EXECUTIVE SUMMARY

As a requirement of certification, Florida Power & Light Company (FPL) has prepared this Semi-Annual Monitoring Report for the Turkey Point Plant Units 3 and 4 Uprate Project (Semi-Annual Monitoring Report). This report has been prepared in accordance with the FPL Turkey Point Power Plant Groundwater, Surface Water, and Ecological Monitoring Plan, referred to herein as the Monitoring Plan (South Florida Water Management District [SFWMD] 2009a). The purpose of this Semi-Annual Monitoring Report is to present the results of monitoring efforts conducted from June 2011 through November 2011 and to note any appreciable deviations from previous findings. Since this is an interim report, limited interpretation of the data is made.

FPL installed an extensive monitoring network of 47 groundwater wells (42 new wells) and 20 surface water stations, along with automated meteorological stations, rainfall gauges, and flow meters in the CCS and surrounding area. Most of the groundwater and surface water stations are automated and record specific conductance, temperature, salinity, density, and water levels, with data recorded at 15-minute intervals. Groundwater and surface water samples are collected across the vast network of stations every three months and analyzed for a broad suite of parameters. Water samples have also been collected from the shallow soils (referred to as porewater) at hundreds of locations and analyzed for a similar host of ions and isotopes. Ecological monitoring has been conducted in the mangroves, marsh, and Biscayne Bay. Table ES-1 provides a summary of the monitoring efforts that were conducted during this semi-annual period from June 2011 through November 2011.

The results are generally consistent with findings presented in the August 2011 Turkey Point Plant Annual Monitoring Report for the Units 3 and 4 Uprate Project (FPL 2011b), with the exception of increased specific conductance values in surface waters in June 2011. This is not an unexpected finding due to the very dry preceding season that extended into June 2011. Specifically, Biscayne Bay exhibited specific conductance values in excess of 60,000 micro Siemens per centimeter (µS/cm) and the associated salinities were in excess of 40 units (per Practical Salinity Scale 1978 [PSS78]). The surface water station, located 6 miles up the Card Sound Road Canal, had notable Biscayne Bay marine influences, as had occurred in the past during drought conditions. The CCS had an average specific conductance value of slightly over 88,000 µS/cm (average salinity of 55.3 units) in June.

Surface waters have varying effects on the Biscayne Aquifer, and monitoring will continue to assess the contribution of various sources. The monitoring will continue in a phased manner, as described in the Monitoring Plan. FPL will continue to collect data prior to the commencement of the certified Uprate and will continue to collect data after the Uprate and provide results to the SFWMD, the Florida Department of Environmental Protection (FDEP), and Miami-Dade County

Permitting, Environment and Regulatory Affairs (PERA) (collectively described herein as the Agencies.

Based on these results, there is no evidence that the CCS is causing the westward movement of the saltwater intrusion line. Saltwater intrusion in the region preceded construction of the CCS. The extent of saltwater intrusion, as defined by the U.S. Geological Survey (USGS), varies from year to year but the landward extent which is west of Tallahassee Road is still similar to that reported in the 1950s. Saltwater intrusion is known to ebb and flow west and east depending on seasonal factors.

There are many factors which can cause saltwater intrusion including groundwater withdrawals, agricultural uses, mining, government water management practices, etc. A comprehensive regional model which takes into account all of the factors that may be contributing to this phenomena would be useful to better assess the causative factors for saltwater intrusion and the effect, if any, that the CCS has on saltwater intrusion. This model needs to account for density differences as well as the effect of groundwater withdrawals and surface and groundwater interactions by potentially responsible parties operating in the vicinity of FPL operations.

FPL and the Agencies successfully developed and agreed to a Monitoring Plan in October of 2009. The required components of the Monitoring Plan were implemented including but not limited to, installing the wells and monitoring equipment. Completion of this data collection is a critical step if a regional model is to be developed and before any conclusions can be drawn from the data.

FPL will continue its monitoring protocol for chlorides, sodium specific conductivity, and a variety of other constituents including tritium, as described in the Monitoring Plan. Tritium is not a public health issue, particularly at the levels being analyzed which are far below drinking water standards. Tritium is being analyzed only as a potential tracer. In conclusion, FPL finds that there is enough data to make a decision on a tracer or tracers. FPL also finds that the data collection effort needs to be more focused and less redundant, particularly in areas where the data are very consistent. FPL recommends a reduction in certain sampling requirements. FPL will discuss these recommendations with the agencies.

TABLES

Table ES-1. Summary of Monitoring Efforts (June 2011 – November 2011)

Monitoring Effort	June	July	August	September	October	November
Ecological Mangrove and Marsh Monitoring			Biota. Porewater (field and Tracer Suite parameters and nutrients). Vegetation (nutrients).			Biota. Porewater (field and Tracer Suite parameters).
Ecological Biscayne Bay Monitoring				Biota. Porewater (field and Tracer Suite parameters and nutrients). Vegetation (nutrients).		
Automated Data Collection	Continuous	Continuous	Continuous	Continuous	Continuous	Continuous
Groundwater and Surface Water Sampling	Field and Tracer Suite parameters.			Field and Tracer Suite parameters, trace metals, and nutrients.		
Evaporation Pan Sampling	Tritium		Tritium	Tritium	Tritium	Tritium
Rainfall Collector Sampling		Tritium		Tritium		

Notes:
Automated data collection includes groundwater and surface water quality and stage, flow, rainfall, and meteorological. Flow and rainfall data at several stations are limited.
Refer to Table 3.0-2 for field and Tracer Suite parameters and nutrients.