Mr. Marc Harris, P.E.
Department of Environmental Protection
Bob Martinez Center
Industrial Wastewater Program
2600 Blair Stone Road, Mail Station 3545
Tallahassee, Florida 3239-2400

May 21, 2019

Re: Comments to FDEP's Draft NPDES Permit (Permit No: FL0001562)

Dear Mr. Harris,

On behalf of Miami Waterkeeper (MWK) and the National Parks Conservation Association (NPCA), we thank you for the opportunity to provide comments as part of the permitting process for Florida Department of Environmental Protection's (FDEP) proposed draft National Pollutant Discharge Elimination System (NPDES) permit renewal (FDEP File No. FL0001562-012-IW1N) ("draft NPDES permit") for the wastewater treatment and effluent disposal facilities for the ongoing operation of the facility at the Turkey Point Power Plant, owned and operated by Florida Power & Light (FPL). Our organizations, and our more than 1.3 million members and supporters nationwide, have a strong interest in ensuring Turkey Point's operations do not cause detrimental impacts to the surrounding environment, including regional water resources, Biscayne and Everglades National Parks, wildlife, sensitive wetlands, and drinking water supplies. Over the years, the release of pollutants and contaminants from Turkey Point into the surrounding environment has caused significant environmental degradation, including impacts to surface and groundwater. Because this permit will ultimately regulate the discharge of pollutants from Turkey Point and outline important monitoring and reporting requirements, permit specifications will play a large role in determining future impacts of Turkey Point on the surrounding environment and the region's drinking water supply.

National Parks and Protected Areas

Located directly adjacent to Turkey Point, Biscayne National Park is a national treasure and protects a large portion of the third largest barrier reef ecosystem in the world. It safeguards some of the only living coral reef in the continental United States and is home to vast biodiversity and unique habitats. The park was established "to preserve and protect for the education, inspiration, recreation, and enjoyment of present and future generations a rare combination of terrestrial, marine, and amphibious life in a tropical setting of great natural beauty."[1] Biscayne National Park covers over 172,000 acres, 95% of which is water, and has been designated an Outstanding Florida Water (OFW) under Florida law, as part of Biscayne Bay. The park supports over 600 species of fish, 200 bird species and 21 federally listed threatened or endangered species and protects the longest stretch of mangrove shoreline along the eastern seaboard of the United States. Highly valued recreation activities within Biscayne National Park include snorkeling, paddling, wildlife

[1] 16 U.S.C. 410gg

viewing, fishing, camping, hiking, and scuba diving. In 2017, Biscayne was visited by close to 447,000 people. These visitors spent nearly $28 million, supporting a total of 364 jobs and generating a total economic output of around $38.5 million.[2] Turkey Point is also proximate to Everglades National Park, the Biscayne Bay Aquatic Preserve, Crocodile Lake National Wildlife Refuge, and the Florida Keys National Marine Sanctuary. These natural areas offer critical protection to sensitive ecosystems, wildlife, and unique habitats, and support the local economy through recreation opportunities, tourism, and the provision of ecological goods and services. These areas must therefore be protected from any detrimental impacts arising from the operations of Turkey Point.

Geographic Boundary

The area identified in Figures 1 and 2 of the draft NPDES permit is not specific to the facility governed by the permit. The permit is meant to govern discharges from the Turkey Point Power Plant facility, which covers an area only about half the size of what the permit refers to as "Turkey Point" in the Figures. The Figures depict FPL's property ownership beyond the Turkey Point Power Plant, including the Everglades Mitigation Bank, and in addition, includes segments of publicly owned lands (L31E canal and associated easements, SW Card Sounds Road, etc.). We request that the permit include an accurate description of the boundaries, as well as a remapped boundary to avoid implied authorization of discharge to the mitigation bank or public areas.

Authorizing discharges in the area westward of the actual power plant facility will only exacerbate the problem of the hypersaline plume. The "front" (westernmost line) of this plume of saltwater from the cooling canal system (CCS) is referred to as the interface. The interface is defined as the point where groundwater with total dissolved solids ("TDS") of 10,000 mg/L or greater intercepts groundwater with a lower chloride concentration.[3] FDEP classifies groundwater with a TDS concentration less than 10,000 mg/L as a Class G-II potable water supply and concentrations equal to or greater than that are Class G-III non-potable water.[4] In this case, the interface has been migrating westward since the 1980s and is now about four miles west of the Turkey Point facility, approaching Florida City and the City of Homestead, which are about seven miles west of the facility.[5] The plume, migrating westward at about 15 inches per day,[6] "pose[s] risks to drinking water wells for the Keys and Homestead residents and Everglades restoration projects intended to restore historic freshwater flows to Biscayne Bay."[7]

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[2] Cullinane Thomas, C., L. Koontz, and E. Cornachione. 2018. 2017 national park visitor spending effects: Economic contributions to local communities, states, and the nation. Natural Resource Report NPS/NRSS/EQD/NRR—2018/1616. National Park Service, Fort Collins, Colorado.

[3] Recommended Order, ACI v. FPL v. FDEP, Case No. 15-1747, page 11, February 2016. Chloride is used as a measure of thee amount of salt in the water.

[4] FLA. ADMIN. CODE 62-520.410(1).

[5] June 7, 2009 memo from Janet Lewellen to Industrial Waste water Division director Mimi Drew, issue sheet.

[6] Map of the Approximate Inland Extent of Saltwater at the Base of the Biscayne Aquifer in the Model Land Area of Miami-Dade County, Florida, 2016, Scientific Investigations Map 3380, Scott Prinos, 2017. https://pubs.usgs.gov/sim/3380/sim3380_pamphlet.pdf.

[7] FDEP Issue Information 2009. Issue Information Cover Sheet, from Division of Water Resources Management to Regulatory Programs, regarding Salt Water Intrusion from the Turkey Point Plant, pdf page 4, July 7, 2009.

The groundwater beneath FPL's CCS was originally classified by FDEP as a Class G-II potable water source prior to the construction of the power plant.[8] Because of groundwater discharges of extremely high salinity, the Biscayne Aquifer—since at least 1982—experienced conditions that no longer met the Class G-II standards for a potable water source.[9] FPL made a request that was granted by FDEP to reclassify the groundwater under its property to a less restrictive Class G-III designation as non-potable water.[10] To prevent excess discharges in areas outside the actual power plant facility, and to prevent threatening and further reclassification of potable water sources, we request the boundary be remapped to accurately reflect what is authorized by this permit.

Turkey Point's Industrial Wastewater Facility Cooling Canal System Monitoring

Turkey Point is unique among nuclear plants in the United States in that it uses a system of unlined cooling canals to cool water from plant operations. This CCS, in place for more than 40 years, consists of approximately 5,900 acres of former wetlands along the coast of Biscayne Bay and Biscayne National Park. The CCS is used to cool water from nuclear Units 3 & 4 and to dispose of wastewater from the operations of natural gas Unit 5. When the system was constructed under a 1971 consent decree, the CCS was intended to be a closed loop system. However, due to South Florida's porous limestone geology, the CCS is hydrologically connected to the underlying Biscayne Aquifer and, through the Aquifer, to surrounding surface waters.[11] Over the years, water in the CCS has become hypersaline, increasing in density and sinking into groundwater, ultimately creating an underground hypersaline plume. The plume is spreading out into the Biscayne Aquifer "at an average rate of migration to the west estimated between 525 (northern part) and 660 (southern part) feet per year,"[12] towards several wellfields that supply drinking water to the residents of the Florida Keys and southern Miami-Dade County.

The plume is also moving east, under the waters of Biscayne Bay and Biscayne National Park. Moreover, monitoring data indicates that water from the CCS is also hydrologically connected to the waters of Biscayne Bay, with CCS water moving through or under berms.[13] Pollutants from the CCS, including elevated levels of ammonia, phosphorus, TKN, total nitrogen, and chlorophyll a, have been detected in the waters of Biscayne Bay.[14] The addition of excess nutrients like ammonia and phosphorus into the nutrient-limited waters of Biscayne Bay and Biscayne National Park has the potential to stimulate algal growth,[15] which could ultimately lead to seagrass die-offs,

[8] Interoffice Memorandum, Bill Keats, FDEP, pdf page 1, August 12, 1983.
[9] David A. Chin, The Cooling-Canal System at the FPL Turkey Point Power Station (n.d.) (completed pursuant to Resolution No. R-517-15 adopted by the Board of County Commissioners).
[10] *Id*.
[11] Hefty, Lee, Miami-Dade Department of Environmental Resources Management, Letter to Phil Coram, Florida Department of Environmental Protection, November 26, 2014.
[12] Florida Department of Environmental Protection Administrative Order in Re: Florida Power & Light Company, Turkey Point Power Plant, FDEP State License No. PA03-45, OGC No. 14-0741, December 23, 2014.
[13] Cox, William L., U.S. Department of Interior National Park Service, Letter to James D. Giattina, U.S. Environmental Protection Agency; Jonathan P. Steverson, Florida Department of Environmental Protection; and Jack Osterholt, Miami-Dade County, May 13, 2016.
[14] Miami-Dade County Report on Biscayne Bay Water Quality Observations associated with the Turkey Point Cooling Canal System operations, March 7, 2016 Memorandum from Mayor Carlos A. Gimenez to Miami-Dade County Board of County Commissioners Chair Jean Monestime and members.
[15] Cox, William, US DOI NPS letter to EPA, DEP, MDC, May 13, 2016.

toxic algal blooms, and severe ecosystem disruption, thus presenting a serious ecological concern. In response to pollution emanating from Turkey Point's CCS, both Miami-Dade County[16] and the Florida Department of Environmental Protection[17] issued Notices of Violation to FPL for violating applicable County and State water quality standards. FPL entered into separate Consent Orders with both Miami-Dade County[18] and FDEP[19] aimed at ceasing CCS discharges into the Biscayne Aquifer and surrounding surface waters, retracting the plume to within Turkey Point property boundaries, mitigating for impacts related to CCS operation, and monitoring in order to detect additional impacts.

To ensure that water from the CCS is not contaminating Biscayne Bay, Biscayne National Park, and surrounding waterways, as required by the Consent Orders and the NPDES program, additional monitoring should be required beyond what is currently included in this draft NPDES permit. The monitoring plan included in this draft NPDES permit is insufficient to determine compliance with the NPDES permit or to characterize the quality and extent of groundwater interacting with surface water. We urge you to include additional monitoring locations targeting surface water in locations near the shoreline adjacent to Turkey Point, nearby waters of the Florida Keys National Marine Sanctuary, and at the boundaries of Outstanding Florida Waterways. Additionally, we request public access to water quality data in a usable format (i.e.: not pdf, locked, or otherwise restricted) including raw hourly, monthly, and annual reports.

Monitoring under the draft NPDES permit will produce salinity values averaged by month. Reporting the data in this way will dilute the actual values of discharges from the CCS into the surrounding water. Given that Biscayne Bay is an Outstanding Florida Water—the highest protection standard a waterbody can be afforded by the State of Florida—monitoring should be a priority to make sure an impairment in any location of the bay is quickly acknowledged and addressed. To do this, we request FDEP include additional sampling locations in this permit and disclose all constituents monitored and methods for surface water quality monitoring. Additionally, we request public access to water quality data including raw hourly, monthly, and annual reports. Finally, we request that FDEP incorporate daily thresholds for salinity and other constituents rather than monthly averages as the permit currently contemplates.

Surface Water Discharge Ambiguity

Given that the CCS is unlined and sits atop porous limestone, it is hydrologically connected to the surface water via seepage from groundwater.[20] In 1972, the U.S. Atomic Energy Commission prepared an Environmental Impact Statement (EIS) with respect to the CCS. The EIS recognized this hydrological connection and explicitly acknowledged the potential for seepage of CCS water from the groundwater to the surface waters, including Biscayne Bay and Card Sound. The draft NPDES permit makes reference to the 1972 EIS and the potential for CCS contamination to seep

[16] Miami-Dade County Department of Regulatory and Economic Resources, Notice of Violation and Orders for Corrective Action, October 2, 2015.
[17] Florida Department of Environmental Protection, Notice of Violation and Orders for Corrective Action, OGC File No: 16-0241, April 25, 2016.
[18] Miami-Dade County Department of Regulatory and Economic Resources, Consent Agreement, October 7, 2015.
[19] Florida Department of Environmental Protection, Consent Order, OGC File No:16-0241, June 20, 2016.
[20] Hefty, *supra* note 2.

from groundwater to surface water but does not explicitly indicate whether or not such seepage is permitted under the conditions of this permit.[21] Instead, the permit says "to the extent that such seepage occurs, it shall not cause or contribute to a violation of the surface water quality standards in Chapter 62-302, F.A.C."

The draft NPDES permit clearly authorizes discharges of pollutants to groundwater but prohibits the discharge of pollutants from a point source to surface waters.[22] This creates some ambiguity about surface water discharges, whether or not seepage constitutes a "point source discharge," and what is covered under the conditions of the permit. By acknowledging seepage to surface waters but prohibiting point source discharges, the permit could be interpreted as authorizing other types of discharge from the CCS to surface waters (e.g. groundwater seepage).

FDEP's definition of "point source" does not appear to apply to discharges into Biscayne Bay through the groundwater via the porous limestone, which is prohibited under the current permit. Because only "point source" discharges are prohibited by the draft NPDES permit, the permit could be interpreted as allowing seepage of industrial wastewater from the CCS into the surface waters of Biscayne Bay. To further this point, the draft permit does not put effluent limitations on these discharges (i.e. discharges to surface waters via seepage through groundwater) and no requirements are included to line or otherwise confine the CCS. That is to say, the draft permit does not articulate permitted seepage direction, volume, flow, salinity or constituent levels, or provide any other guidance on what is or is not permitted with respect to seepage.

Another concern with seepage is that the draft NPDES permit allows for FPL to "freshen" the CCS as required by FDEP's Consent Order.[23] Negotiations between FPL and Miami-Dade County about terms of a partnership agreement may end in a decision to use treated wastewater for this freshening. This reused wastewater will almost certainly contain "micro-constituents" and nutrient pollutants above anti-degradation standards for Biscayne Bay. Should such an agreement be reached before the permit's renewal period, FDEP should amend this draft permit to ensure compliance with Biscayne Bay anti-degradation standards.

A final concern regarding seepage is remediation of discharges in excess of those authorized by the permit. We have concerns about how exceedances of surface water quality standards attributable to discharges by FPL will be addressed. The draft NPDES permit, as written, provides no real remedy for violations. We request that seepage be considered a permitted activity such that in the event of a permit violation, FDEP can initiate a timely enforcement action on the grounds of seepage alone. We request a specific clarification of what constitutes permissible seepage under the permit conditions, including, but not limited to, seepage volume, direction, salinity or constituent composition, or other relevant parameters. As the draft NPDES permit is currently written, the only obligations regarding seepage are ambiguous at best.[24] We request additional water sampling locations and publicly accessible monitoring data; clarification of what is truly authorized under the permit regarding discharges from seepage through groundwater to surface

[21] FDEP's Draft NPDES Permit. FPL Turkey Point Power Plant. Permit No: FL0001562, Page 2.
[22] FDEP's Draft NPDES Permit. FPL Turkey Point Power Plant. Permit No: FL0001562, Page 2.
[23] Florida Department of Environmental Protection, Consent Order, OGC File No:16-0241, ¶ 19, June 20, 2016.
[24] FDEP's Draft NPDES Permit. FPL Turkey Point Power Plant. Permit No: FL0001562, Page 2.

waters; language that acknowledges the need for permit amendments if the Miami-Dade County-FPL joint partnership agreement regarding use of treated wastewater for CCS freshening goes through; and clear enumeration of seepage as a permitted activity including clearly defined permit conditions with respect to seepage so as to allow timely enforcement actions by FDEP in the event of a violation.

Sea Level Rise Impacts

Turkey Point's geographic location makes it particularly susceptible to sea level rise and storm surge impacts. The plant is situated on a low-lying peninsula, bordered by Biscayne Bay to the east and the Everglades to the west. The Turkey Point Nuclear Plant, Units 3 & 4 Subsequent License Renewal Application Environmental Report states that "[t]he ground elevation at the site is typically less than 1 foot above mean sea level."[25] The Environmental Report also notes that "the normal tide range of Biscayne Bay is about 2 feet. Natural (undeveloped) areas are inundated during high tide and can remain under 1 to 3 inches of water at low tide. Tidal flooding is a much more significant surface hydrological feature of the area than is rainfall runoff."[26] South Florida is experiencing, and expected to continue experiencing, increased rates of sea level rise, in addition to increased hurricane and flooding severity.[27] Over the last 100 years, sea level around Turkey Point has risen approximately 9-12 inches.[28] By 2100, sea level could rise between 5 and 6.75 feet according to revised projections by the U.S. Army Corps of Engineers and the National Oceanic and Atmospheric Administration.[29] Presently, FPL estimates only three quarters of a foot of sea level rise.[30]

Thus, it is reasonably foreseeable that, during the life of this permit, Biscayne Bay waters will be at or above the water levels of the CCS and may even surpass the surrounding berms in height during the predicted intensified storm surges, causing waters from the Bay and CCS to mix. As waters recede back into Biscayne Bay, there is the strong possibility that harmful contaminants

[25] Applicant's Environmental Report: Operating License Renewal Stage Turkey Point Units 3 & 4 Florida Power & Light Company; Docket Nos. 50-250 and 50-251 Revision 1, Page 2.2-1.
[26] Applicant's Environmental Report: Operating License Renewal Stage Turkey Point Units 3 & 4 Florida Power & Light Company; Docket Nos. 50-250 and 50-251 Revision 1, Page 2.3-1.
[27] South Florida Water Management District, Climate Change & Water Management in South Florida Interdepartmental Climate Change Group, p. 18, November 12, 2009, available at https://www.sfwmd.gov/sites/default/files/documents/climate_change_and_water_management_in_sflorida_12nov2009.pdf; Florida Ocean's and Coastal Council, Climate Change and Sea-Level Rise in Florida: An Update of the Effects of Climate Change on Florida's Ocean & Coastal Resources, December 2010, available at https://floridadep.gov/sites/default/files/Climate%20Change%20and%20Sea-Level%20Rise%20in%20Florida_1.pdf.
[28] National Parks Conservation Association's petition to intervene. South Florida Water Management District, FPL Turkey Point Units 6 & 7, Site Certification Application, First Completeness Review Comments, Exhibit 11, pp. 34-35 July 30, 2009; *see* Generic Environmental Impact Statement for License Renewal of Nuclear Plants, Supplement 5, Second Renewal, Regarding Subsequent License Renewal for Turkey Point Nuclear Generating Unit Nos. 3 and 4, p. 4-106, March 2019.
[29] FPL Wants to Keep Old Reactors Running. New sea-rise studies could stand in the way.; MIAMI HERALD, 1 June 2018, available at http://www.miamiherald.com/news/local/environment/article212325259.html.
[30] Generic Environmental Impact Statement for License Renewal of Nuclear Plants, Supplement 5, Second Renewal Regarding Subsequent License Renewal for Turkey Point Nuclear Generating Unit Nos. 3 and 4, p. 4-109, March 2019.

will enter the Bay. Additionally, a severe storm could cause a complete breach, or berm failure, which would lead to nutrient-enriched CCS water freely flowing into Biscayne Bay, which may lead to nutrient loading and potentially devastating algal blooms. This is relevant because this scenario would result in a point source discharge to surface waters, which is prohibited under the terms of the permit.

FPL has acknowledged the possibility of storm surges reaching these heights in its illustration titled "Conservative Probable Maximum Storm Surge Analysis Accounts for Sea Level Rise."[31] This illustration highlights the vulnerability of the berms and CCS in future projections of sea level rise and climate variations. The Nuclear Regulatory Commission considered safety concerns relating to the impacts of such storm surges in its Safety Report for Turkey Point proposed Units 6 and 7 but, to our knowledge, has not analyzed the structural integrity or fortification of the berms under such extreme conditions.

In the interest of protecting the health and integrity of our valuable natural resources, limited water supplies, and our national parks and protected places, we strongly urge you to thoroughly analyze the aforementioned environmental impacts as part of the NPDES permitting process. Thank you for your consideration of our comments.

Sincerely,

Rachel Silverstein, Ph.D.
Executive Director & Waterkeeper
Miami Waterkeeper

Caroline McLaughlin
Associate Director – Sun Coast Region
National Parks Conservation Association

[31] United States Nuclear Regulatory Commission Official Hearing Exhibit, Florida Power & Light Co. (Turkey Point Nuclear Generating Units 6 & 7), Docket #05200040-05200041, Exhibit #FPL-005-MA-CM01, slide 2, December 12, 2017.

Cc:
Ho Nieh, Director, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission
Eric Silagy, President and Chief Executive Officer, Florida Power & Light
Noah Valenstein, Secretary, Florida Department of Environmental Protection
Chairwoman Audrey M. Edmonson and the Miami Dade County Board of Commissioners
Mayor Carlos Gimenez, Miami-Dade County
Lee Hefty, Director Miami-Dade County Department of Environmental Resources Management
Mayor Sylvia Murphy and the Monroe County Board of Commissioners
Margaret Goodro, Superintendent, Biscayne National Park
Pedro Ramos, Superintendent, Everglades National Park
Sarah Fangman, Superintendent, Florida Keys National Marine Sanctuary
Laura Eldridge, Aquatic Preserve Manager, Biscayne Bay Aquatic Preserve