ORCA Ocean Reef Community Association

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June 20, 2018

May Ma
Office of Administration
Mail Stop: TWFN-7-A60M
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

**RE: Docket NRC-2018-0101 - Scoping Comments on Florida Power & Light's Subsequent License Renewal Application for Turkey Point Nuclear Generating Station's Reactor Units 3 & 4**

Dear Ms. Ma:

We submit the following comments on behalf of Ocean Reef, a community of almost 2,000 homes that occupies the northern tip of Key Largo, directly across Card Sound from the Turkey Point Nuclear Generating Station. The community has expressed concerned about the operations at Turkey Point for many years and numerous times since the uprating of the units and the emergency operations that had to be implemented at the plant in order to avoid water temperature violations in 2014-2016. The problems with the Cooling Canal System are of concern and particular importance to us.

Florida Power & Light (FPL) has filed a Subsequent License Renewal Application (SLRA) with the NRC requesting a secondary relicensing of their nuclear reactor units 3 (Operating License, DPR-31) & 4 (Operating License, DPR-41), which would extend the operational lifetime of these units to July 19, 2052 and April 10, 2053 respectively, an unprecedented 80 years. Fixing the existing issues with the cooling canal system before issuing an extension to their permit seems like a logical first step.

Our extremely close proximity to Turkey Point means that we are among the most directly impacted stakeholders by the plant's continued operation. As it currently stands, the Ocean Reef community has already been negatively impacted by the ongoing leak of a hypersaline and nutrient rich pollution plume from the 5,900 acre unlined cooling canal system that is reaching surface waters.

The pollution emanating from Turkey Point impacts our community, its health, its future wellbeing, the future of our drinking water supply, and the value of our real estate investments.

All are tied to the long term health of Biscayne Bay and Card Sound along with our current and future ability to use this recreational resource in our backyard.

FPL does not have sufficient long-term plans in place to halt and mitigate the impacts of their leaking cooling canal system. What is more, we believe their current plans will exacerbate some of our concerns. We therefore feel it is wholly inappropriate for the NRC to issue a secondary relicensing for these units until FPL has demonstrated success with an effective comprehensive plan to abate, remediate and mitigate the negative impacts of their operation on Ocean Reef residents and the surrounding environment.

From the extensive information we have reviewed, FPL should be using the best available cooling technology to ensure an actual closed loop cooling system is functioning as required by the NPDES permit. We ask that the NRC evaluate alternative cooling technology systems as they develop the draft environmental impact statement (EIS) and if the secondary relicensing is approved, require the implementation of cooling towers as a condition to avoid and minimize harm to the environment and the residents in the area.

**Drinking Water Impacts**

The residents of Ocean Reef rely upon the Florida Keys Aqueduct Authority (FKAA) for their drinking water resources. FKAA draws potable water from the Class I Biscayne Aquifer located in southeast Miami-Dade County, near the Turkey Point Nuclear Generating Station. Past and current operational issues caused by FPL have led to the environmental degradation of the sole source aquifer and will result in the closure of the Newton Wellfield in 2019 (over 5 Million Gallons Per day) currently operated by Miami-Dade County.

FKAA experts have noted that the plans proposed by FPL to "fix" the issue of hypersaline pollution in the freshwater aquifer are "based on assumptions and analyses that are incorrect and/or inadequate and therefore will not provide the needed scope, capacities, and cost commitments to bring the aquifer back to pre-existing condition."[1]

Miami Dade Division of Environmental Resources Management (DERM) has done extensive monitoring and an evaluation of the FPL model as well as hiring outside experts from the University of Florida to review this remediation plan and the model FPL provided and they also came to similar conclusions.[2]

We request the NRC evaluate/study Turkey Point's impact on drinking water sources, such as the future closure of the Newton wellfield slated for 2019, via independent analysis that does not

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[1] Kirk Martin. 'Expert Report of Kirk Martin, P.G', Water Science Associates. August 11, 2017

[2] Louis H. Motz. 'Review of Florida Power & Light Turkey Point Groundwater Model', Department of Civil & Coastal Engineering, University of Florida, USA 32611 for Department of Regulatory & Economic Resources, Miami Dade County, Florida. September 2016

rely on FPL-provided data. Additionally, we request the NRC work with FKAA and DERM to evaluate the extensive documentation and monitoring results that FKAA and DERM have developed on the hypersaline plume and contamination emanating from Turkey Point.

**Pollution of Biscayne Bay**

The vitality of Southern Biscayne Bay's natural environment is of great material consequence to the residents and leadership of Ocean Reef. Ocean Reef's members are drawn to this community in large part due to the unique natural resources this area has to offer, including clean water, a healthy natural environment, and ample opportunities for fishing and boating in the waters of Biscayne Bay and Card Sound. Our residents have already seen a decrease in fish and bird populations in this region, and local experts inform us that this is related to the hyper-salinity and degraded water quality in the area. While we know Turkey Point's pollution from the cooling canal system is not the only issue causing water quality problems, we also know that operations of this plant cause a significant portion of the problems the National Park and Marine Sanctuary are experiencing[3].

Hyper-salinity is not the only threat posed by the leaky cooling canals at Turkey Point. Evidence from sampling stations that agencies have collected in Biscayne Bay and Card Sound show that tritium (acting as a tracer) and nutrient pollution is emanating from the cooling canal system, the latter of which is well established to negatively affect the seagrass beds and fish and wildlife of the area. This pollution is linked to the persistent and recurring algal blooms in the cooling canal system since 2010, which many Ocean Reef residents have also observed directly while flying to and from the community airport.

We request the NRC study the impacts of nutrient pollution, current and projected if the plant operates until 2053, on seagrass beds, fish and wildlife in the area. We also request that the NRC study previous algal blooms, which increased in frequency since the NRC approved the uprate for Turkey Point, and the possibility of increased algal blooms in the future, given climate change impacts and the possible operation until 2053 of the plant. In addition, ongoing communication with Biscayne National Park, the National Marine Sanctuary and the Aquatic Preserve is needed to determine their concerns and the protection needed for Biscayne Bay and Card Sound.

It is also important to note that the operation of the cooling canal system negatively affects the environment of Biscayne Bay by competing for water resources with the Comprehensive Everglades Restoration Projects (CERP) such as the Biscayne Bay Coastal Wetlands Project and C-111 projects, which are meant to restore historic freshwater flows to Biscayne Bay and reduce the high salinity levels in our estuaries.

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[3] United States Department of the Interior, National Park Service. Letter from Interim Superintendent William L. Cox to US EPA, FDEP, and RER, May 13, 2016.

We request that the NRC review all of the available ecological information that Biscayne National Park, the National Marine Sanctuary, Environmental groups and Miami Dade County have compiled to ensure those impacts and conflicts with Everglades Restoration, a taxpayer funded endeavor, are part of the environmental review and any conflicts resolved.

**Timeframe for Operation: Safety and Climate Change**

The secondary relicensing of these units would extend their operational lifetime to an unprecedented 80 years. As such, it is imperative that the NRC exercise an abundance of caution in approving the extension of these operating licenses.

Natural wear and tear means the extension of nuclear power plants forty years beyond their original operating license presents inherent risk of leaks, accidents and system failures that could jeopardize public health and safety. Unique forms of wear and tear which aging reactors experience include embrittlement of the reactor vessel from neutron bombardment over many years and the development of cracks and leaks in pipes and containment structures. Since 2002, several prominent examples of aging nuclear facilities experiencing wear and tear on components which resulted in leaks that brought about the potential for catastrophic accidents to occur have emerged including the Davis Besse Nuclear Power Station and the Vermont Yankee Nuclear Power Plant. Given no nuclear plant has operated even sixty years, the NRC needs to evaluate the aging impacts of eighty years of operation – including specific analysis of Turkey Point versus a generic, fleet-wide analysis. Additionally, the population of South Florida has exploded since the early 1970s when Turkey Point originally came online. The NRC should use projected population numbers to evaluate the impacts of an accident, including the ability to effectively evacuate the Keys and South Florida should a hurricane or major tropical storm impact the area simultaneously.

The extension of these units' operating lifetime into the early 2050's also means that the plant will need to contend with the looming impacts of global climate change and sea level rise. The cooling canal system, which the plant currently relies upon, is woefully unprepared for these impacts. The cooling canal system's levees do not extend far above sea-level and are highly vulnerable to storm surge events. There is evidence that during Hurricane Irma, which did not directly hit this area and was only 90-94 mile per hour storm, overtopped the canal levees, allowing the effluent contained within the cooling canal system to further interact with surface waters surrounding the plant. The NRC needs to independently evaluate the cooling canal system's ability. In light of climate change impacts which include changes to our water budget and storm intensity and frequency, this should not rely solely on FPL's projections, but rather becomes more important, further the NRC, other agencies' and scientists predictions.

**Updating Technology**

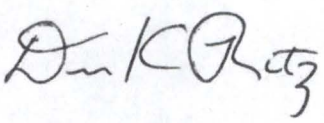
The only conditions under which the community of Ocean Reef would not be strongly opposed to the issuance of a secondary relicensing to these two units is, if FPL:

- were required to update their safety standards and cooling technology;
- were required to ensure that FPL come into compliance with all of the permits governing this power plant; and
- were required to comply with all enforcement requirements before relicensing could occur.

The cooling canal system in particular constitutes an outdated technology that does not work – it has not ensured an actual closed-loop cooling system. The cooling canals require unnecessary amounts of fresh water that could be better used for other purposes and produces pollution that is threatening our national parks and drinking water. The cooling canal system should be phased out and replaced with mechanical draft cooling towers, especially if the plant operates for many decades into the future. The use of cooling towers would not contribute to the pollution plume that has negatively impacted Ocean Reef residents and the environment. It would require far less water, would not impact the aquifer we depend on for drinking water, could be constructed at a higher elevation in order to protect against potentially debilitating storm-surge events, and could use reclaimed wastewater, as was approved for FPL's proposed Turkey Point 6 & 7 reactor units (which the NRC granted a Combined Operating License for earlier this year). Overall, this technology is the best alternative to ensure the long-term resiliency of the plant and the health and well-being of Ocean Reef residents and the surrounding environment.

In closing, we respectfully request that the NRC independently evaluate our significant concerns outlined herein as the draft EIS is developed and not rely solely on FPL's information in the SLRA. If the NRC Staff or consultants have any questions about our request, please do not hesitate to contact me.

Sincerely,



David C. Ritz
ORCA President

cc:
William "Butch" Burton, NRC, Turkey Point Relicensing Environmental Project Manager
william.burton@nrc.gov
Carlos Gimenez, Mayor, Miami-Dade County
Board of County Commissioners, Miami-Dade County
Board of County Commissioners, Monroe County
Board of Directors, Florida Keys Aqueduct Authority

MIAMI-DADE COUNTY
Carlos A. Gimenez, Mayor

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June 21, 2018

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Washington, D.C. 20555-0001

Via email:
TurkeyPoint34SLREIS@nrc.gov

RE: Environmental Impact Statement Scoping Comments Regarding Florida Power and Light's Subsequent License Renewal Application for Turkey Point Units 3 and 4, Docket Number NRC-2018-0101

The Department of Regulatory and Economic Resources, Division of Environmental Resource Management (DERM) has reviewed the above-referenced application submitted by Florida Power and Light (FPL) to the Nuclear Regulatory Commission (NRC) to renew the operating licenses for Turkey Point Units 3 and 4 and hereby provides comments related to the site and relevant findings.

Miami-Dade County understands the scoping process is, in part, intended to identify what issues should be included in the scope of the plant-specific Environmental Impact Statement (EIS) being prepared as a supplement to the Generic Environmental Impact Statement (GEIS), in response to FPL's license renewal application. The GEIS identifies issues that may be applicable or relevant to all operating nuclear power plants and is intended to improve the efficiency of the license renewal process. However, NRC's generic assessment of certain environmental impacts is based the assumptions that the license renewal will involve plants for which 1) "...the environmental impacts of operation are well understood as a result of lessons learned and knowledge gained from operating experience and completed license renewals"; 2) "Activities associated with license renewal are expected to be within this range of operating experience; thus, environmental impacts can be reasonably predicted"; and that 3) "Changes in the environment around nuclear power plants are gradual and predictable."

However, review of monitoring data associated with the Turkey Point Cooling Canal System (CCS) and actions undertaken by FPL to address concerns with operation of the CCS as the ultimate heat sink for Units 3 and 4, suggest that the environmental impacts of the operation of the CCS are not yet fully understood or quantified and have become more significant and widespread over time; have fallen outside the range of operating experience for the plant given the decline and continued dysfunction of the CCS and the uncertainty regarding the impact of proposed solutions; and that changes in the environment around the plant have been, in some cases, precipitous and unpredictable.

bodies. Therefore, the EIS should consider all monitoring data collected as part of the FPL Units 3 and 4 Uprate project as well as data collected under the Consent Agreement, including the SAR to evaluate the potential impact of the CCS operations on water resources in the area.

The main function of the CCS is to provide water to cool the two nuclear reactors, Units 3 and 4, and serve as the Turkey Point Plant's industrial wastewater treatment facility. The system commenced operations in the early 1970s and until very recently (beginning in late February to early March of 2012) it operated as a clear water, seagrass-based biological system. Salinity data from historical NPDES required monitoring and more recently (June 2010 to present) from monitoring required by the State of Florida and Miami-Dade County as part of the State certification for the Units 3 & 4 Uprate project indicate that the salinity in the CCS experienced an increasing trend which culminated with daily average salinity levels in the low 90s PSU in 2014 and the mid-90s PSU in June 2015. Water quality data from the Uprate monitoring project indicate that the system experienced a dramatic increase in the organic nitrogen levels in surface waters that first became evident in March of 2012. The levels of organic nitrogen in the CCS surface water appear to have fueled a cyanobacteria algal bloom that marked the beginning of the biological collapse of the system which has continued to experience recurring algal blooms, ultimately resulting in the die-off of the seagrass beds, which performed a key role in allowing the system to perform its main functions as the ultimate heat sink. Among other things, the seagrass beds helped remove nutrients from the water column and maintained water clarity. The collapse of the seagrass has resulted in recurring cyanobacteria algal blooms that serve to maintain high nitrogen levels and poor water clarity, which have impacted the system's ability to perform its primary function without the use of external water sources as it did previously.

Miami-Dade County has concerns regarding the long-term viability of the CCS to meet its intended purpose as the ultimate heat sink without the need for external sources of fresh or low salinity water sources in a basin already facing water shortages, saltwater intrusion and sea level rise. The EIS should consider and analyze all available data including the most recent post Uprate data, to fully evaluate the function of the CCS over the next 34 to 35 years, including plans for the addition of external sources of fresh or low saline water, and its impact on water resources in the area.

**Physical Characteristics of the CCS and Vulnerability to Sea Level Rise**

Changing conditions associated with sea level rise will contribute to higher stages in the CCS as a result of the groundwater table rising as sea levels rise and as king tide events impact the coastline. Higher stages in the CCS may alter the gravity-driven system in the CCS such that the ability for the CCS to move water through the cooling canals may be negatively affected, leading to the inability of the cooling canals to dissipate water temperatures at the point of uptake. Additionally, sea level rise may contribute to the surface water to surface water communication between the water in the CCS and waters of the national park, national marine sanctuary, and/or state aquatic preserve. Given the predictions with respect to sea-level rise, as reported in the Unified Sea level Rise Projection for Southeast Florida prepared by the Southeast Florida Regional Climate Change Compact (October 2015), and based on the location and surface elevation of the FPL power plant, the EIS should evaluate the potential impacts of sea level rise on the operation and safety of the facility and its associated cooling canal system.

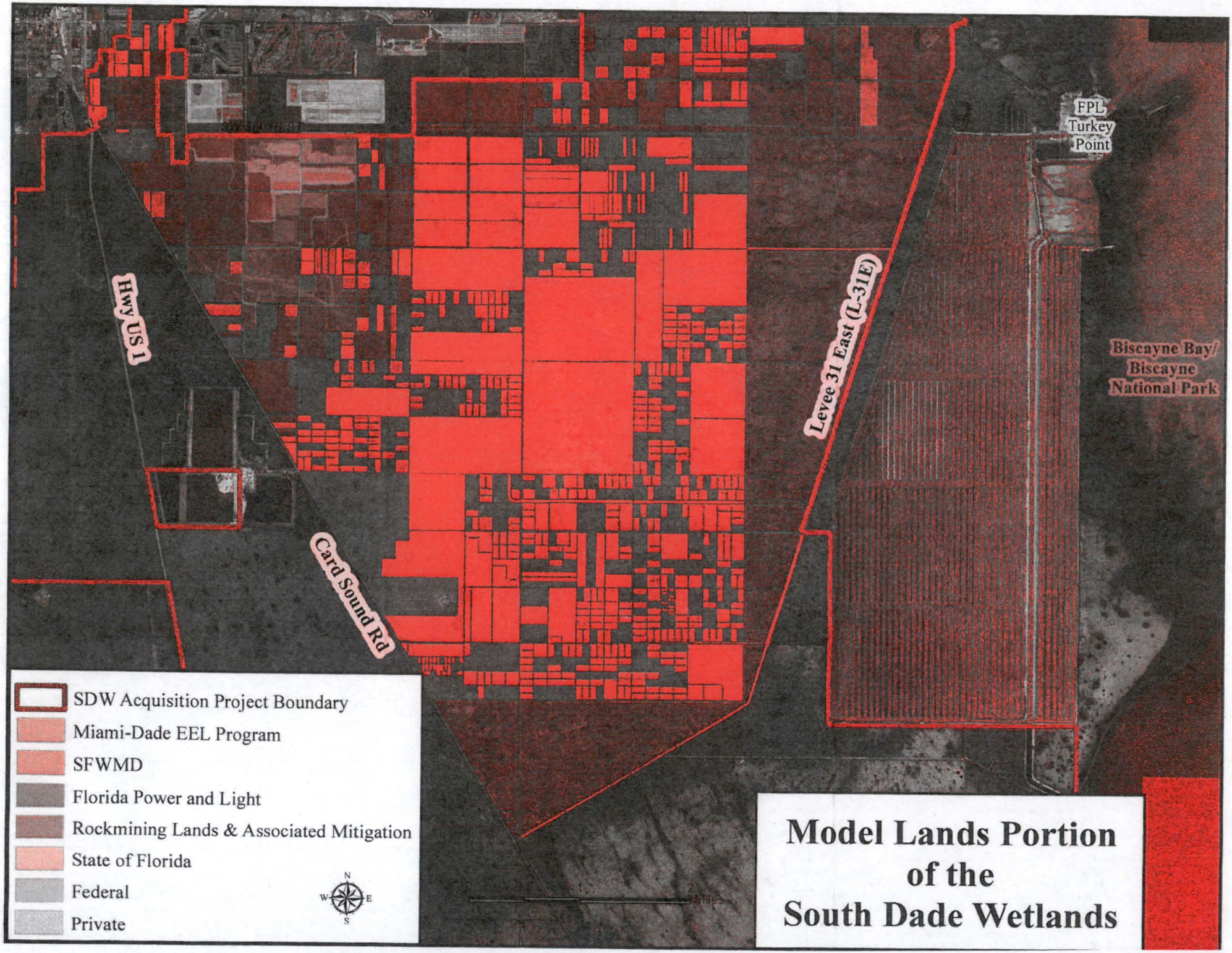
**Attachment B**

DERM electronic records management system link:

http://ecmrer.miamidade.gov:8080/hpi/search

Search for the following folders under "Case Number": HWR-00851

CLI-2014-0312


Hwy US1
Card Sound Rd
Levee 31 East (L-31E)
FPL Turkey Point
Biscayne Bay/ Biscayne National Park
SDW Acquisition Project Boundary
Miami-Dade EEL Program
SFWMD
Florida Power and Light
Rockmining Lands & Associated Mitigation
State of Florida
Federal
Private
N
W
E
S
Miles
Model Lands Portion of the South Dade Wetlands