not included in the Table. The proposed nuclear power plant in Levy County is approximately the same distance as the Crystal River site and was not in the Table.

The cumulative impacts for land would be most apparent in the form of change in the land use designation from "agriculture" to "industrial" for several large scale projects. Many CERP projects within the 50-mile radius would redevelop, reuse, or develop additional land for conservation. The cumulative impacts to hydrology and water use would be minimally negative due to the restrictions placed on all

surface water and groundwater use. There would also be a beneficial impact due to the large scale CERP projects for reservoir and storage areas which would provide additional water to the southern Everglades Agricultural Area and reestablish wetland hydropatterns. The cumulative impacts for terrestrial/aquatic resources would be most apparent in the form of negative impact by the minimal loss of wetlands due to the offset by the development of developed land for conservation and restoration of the native species through several CERP projects. The cumulative impacts for socioeconomics for the Glades site would be most apparent in the forms of a beneficial impact to taxes and negative impact on transportation. Also, there would not be any disproportionate impact to low-income or minority populations by the activities at the Glades site.

Section 9.3.3.2.9 Other Projects in the Vicinity of the Martin Site

The cumulative impacts of past, present, and reasonably foreseeable Federal (e.g. USCOE, USGS), non-Federal (e.g. FDEP, FDOT, county), and private projects within a 50-mile radius of the Martin site, excluding Brownfield and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) sites, that could have cumulative impacts with the proposed action are described in Table 9.3-8a. These projects have either requested an air or water permit/license or had an environmental impact statement complete. Projects included in the Table 9.3-8a met the screening criteria of being within the 50-mile radius of the Martin site and the appropriate timeframe for construction and operation of the new units (Figure 9.3-11a). The timeframe for potential projects that could contribute to cumulative impacts during construction and operation at the Martin site was 2013 to 2063, based on a construction start year of 2013 and construction completion/operational start date of 2023 (Unit 7), assuming a 40 year operational license. Nuclear power projects within 100 miles of the Martin site (i.e., St. Lucie) are also described in Table 9.3-8a. The Turkey Point site is more than 110 miles from the Martin site and was therefore not included in the Table. The only other nuclear power plant currently operating in Florida, Crystal River, is more than 180 miles from the Martin site and therefore is also not included in the Table. The proposed nuclear power plant in Levy County is approximately the same distance as the Crystal River site and was not included in the Table.

The cumulative impacts for land would be most apparent in the form of change in the land use designation from "agriculture" to "industrial" for several large scale projects along with the negative impacts from additional landfills. Many CERP projects within the 50-mile radius would redevelop, reuse, or develop additional land for conservation. The cumulative impacts to hydrology and water use would be minimally negative due to the restrictions placed on all surface water and groundwater use. There would also be a beneficial impact due to the large scale CERP projects for reservoir and storage areas which would provide additional water to the southern Everglades Agricultural Area, reestablish wetland hydropatterns and improve Everglades water quality by treating urban stormwater runoff. The cumulative impacts for terrestrial/aquatic resources would be most apparent in the form of negative impact by the minimal loss of wetlands

due to the offset by the development of developed land for conservation and restoration of the native species through several CERP projects. The cumulative impacts for socioeconomics for the Martin site would be most apparent in the form of a negative impact on transportation. Also, there would not be any disproportionate impact to low-income or minority populations by the activities at the Martin site.

Section 9.3.3.3.9 Other Projects in the Vicinity of the Okeechobee 2 Site

The cumulative impacts of past, present, and reasonably foreseeable Federal (e.g. USCOE, USGS), non-Federal (e.g. FDEP, FDOT, county), and private projects within a 50-mile radius of the Okeechobee 2 site, excluding Brownfield and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) sites, that could have cumulative impacts with the proposed action are described in Table 9.3-9a. These projects have either requested an air or water permit/license or had an environmental impact statement complete. Projects included in the Table 9.3-9a met the screening criteria of being within the 50-mile radius of the Okeechobee 2 site and the appropriate timeframe for construction and operation of the new units (Figure 9.3-14a). The timeframe for potential projects that could contribute to cumulative impacts during construction and operation at the Okeechobee 2 site was 2013 to 2063, based on a construction start year of 2013 and construction completion/operational start date of 2023 (Unit 7), assuming a 40 year operational license. Nuclear power projects within 100 miles of the Okeechobee 2 site (i.e., St. Lucie) are also described in Table 9.3-8a. The Turkey Point site is more than 110 miles from the Okeechobee 2 site and was therefore not included in the Table. The only other nuclear power plant currently operating in Florida, Crystal River, is more than 180 miles from the Okeechobee 2 site and therefore is also not included in the Table. The proposed nuclear power plant in Levy County is approximately the same distance as the Crystal River site and was not included in the Table.

The cumulative impacts for land would be most apparent in the form of change in the land use designation from "agriculture" to "industrial" for several large scale projects. Many CERP projects within the 50-mile radius would redevelop, reuse, or develop additional land for conservation. The cumulative impacts to hydrology and water use would be minimally negative due to the restrictions placed on all surface water and groundwater use. There would also be a beneficial impact due to the large scale CERP projects for reservoir and storage areas which would provide additional water to the southern Everglades Agricultural Area, reestablish wetland hydropatterns and improve water quality in several different watersheds by treating excessive discharge. The cumulative impacts for terrestrial/aquatic resources would be most apparent in the form of negative impact by the minimal loss of wetlands due to the offset by the development of developed land for conservation and restoration of the native species through several CERP projects. The cumulative impacts for socioeconomics for the Okeechobee 2 site would be most apparent in the forms of a beneficial impact to taxes and negative impact on transportation. Also, there would not be any disproportionate impact to low-income or minority populations by the activities at the Okeechobee site.

Section 9.3.3.4.9 Other Projects in the Vicinity of the St. Lucie Site

The cumulative impacts of past, present, and reasonably foreseeable Federal (e.g. USCOE, USGS), non-Federal (e.g. FDEP, FDOT, county), and private projects within a 50-mile radius of the St. Lucie site, excluding Brownfield and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) sites, that could have cumulative impacts with the proposed action are described in Table 9.3-10a. These projects have either requested an air or water permit/license or had an environmental impact statement complete. Projects included in the Table 9.3-10a met the screening criteria of being within the 50-mile radius of the St. Lucie site and the appropriate timeframe for construction and operation of the new units (Figure 9.3-17a). The timeframe for potential projects that could contribute to cumulative impacts during construction and operation at the St. Lucie site was 2013 to 2063, based on a construction start year of 2013 and construction completion/operational start date of 2023 (Unit 7), assuming a 40 year operational license. Nuclear power projects within 100 miles of the St. Lucie site (i.e., St. Lucie Units 1 & 2) are also described in Table 9.3-10a. The Turkey Point site is more than 130 miles from the St. Lucie site and was therefore not included in the Table. The only other nuclear power plant currently operating in Florida, Crystal River, is more than 180 miles from the St. Lucie site and therefore is also not included the Table. The proposed nuclear power plant in Levy County is approximately the same distance as the Crystal River site and was not included in the Table.

The cumulative impacts for land would be most apparent in the form of change in the land use designation from "agriculture" to "industrial" for several large scale projects. Many CERP projects within the 50-mile radius would redevelop, reuse, or develop additional land for conservation. The cumulative impacts to hydrology and water use would be minimally negative due to the restrictions placed on all surface water and groundwater use. There would also be a beneficial impact due to the large scale CERP projects for reservoir and storage areas which would provide additional water to the southern Everglades Agricultural Area, reestablish wetland hydropatterns and improve water quality in several different watersheds by treating excessive discharge. The cumulative impacts for terrestrial/aquatic resources would be most apparent in the form of negative impact by the minimal loss of wetlands due to the offset by the development of developed land for conservation and restoration of the native species through several CERP projects The cumulative impacts for socioeconomics for the St. Lucie site would be most apparent in the form of a negative impact on transportation. Also, there would not be any disproportionate impact to low-income or minority populations by the activities at the St. Lucie site.

ASSOCIATED ENCLOSURES:

None

SRP Section: Environmental Report Section 4.3 – Ecological Impacts

Question from Environmental Audit Data and Information Needs

NRC RAI Number: Environmental Audit Data and Information Need No. TE-1

Have available the subject matter expert responsible for the ER analysis of important species (including Federal and state threatened and endangered species) and habitats in the vicinity of the site and transmission lines, including survey locations and methodologies, as well as the distribution of important resources in relation to the physical disturbances.

FPL RESPONSE:

The GIS database for Turkey Point Units 6 & 7 was provided as part of Environmental Audit Data and Information Need No. G-4 to the NRC by FPL Letter L-2010-172 on November 1, 2010.

This response is PLANT SPECIFIC.

References:

FPL Letter L-2010-172 to NRC, dated November 1, 2010, NRC June 2010 Environmental Audit, Supplemental Information Request Response 1

ASSOCIATED COLA REVISIONS:

None

ASSOCIATED ENCLOSURES:

None