FPL

L-2012-285
10 CFR 52.3

July 18, 2012

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
Response to NRC Request for Additional Information Letter 120329
(eRAI 6354 Rev. 0) Related to ESRP Section 2.3.1 - Hydrology

References:

1. NRC Letter to FPL dated April 3, 2012, Environmental Request for Additional Information Letter 120329 Related to ESRP Section 2.3.1, Hydrology, for the Combined License Application Review for Turkey Point Units 6 and 7

2. FPL Letter L-2012-226 to NRC dated May 17, 2012, Response Schedule for NRC Request for Additional Information Letter 120329 (eRAI 6354 Rev. 0) Related to ESRP Section 2.3.1 – Hydrology

Florida Power & Light Company (FPL) provides, as an attachment to this letter, its response to the Nuclear Regulatory Commission's (NRC) Request for Additional Information (RAI) EIS 2.3.1-8 provided in Reference 1. The schedule for this response was provided in Reference 2. The attachment identifies changes that will be made in a future revision of the Turkey Point Units 6 and 7 Combined License Application (if applicable).

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 July 18, 2012.

Sincerely,

William Maher
Senior Licensing Director – New Nuclear Projects

D097
NRO

WDM/RFO

Attachment: FPL Response to NRC RAI EIS 2.3.1-8 (eRAI 6354 Rev. 0)

cc:
PTN 6 & 7 Project Manager, AP1000 Projects Branch 1, USNRC DNRL/NRO
Regional Administrator, Region II, USNRC
Senior Resident Inspector, USNRC, Turkey Point Plant Units 3 & 4

NRC RAI Letter No. 120329 Dated April 3, 2012

SRP Section: EIS 2.3.1 – Hydrology

Question from Environmental Project Branch 1 (RAP1)

NRC RAI Number: EIS 2.3.1-8 (eRAI 6354 Rev. 0)

Preface: The review team acknowledges the value of numerical models in hydrological analyses; however a single model scenario does not generally address all aspects of a hydrological impact assessment. Therefore, the review team considers all available models and performs an independent analysis in order to understand the patterns in the predictions that may be similar and those that might be dissimilar and to determine if such difference would result in a change in the impact assessment. Because of the inherent uncertainty in hydrologic models due to: measurement errors, sampling errors, conceptual model errors, non-uniqueness and the potential misapplication of the numerical model the review team does not make a determination based solely on results of a numerical model. Items 1 through 3 are to ensure that the review team understands how the applicant addressed the three classes of uncertainty mentioned above. Items 4 through 10 are to ensure that the review team understands that the three-dimensional finite-difference groundwater flow model (MODFLOW) was appropriately applied by the applicant.

EIS 2.3.1-8

For the model sensitivity case for seasonal high and seasonal low water levels in Biscayne Bay, water levels in the canals and the cooling canals were also adjusted by an equivalent amount based on sea water density. Describe if the water level of the plant discharge canal was also adjusted for this sensitivity case and if the measured level of the discharge canal changes proportionally to the bay water level as represented in the model.

FPL RESPONSE:

Two sensitivity simulations were presented in FSAR Subsection 2.4, Appendix 2CC to address the effect of seasonal high and seasonal low water levels in Biscayne Bay. Biscayne Bay is set at -0.81 feet NAVD 88 in the base case simulation to represent the long-term average. The seasonal low and high of Biscayne Bay are set at -1.40 feet NAVD 88 and 0.09 feet NAVD 88, respectively, in the sensitivity simulations. These long-term average and seasonal limits are based on data from February 1994 to March 2010 from NOAA tidal data collection station #8723214 at Virginia Key (see FSAR 2.4.12, Appendix 2CC, Section 5.2.3, page 2CC-53). Thus the water level in Biscayne Bay is adjusted downwards by 0.59 feet in the seasonal low simulation and upwards by 0.90 feet in the seasonal high simulation. Water levels in the cooling canals, L-31E canal, Card Sound Canal, and Model Land Canal (C-107) are all adjusted by the same amount as the water level in Biscayne Bay. The plant cooling water canals are part of the closed-loop cooling canal system and therefore modeled water levels in the "discharge canal" are adjusted by the same amount as the rest of the cooling canal system for the two sensitivity simulations.

FPL, as a part of its Uprate Monitoring Program, began in September 2010 recording water levels at various locations in the cooling canal system and Biscayne Bay. Of five surface water monitoring stations in Biscayne Bay, only one, TPBBSW-3B, currently has a continuous period

of record of data of one year or more. This station is located approximately one mile off shore and midway between the northern and southern extents of the cooling canal system. Of eight surface water monitoring stations in the cooling canal system, one, TPSWCCS-1, is located on the northern part of the cooling canal system and has a relatively continuous period of record of one year or more. TPSWCCS-1 is located on the westernmost end of the northern plant discharge canal, near the interceptor ditch and L-31E. Data from these two stations are compared and analyzed to address this question.

Monthly average water levels were computed for the two stations for the one-year period November 1, 2010 through October 30, 2011 (Table 1). Seasonal monthly high and low values were identified for each station, assuming that November through April represents the dry season and May through October represents the wet season. Some missing data were present:

- 2 days in mid-December for TPBBSW-3B, and
- 25 days in late July and August for TPSWCCS-1.

However, the missing data are not expected to affect this analysis because the periods having missing data were not within or adjacent to the months that were identified as seasonal high or low months. The missing data may have a slight effect on the average annual values computed for each station. Table 2 shows the results of the analysis. The analysis suggests that the range in cooling canal system water levels between wet and dry seasons at the TPSWCCS-1 location is 73 percent of the range in Biscayne Bay water levels. Most of this discrepancy is in the increase to the seasonal high, where Biscayne Bay water levels increase by 0.67 ft compared to 0.42 ft in the cooling canal system. The decreases to the seasonal lows are more similar, where Biscayne Bay water levels decrease by 0.43 ft while the cooling canal system water levels decrease by 0.39 ft.

Water level data from some additional stations not along the plant discharge canal were also assessed. Pertinent findings from this analysis are:

- Water levels at TPSWCCS-6, on a return canal near the plant intake, are lower than Biscayne Bay and have a higher seasonal range (1.91 ft vs 1.10 ft). The higher range is caused by a greater decrease in water levels from the average, presumably due to pumping at the intake.
- Water levels at TPSWCCS-2, in the center of the cooling canal system, are slightly lower than those at TPSWCCS-1, but respond in a similar manner.
- Water levels in L31-E near TPSWCCS-1, are higher than TPSWCCS-1, and have a higher seasonal range (1.77 ft) than Biscayne Bay (1.10 ft), presumably due to canal management practices by South Florida Water Management District.

The overall magnitude of seasonal water level fluctuation at the plant discharge canal is less than assumed in the model; however, it should be noted that the model values represent a long-term average condition (February 1994 to March 2010) while the calculated values are for a single year. Therefore, it would be expected that the changes during a single year would be less than the maximum change over a multiple-year period. Moreover, this computation

supports the assumption that the water levels in the plant discharge canal changes proportionally to the bay water level as represented in the model.

Table 1. Monthly average water levels (feet, NAVD-88) in Biscayne Bay (TPBBSW-3B) and the cooling canal system (TPSWCCS-1). Data summary from FPL (2012).

Date	TPBBSW-3B	TPSWCCS-1
November-10	-0.63	0.11
December-10	-0.94	-0.06
January-11	-1.32	-0.19
February-11	-1.38	-0.19
March-11	-1.16	-0.37
April-11	-1.18	-0.42
May-11	-0.99	-0.11
June-11	-0.95	-0.10
July-11	-1.28	0.14
August-11	-0.71	0.21
September-11	-0.58	0.26
October-11	-0.28	0.39

Table 2. Seasonal water levels (feet, NAVD-88) and water level changes (feet) in Biscayne Bay and the cooling canal system (as determined from data shown in Table 1).

	TPBBSW-3B	TPSWCCS-1
Average of monthly water levels	-0.95	-0.03
Wet seasonal high monthly water level (month)	-0.28 (October)	0.39 (October)
Increase in water level from average for wet seasonal high	0.67	0.42
Dry seasonal low monthly water level (month)	-1.38 (February)	-0.42 (April)
Decrease in water level from average for dry seasonal low	0.43	0.39
Range in water level between wet and dry season	1.10	0.81

This response is PLANT SPECIFIC.

References:

Florida Power & Light Company (FPL) 2012. Florida Power & Light Company Semi-Annual Report for the Turkey Point Monitoring Project. Prepared for Florida Power & Light Company by Ecology and Environment, Inc., Effective Date: 03/28/12. March 2012. Available at: http://my.sfwmd.gov/portal/pls/portal/portal_apps.repository_lib_pkg.repository_browse?p_keywords=fpltpsurvey&p_thumbnails=no. Accessed on July 2, 2012.

ASSOCIATED COLA REVISIONS:

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

ASSOCIATED ENCLOSURES:

None