ATTACHMENT A

ATTACHMENT 1
Project Description

Turkey Point Units 6 & 7
2012 Unusual Use Application to Miami Dade County
Project Description
Background

FPL's Turkey Point plant property is in unincorporated southeast Miami-Dade County, Florida, east of Florida City and the City of Homestead, and bordered by Biscayne Bay to the east. The existing Turkey Point Plant consists of two nominal 400-megawatt (MW) natural gas/oil steam electric generating units (Units 1 & 2); two nominal 700-MW nuclear units (Units 3 and 4); and a nominal 1,150-MW natural gas-fired combined-cycle unit (Unit 5). The existing closed-loop cooling canals and industrial wastewater facility occupy approximately 5,900 acres. Turkey Point Units 6 & 7 are proposed to be located south of Units 3 and 4 and will occupy approximately 300-acres within the existing industrial wastewater facility. Two nuclear generating units, each with an approximate electrical output of 1,100 MW (net), including supporting buildings, facilities and equipment, will be located on the site, along with a laydown area. Other proposed ancillary facilities include: nuclear administration building, training building and parking area; an FPL reclaimed water treatment facility and reclaimed water pipelines; radial collector wells and delivery pipelines; equipment barge unloading area; transmission lines and system improvements within Miami-Dade County; access roads and bridges; and potable water pipelines. Of the facilities identified above, the July 2012 Unusual Use application includes requests for zoning approval of the reclaimed water treatment facility (RWTF), the radial collector wells (RCW), and the parking area..

After notifying the Nuclear Regulatory Commission of its intent to submit a combined Construction and Operating License Application (COLA) in April 2006, FPL began work with Miami-Dade County staff to submit an application for Unusual Use approvals that would support Turkey Point Units 6 & 7. In December 2007, the Board of County Commissioners (BCC) approved FPL's Unusual Use application and conceptual site plan for Turkey Point Units 6 & 7, including ancillary facilities with its adoption of Resolution Z-56-07 (the "2007 Resolution"). In June 2009, FPL submitted its' Site Certification Application (SCA) for Turkey Point Units 6 & 7 to the Florida Department of Environmental Protection (FDEP) in accordance with Florida's Electrical Power Plant Siting Act (PPSA), ss. 403.501-.518, F.S..

Steam electric power plants, including nuclear power plants require water for operation. There are two primary water requirements; process water (e.g. reactor makeup water, auxiliary cooling, and fire protection) and cooling water (e.g. water to condense the steam that turns the turbine). Without process water and cooling water, a steam electric power plant cannot operate. Power plants require upstream treatment of one or both of these water sources to remove impurities and control the water chemistry as required by the equipment in which the water is being used.

The 2007 Resolution included conditions, specifically Conditions no. 4 and 5, providing guidance which was used in the development of SCA Appendix 10.9, Water Supply Alternatives Analysis and Water Conservation Plan, Turkey Point Units 6 & 7, see

Exhibit 5, including a recommendation of the use of reclaimed water that would be utilized for Turkey Point Units 6 & 7.

Turkey Point Units 6 & 7 will use potable water from Miami-Dade County Water and Sewer Department (MDWASD) for process water. The primary source of cooling water for Units 6 & 7 will be reclaimed water, also from MDWASD. In both cases, FPL will need to remove impurities and manage the water chemistry prior to use. For example, prior to being used in the condensate, feedwater, and spent fuel pool, the process water will be demineralized using a filter, reverse osmosis, and electro deionization unit. The demineralization process removes ionic impurities in the water so it can be turned into ultra pure cooling water and steam. This process minimizes the creation of scale buildup on system internals and turbine blading.

FPL has worked closely with the MDWASD to develop a Joint Participation Agreement (JPA) for the supply of reclaimed water as the primary cooling water makeup for Turkey Point Units 6 & 7, which was approved by the BOCC on July 20, 2010. The JPA specifies responsibilities of the parties, including the requirements for each to maintain operational capabilities independent of the other.

Per the JPA, Section 3.3.5, MDWASD shall "develop a redundant method of disposal of the Reclaimed Water to allow adequate disposal in the event of system operational or maintenance issues on either Party's facilities." Similarly, the JPA, Section 3.2.2, FPL shall "develop an independent cooling water supply sufficient to provide the full requirements of existing Unit 5 and the proposed Units 6 and 7, such independent cooling water supply would allow for the County Facilities to be designed and built on a schedule that would not place a significant burden on the County, and provide adequate cooling water supply in the event of system operational or maintenance issues on either Party's facilities. This arrangement recognizes the challenges of coupling two complex industrial processes and the need to provide for independence of operation.

FPL conducted a systematic multiphase water supply alternatives study (the Water Supply Alternatives Analysis and Water Conservation Plan) to identify, evaluate and select the best cooling water supply plan for Turkey Point Units 6 & 7. The study resulted in the following recommendations:

- Reclaimed water from MDWASD as the primary supply of makeup water for the circulating water cooling system for Turkey Point Units 6 & 7.

- When reclaimed water cannot supply sufficient quantity or quality of water needed for cooling, a backup source using saline water supplied from radial collector wells that are recharged from the marine environment (Biscayne Bay).

FPL included the Water Supply Alternatives Analysis and Water Conservation Plan in the SCA, Appendix 10.9 (See Exhibit 5). The SCA seeks State approval to use reclaimed water supplied by MDWASD's South District Wastewater Treatment Plant as the

primary source of cooling water for the new generating units. Use of a a backup source of water when using reclaimed water as the primary source is specifically addressed in the regulations governing water use administered by the South Florida Water Management District, Chapters 40E-2 and 40E-20, F.A.C. and the "Basis of Review for Water use Applications Within the South Florida Water Management District", see the Unusual Use Requests, RCW section below for information related to the SFWMD Agency Report and conditions issued July 19th, 2012. The BCC, in the 2007 Resolution, also recognized the need for a backup source of water.

The proposed addition of Turkey Point Units 6 & 7 and related ancillary facilities will see an increase of both permanent and transient staff which will require adequate facilities - both buildings and surface parking. Given the nature of the proposed project, several requests for non-use variance are also requested as described below.

Unusual Use Requests

RWTF

As required by Condition no. 5 of the 2007 Resolution, FPL's Site Certification Application for Turkey Point Units 6 & 7 included the use of reclaimed water from the South District Wastewater Treatment Plant as the primary source of cooling water. Condition no. 5 clearly serves the public interest because it maximizes the reuse of wastewater that has been the focus of recent environmental legislation and provides a solution for what has long been an expensive and problematic byproduct of Miami-Dade County's wastewater treatment facilities, and simultaneously reduces demands on local water resources that would otherwise be required for any new electrical generating facilities. Turkey Point Units 6 & 7 will efficiently use a recycled resource for cooling water to produce safe, clean, and reliable power and will use potable water from MDWASD for process water. In both cases FPL will need to remove impurities and manage the water chemistry prior to use in the separate cooling water and process water systems. The focus of the following sections is to provide detail on the water quality management that is required for the cooling water and its relationship to the siting analysis of the FPL RWTF for Turkey Point Units 6 & 7.

Turkey Point Units 6 & 7 will use reclaimed water 24 hours per day, 365 days per year when operating and when reclaimed water is available in sufficient quantity and quality. The cooling system for Turkey Point Units 6 & 7 will utilize cooling towers as an effective way of reducing the amount of water required, since the water can be recycled or "cycled" through the cooling towers multiple times, allowing FPL to use reclaimed water to the maximum extent possible as required by Condition no. 5 of the 2007 Resolution. The cooling towers will remove excess heat from the power generation process by circulating cooling water from the tower through the unit's condenser and returning the heated water to the tower where the heat is transferred to the environment by evaporation. The evaporation process results in a concentration of dissolved salts and suspended material in the water. Poor quality makeup water will limit the ability of the tower to cycle up and result in higher makeup and blowdown rates and overall increased

water consumption. Good quality cooling water enhances tower operation and decreases water consumption.

Turkey Point Units 6 & 7 will include a RWTF and associated pipelines to manage reclaimed water as the primary cooling water source. The RWTF will polish the water received from MDWASD so the water quality requirements described above can be achieved and maintained. The RWTF will provide nutrient removal, flow equalization and metering, de-chlorination, disinfection, and pumping facilities. This treatment will occur before storage in the makeup water reservoir which will provide water to the cooling towers. The RWTF was sized larger than the 59 MGD needed to run Turkey Point Units 6 & 7 to handle time of day flow fluctuations that MDWASD has predicted. This additional capacity will also allow for treatment of reclaimed water for potential future use in Turkey Point Unit 5 and other potential projects.

As part of the initial Project design and layout, three on-site locations for the RWTF on FPL's Turkey Point plant property were evaluated: Site #1 – 344th Street, Site #2 – the Laydown Area and Site #3 – North of Turkey Point Units 6 & 7 on the plant site. At the request of Miami-Dade County, FPL later revisited the siting of the RWTF to determine if a reasonable upland alternative location might exist. The additional sites evaluated included: Alt. Site #1 – 112th Avenue, Alt. Site #2 – 117th Avenue, and Alt. Site #3 – the "Moat" area between Palm Drive and the L-31E Canal. (See Exhibit 6, Turkey Point Units 6 & 7, FPL Reclaimed Water Treatment Facility Location Analysis submitted to MDC in February 2012, for maps of each set of sites.) The criteria used to evaluate the proposed sites included:

- Size – Approximately 50 acres
- Site Elevation – Assumed to be at least 14 feet (same elevation as Turkey Point Unit 5)
- Proximity to Existing Turkey Point Plant
- Security
- CDMP / Zoning
- Land Use Impacts
- Wetlands and T & E Impacts
- Site Geometry - Is shape of parcel compatible with RWTF layout?
- Design and Operational Complexity
- Cost
    - Construction
    - Pipeline
- Construction Timing – E.g. Will use of the site required as part of the Turkey Point Units 6 & 7 Construction Laydown Area delay RWTF construction?
- Number of Private Property Owners Affected by Pipeline Construction
- Conflicts with Other Proposed Facilities – E.g. Conflicts with Proposed Clear Sky substation.

Of the initial three sites evaluated, only Site #1 did not have conflicts due to Construction Timing or conflicts with Other Proposed Facilities, leaving FPL to propose Site #1 along 344th Street as the location for the RWTF. Upon the request by Miami-Dade County Site #1 as well as the additional sites were evaluated and the following matrix provides the evaluation results.

SUMMARY – RWTF ALTERNATIVE SITE EVALUATION – Revised 2-27-12					
CRITERION	**PROJECT NEED/ CONSIDERATION**	**ALTERNATIVE RWTF SITES**			
		PROPOSED SITE #1	**ALT. SITE #1**	**ALT. SITE #2**	**ALT. SITE #3**
Operations	Maximize effective and efficient operations	Supports effective and efficient operations	Does not support effective and efficient operations	Does not support effective and efficient operations	Supports effective and efficient operations
Security	Minimize security requirements	No additional security personnel required	Additional security personnel required	Additional security personnel required	No additional security personnel required
CDMP/Zoning	Appropriate CDMP designation and zoning to meet project schedule	Environmental Protection and Institutions Utilities & Comm. (portion) / GU (Interim) and Unusual use for Nuclear Power Plant and Ancillary Uses	Agriculture/AU – would require CDMP amendment and Unusual Use zoning approval	Agriculture/AU – would require CDMP amendment and Unusual Use zoning approval	Environmental Protection and Institutions Utilities & Comm. (portion) / GU (Interim) and Unusual use for Nuclear Power Plant and Ancillary Uses
Commercial	Compatible with commercial agreements	Compatible	Not compatible	Not compatible	Compatible
Wetlands	Avoid and minimize impacts to wetlands, mitigate impacts	43.6 acres direct impact – 35.1 UMAM credits	47.0 acres direct impact – 14.4 UMAM credits	52.3 acres direct impact – 25.4 UMAM credits	39.5 acres direct impact – 30.3 UMAM credits
Landuse Impacts	Minimize acreage of impact	44 acres needed	52.3 acres needed	52.3 acres needed	44 acres needed
RWTF Construction Costs	Minimize unnecessary expenditures	Base cost	Base cost + approx. $45M for offsite infrastructure needs and $67.5M for additional infrastructure at the TP Units 6&7 plant site to manage off-spec water	Base cost + approx. $45M for offsite infrastructure needs and $67.5M for additional infrastructure at the TP Units 6&7 plant site to manage off-spec water	Base cost
Additional Pipeline Construction Cost	Incremental cost to MDC (approx.) above current estimate	$0	$25M	$0	$0
Private Property Owners Affected (Pipeline Construction)	Avoid/minimize unnecessary impacts to neighbors	22	56	22	22

Table 1. RWTF Evaluation Matrix

Following an extensive analysis of multiple factors, FPL was not able to identify a feasible upland location, either on the Turkey Point plant property or off the Turkey Point plant property that would support the planning, design, construction, or operational and security requirements of the RWTF as a component of a nuclear power plant (see Table 1). FPL was, however, able to identify an alternative location (Alt. Site #3) on the Turkey Point plant property which would result in fewer wetland impacts when compared to the original proposed location (Site #1) while meeting other important Turkey Point Units 6 & 7 requirements (See Figure 1).

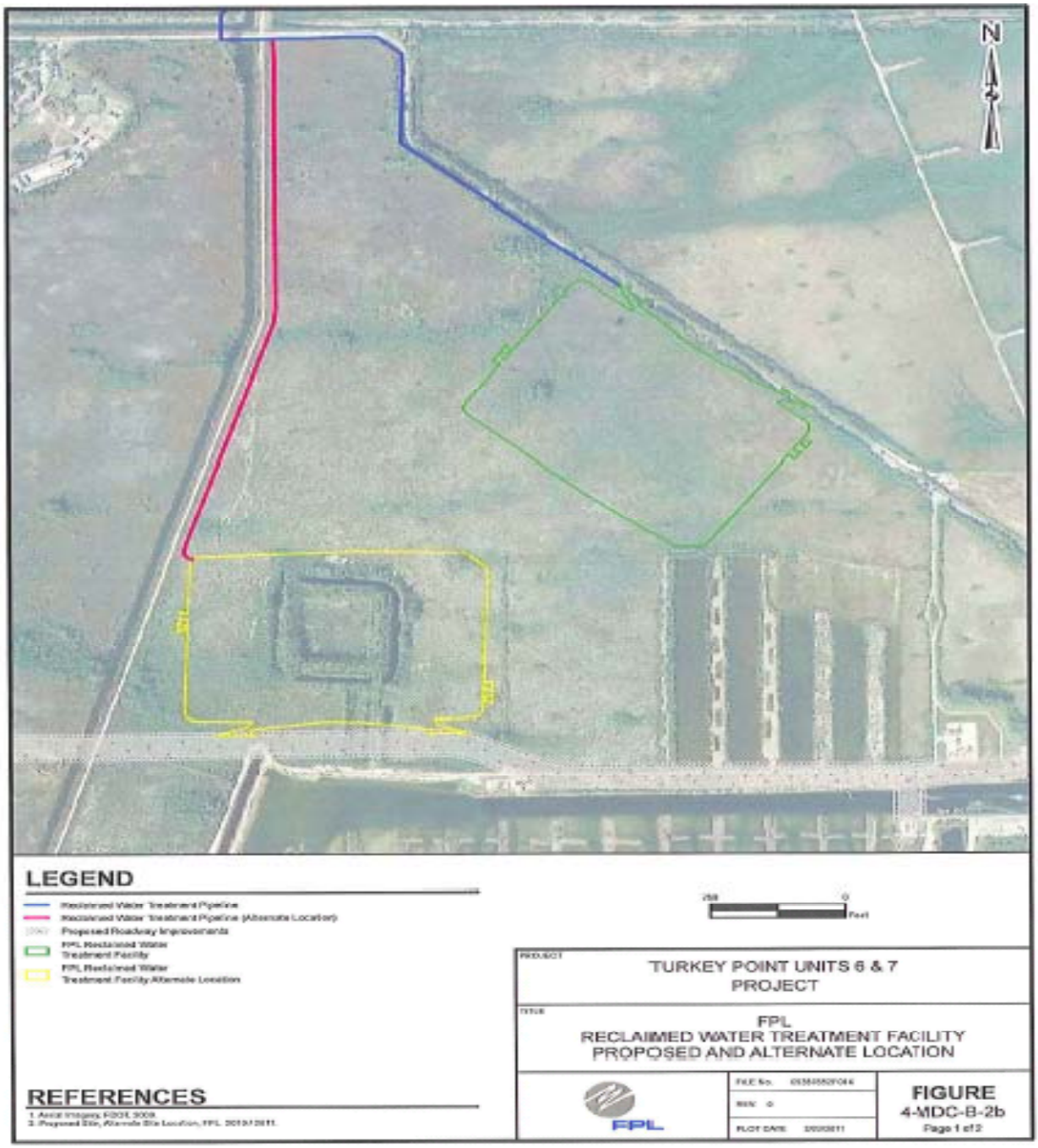

Figure 1. RWTF Site #1/Pipeline (Green/Blue) & Alt. Site #3/Pipeline (Yellow/Red)

Alt. Site #3 is an area historically dredged for test cooling evaluations, and currently consists of upland spoil piles dominated by Australian pine, excavated open water canals, and upland access pathway, sawgrass marsh, dwarf mangroves, and exotic wetland hardwoods. Use of this significantly disturbed area could reduce impacts to mangrove and sawgrass wetlands by approximately 10 acres and the associated functional loss by approximately five credits as compared to Site #1. Use of Alt. Site #3 would also allow installation of the treated reclaimed water delivery pipeline within construction access road areas, further reducing temporary wetland impacts by approximately 3.4 acres. American crocodiles (*Crocodylus acutus*) move through the area of Alt. #3, however, since the substrate is primarily rock fill it cannot be used for constructing burrows. The crocodiles do not use the area of Alt. #3 for nesting activities due to the substrate and because the area would be under water during the latter part of the incubation of the crocodiles' nests. Crocodiles do use the area of Alt. Site 3 but they are not permanent residents. There are areas such as the Interceptor Ditch and the islands that offer a landscape more suited to the crocodiles with regard to their habitat requirements. (See Exhibit 6 for the Turkey Point Units 6 & 7 FPL Reclaimed Water Treatment Facility Location Analysis submitted to MDC in February 2012.)

FPL has performed the due diligence necessary to identify two potential locations for the RWTF that avoid, minimize, or mitigate environmental impacts while also minimizing land use, zoning, and community impacts of the RWTF which is ancillary to Turkey Point Units 6 & 7. The planning, design and construction as well as the security and reliability risks of the RWTF project can be controlled during construction as well as operation at either Alt. Site #3 or Site #1.

RCW

This Unusual Use request for Utility Facilities also includes the addition of radial collector wells on the eastern edge of the Property. The following information is provided to assist Miami-Dade County staff in understanding the use and necessary system proposed to provide the backup cooling water source for Turkey Point Units 6 & 7. The source of this information is the FPL Turkey Point Units 6 & 7 Radial Collector Well Summary, February 2011. The RCW will be used when reclaimed water, the primary source of cooling water, is not available in a quantity or quality needed to meet the project's cooling water needs. Based on an analysis of 16 potential sources, reclaimed water was determined to be technically and economically feasible and environmentally beneficial, and provided a reliable primary water source. RCW were determined to provide a reliable backup water source with minimal environmental impact. As a result, reclaimed water from MDWASD was selected as the primary water source option, and RCW were selected as the backup water supply option.

The use and construction of RCW have become much more common in the last decade in the U.S. and in other countries. This technology and the proposed construction methods are not new. Horizontal collector wells (radial wells) are the legacy of Leo Ranney, an Iowa engineer who developed the patented process in the 1920s. Collector wells have become widely used for the purpose of inducing infiltration from surface water bodies into hydraulically-connected aquifer systems in order to develop moderate to high capacity water supplies. These systems may be applied for the purposes of supplying municipal drinking water, as well as for industrial power plant applications, such as process and cooling water. Radial collector wells function by taking advantage of the natural filtration process. This typically results in water that is lower in total suspended solids as compared to a surface water intake. Although collector wells are typically installed in sand and gravel aquifers along river banks, Ranney and others

haved drilling experience with geological formations similar to those found at and near the Turkey Point site.

Although the radial collector wells will be a backup cooling water source, in order to provide the most conservative assessment of potential impacts to Biscayne Bay and regional water resources, FPL's assessment of impacts of radial collector well operation assumed that the radial collector wells will operate 100 percent of the time, at full capacity. Since no adverse impacts have been identified for the 100 percent operation scenario, there is reasonable assurance that more limited radial collector well operation (only when reclaimed water is not available in sufficient quality or quantity) will not adversely impact water quality or aquatic systems in Biscayne Bay or harm regional water resources.

The Turkey Point Units 6 & 7 RCW will consist of central caissons located on the Turkey Point peninsula. Laterals will project from each of the caissons horizontally beneath Biscayne Bay and be installed to a depth of approximately 25 to 40 ft below the Bay bottom. A conceptual graphic for a typical radial collector well is illustrated in Figure 2. The wells will be designed, sited, constructed and operated to induce recharge from below Biscayne Bay. (See Exhibit 7 – FPL Turkey Point Units 6 & 7, Radial Collector Well Summary submitted with the SCA 4th Round of Completeness Responses for additional information.)

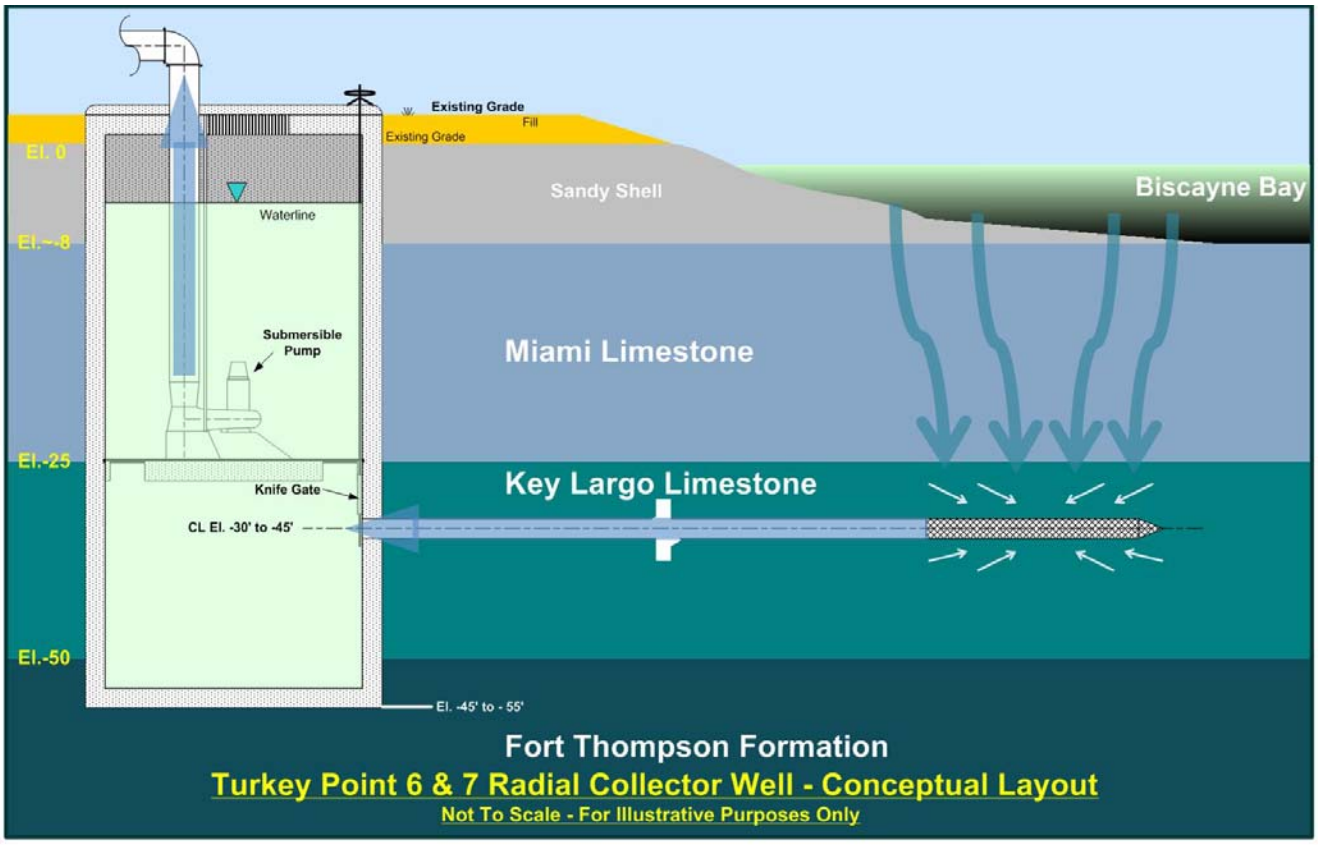

Figure 2. RCW Conceptual Graphic

Finally, in recognition of the backup nature and purpose of the radial collector wells, FPL has offered to accept a restriction on the use of this backup water supply through a Condition of Certification based upon the Conditions of Certification established for FPL's West County Energy Center (WCEC). The WCEC condition provides an example of a recently-licensed power plant that uses reclaimed water as its primary water source. The WCEC condition allows withdrawals from the Floridan Aquifer for up to 90 days per calendar year as a temporary backup water supply source. A similar condition for Turkey Point Units 6 & 7 would allow operational reliability in the event that reclaimed water is not available. Since the radial collector wells will be used only as a backup water supply, these wells may not be operated at all during some years, other than for periodic testing and routine maintenance.

On July 19, 2012, the South Florida Water Management District (SFWMD) issued its Agency Report on the Project to the FDEP. The SFWMD Agency Report recommended approval of the project, with conditions, including the use of the RCW as withdrawal facilities for the backup water source of cooling water. (See Exhibit 8, SFWMD Agency Report on Florida Power & Light Company, Turkey Point Units 6 & 7, Electrical Power Plant and Non-Transmission Facilities, P A 03-45A3, July 12, 2012)

The review performed by SFWMD included matters within SFWMD jurisdiction – protecting and conserving water supplies, surface water management, wetland resource regulation, flood protection, Works of the District, ecosystem restoration, water quality improvement and SFWMD real property interests. The assessment also included a review of the proposed water use, a matter within the exclusive jurisdiction of the SFWMD. The SFWMD applied Rule 40E-2 and the "Basis of Review for Water Use Applications" to the application for cooling water supply and the potential impacts of RCW construction and operation on water resources, including potential impacts to regional water supply planning, minimum flows and levels (MFLs) and water reservations, wetlands and surface and ground water.

The SFWMD's assessment of potential impacts to regional water supply planning identified reclaimed water, brackish surface and groundwater, and saltwater as alternative water supplies. The SFWMD report concluded that "FPL's use of reclaimed water as a primary source and saline water as a secondary source will increase the use of alternative water supplies in the Lower East Coast Service Area 3 for power generation and decrease reliance on traditional water supply sources to meet water demands. In summary, there are no regional water supply planning issues currently associated with the SCA."

SFWMD reviewed the potential for impacts to waters of Biscayne Bay and adjacent wetlands during RCW construction caused by surface water runoff, erosion, the affects of excavation and the disturbance of natural land cover. To address these concerns, SFWMD recommended conditions of certification requiring appropriate construction practices and BMPs for the RCWs. In addition, construction dewatering will be routed to the Turkey Point Cooling Canal System (CCS).

The SFWMD also reviewed the application, including FPL's extensive groundwater modeling, to assess potential impacts of the RCW operation on Biscayne Bay, the Biscayne Aquifer, the Biscayne Bay Coastal Wetlands (BBCW), and the potential for induced flows from the CCS. SFWMD recommended conditions of certification to limit duration of RCW operation. The SFWMD concluded that as conditioned the Project would not cause harm to the water resources and could be constructed and operated in compliance with SFWMD criteria. SFWMD also recommended an extensive monitoring program to confirm that the RCWs will be operated without diminishing BBCW project performance

and without adverse impacts to the water resources of the SFWMD. To view the entire agency report and recommended conditions of certification, see Exhibit 8.

Parking Area

The final component of the Unusual Use request is a parking area that will service Turkey Point Units 6 & 7 facilities, including the Administration and Training buildings for the nuclear power plant. The buildings are located on property that is zoned IU-3. The most feasible location for the parking area to service these buildings is on the Subject Property as noted in Exhibit 1 – Site Plan.

The projected number of parking spaces required are based upon the footprint area of the Turkey Point Unit 6 & 7 buildings including the administration and training buildings. The calculations are based on Miami-Dade County ordinances which rely on the area (in square footage) of each building and the building type. The following table, Table 2, provides the calculations for the nominal number of parking spaces required as well as an estimate for periodic and temporary increases in parking spaces required due to routine plant outages and plant construction.

Major Building Name	MDC Building Type	Square Footage	Spaces Req'd	Unit / Spaces Req'd.
Administrative and Common Bldgs.				*Based upon existing buildings at Turkey Point Units 3 & 4
Nuclear Admin	Office	95,000		
Training Bldg.	Office	76,000		
Maint./Machine Shops	Office	122,000		
Entrance/Security	Office	16,000		
Health Physics	Office	20,000		
Subtotal Approx.		**330,000**	**1,100**	1 space / 300 sf of office, Muni Code Std. 33-124(m)
Total Spaces for permanent personnel			**1,100**	
• **Parking Area will be used by construction personnel during construction of Turkey Point Units 6&7 (requiring 2,500 spaces). Following completion of construction, the number of spaces required for permanent personnel will be periodically increased from 1,110 to 2,500) to accommodate transient workers during plant outages**		**Total Estimated for Permanent & Periodic**	**2,500**	

Table 2. Estimated Parking – Turkey Point Units 6 & 7