Center for Biological Diversity • Miami Waterkeeper • National Parks Conservation Association • South Florida Wildlands Association • Tropical Audubon Society

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Cindy Bladey
Chief, Rules, Announcements, and Directives Branch
Division of Administrative Services
Office of Administration
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-000

Megan Clouser
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U.S. Army Corps of Engineers
Miami Permits Section
9900 SW 107th Ave., Ste. 203
Miami, FL 33176

Re: Comments on Turkey Point Expansion, NRC-2009-0337, 2009-02417 (SP-MLC)

Dear Ms. Bladey and Ms. Clouser,

On behalf of the National Parks Conservation Association, Center for Biological Diversity, Miami Waterkeeper, South Florida Wildlands Association, and Tropical Audubon Society, we thank you for the opportunity to comment on the Draft Environmental Impact Statement (DEIS) for Combined Licenses (COLs) for Turkey Point Units 6 & 7, released by the Nuclear Regulatory Commission (NRC) under Docket ID NRC-2009-0337 and as publicly noticed by the U.S. Army Corps of Engineers (Corps), 2009-02417 (SP-MLC). We are deeply concerned about the potential wide-ranging environmental impacts to regional water resources, national parks, wildlife, and sensitive wetlands resulting from the construction and operation of Units 6 & 7 and ancillary facilities. According to the requirements of the National Environmental Policy Act (NEPA) and NRC regulations, the DEIS must present an analysis that examines and considers the environmental impacts, including direct, indirect, and cumulative impacts, of the proposed action; the environmental effects of alternatives to the proposed action; and mitigation alternatives that would reduce or avoid adverse environmental impacts. [1] The DEIS fails to adequately discuss and analyze potential adverse environmental impacts and provides insufficient proposals for mitigation. Due to the deficiencies of the DEIS, as outlined in this letter, it would be premature and inappropriate to issue COLs for Turkey Point Units 6 & 7.

We present to you the following specific concerns:

I. The proposed action threatens nearby Biscayne and Everglades National Parks and the goals and activities of the Comprehensive Everglades Restoration Plan (CERP).
II. The DEIS fails to include an adequate analysis of the direct, indirect, and cumulative impacts of proposed radial collector well system, including cumulative impacts

[1] United States Regulatory Commission, *Draft Environmental Impact Statement—Contents*, 2014, 10 C.F.R. § 51.71(d).

associated with the cooling canal system (CCS) industrial wastewater facility (IWF) and CERP.

III. The analysis of the impacts of the use and disposal of reclaimed wastewater is inadequate, particularly in terms of the characterization of constituents, the impacts of the construction of pipelines, and the impacts of wastewater reuse on CERP activities and goals.

IV. The DEIS fails to provide an adequate analysis of the direct, indirect, and cumulative impacts of the construction and operation of transmission lines and access roads on sensitive wetlands, wildlife, and CERP activities.

V. The DEIS does not adequately address the cumulative impacts of constructing and operating Units 6 & 7 on salinity levels in groundwater, surface water, the Biscayne Aquifer, and Biscayne Bay.

VI. The direct, indirect, and cumulative impacts of sea level rise on the construction and operation of Units 6 & 7 and ancillary facilities are not adequately analyzed.

VII. Potential mitigation measures are speculative, inadequate, and based on incomplete information.

The National Parks Conservation Association is America's leading voice in protecting and enhancing our National Park System for present and future generations. NPCA is a nonprofit, nonpartisan parks advocacy organization with more than 362,500 members nationally, and 18,500 in Florida. NPCA and its members care deeply about the health of our national parks, protecting water and biodiversity, and conserving cultural resources. Consequently, the construction and operation of Units 6 & 7 and its potential impacts on national parks are of great concern to NPCA and its members

The Center for Biological Diversity is an environmental nonprofit with a mission to protect and conserve endangered and threatened species. We believe that the welfare of human beings is deeply linked to nature – to the existence in our world of vast diversity of wild animals and plants. Because diversity has intrinsic value, and because its loss impoverishes society, we work to secure a future for all species, great and small, hovering on the brink of extinction. We do so through science, law and creative media, with a focus on protecting the lands, waters and climate that species need to survive. We are supported by over 825,000 people, including thousands of Floridians and people who visit Florida who would be impacted by the proposed project.

Miami Waterkeeper (MWK, formerly Biscayne Bay Waterkeeper) is a Miami-based 501(c)(3) non-profit organization that advocates for Biscayne Bay, its watershed, and its wildlife. Our goal is to educate locals and visitors about the vital role of clean water in Miami's clean water economy, and to empower them to take an active role in community decision making. We hope to ensure a clean and vibrant Biscayne Bay and coastal culture for generations to come. We are a member of the Waterkeeper Alliance, an internationally recognized, citizen-led alliance working for clean water around the world. Launched in 2011, MWK is the first Waterkeeper in South Florida and the only advocacy organization dedicated to protecting Biscayne Bay and its surrounding watershed.

South Florida Wildlands Association is a non-profit environmental organization incorporated in the State of Florida to protect wildlife and wildlife habitat in the Greater Everglades. We focus

on impacts and potential impacts to the large swaths of undeveloped lands and waters, in either public or private ownership, which exist outside of South Florida's urban boundaries. SFWA's conservation efforts are carried out through educational talks at various community venues, emailed "action alerts," interviews and articles in the press and other media, communications with public officials, and, where necessary, litigation.

Tropical Audubon Society is a group of dedicated citizens who care about the quality of South Florida's environment. The Tropical Audubon Society was established in 1947, and is a chapter of Audubon of Florida and the National Audubon Society. The Tropical Audubon Society is a non-profit, 501(c) (3) tax-exempt organization. Our headquarters, the Doc Thomas House, is a Dade County Historic site and nature center. It occupies three sub-tropical acres of native habitat in South Miami at 5530 Sunset Drive, and we have about 4,000 members.

I. The Proposed Action Threatens National Parks and Everglades Restoration Efforts

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 contains part 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 "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."[2] Biscayne National Park covers over 172,000 acres, 95% of which is water and is an Outstanding Florida Water (OFW) 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 recreational activities within Biscayne National Park include snorkeling, paddling, wildlife viewing, fishing, camping, hiking, and scuba diving.

Everglades National Park, located west of Turkey Point, was established in 1934 as a "public park for the benefit of the people. It is set aside as a permanent wilderness, preserving essential primitive conditions including the natural abundance, diversity, behavior, and ecological integrity of the unique flora and fauna."[3] Renowned worldwide for its rich array of unique ecosystems and wildlife, Everglades covers around 1.5 million acres of land and water, protecting 34 native species that are either federally listed or candidates for threatened or endangered status. Recognized by the United Nations Educational, Scientific, and Cultural Organization (UNESCO) as a World Heritage Site and International Biosphere Reserve, Everglades National Park is home to the largest mangrove ecosystem in the Western Hemisphere and the most significant wading bird breeding ground in North America.[4] Combined, over 1.5 million visitors to Biscayne and Everglades National Parks spent more than $136 million in

[2] 16 U.S.C. 410gg
[3] U.S. Department of the Interior, National Park Service, *Everglades Park Management*, http://www.nps.gov/ever/learn/management/index.htm.
[4] United Nations Educational, Scientific and Cultural Organization, *Everglades National Park: Statement of Significance*, http://whc.unesco.org/en/list/76.

2014, sustaining over 2,000 jobs in the local area.[5] Park visitation had a cumulative benefit of around $200 million to the local economy.[6]

Due to the impacts of the hydrological reengineering of the Everglades that took place in the 20th century to pave the way for development, the greater Everglades ecosystem, including Biscayne National Park and Biscayne Bay, has been in decline for decades. In 2000, Congress authorized the Comprehensive Everglades Restoration Plan (CERP) through the Water Resources Development Act, which put forth an overarching plan to achieve restoration of the quantity, quality, distribution, and timing of water flows throughout the system. The Biscayne Bay Coastal Wetlands (BBCW) project is a component of CERP that aims to restore the coastal wetlands of Biscayne Bay and reduce damaging point-source discharges to the system.

As detailed throughout our comments, the proposed project could have numerous adverse environmental impacts to our national parks and the treasured natural resources they were designated to protect. Specifically, threatened wildlife and wetland habitat in Everglades National Park could be harmed by the construction and operation of transmission line corridors in and adjacent to the park. The expansion also threatens the goals of CERP through potential negative impacts to the benefits of BBCW. One of the primary objectives of BBCW is to rehydrate coastal wetlands located adjacent to Turkey Point and to restore overland and subsurface water flows. Plans to withdraw water from Biscayne Bay using radial collector wells as a backup cooling water supply for Units 6 & 7 will likely draw freshwater away from what is needed for restoration, as discussed in greater detail in Section II, and operations could detract from benefits realized as a result of restoration efforts.

The proposed expansion of Turkey Point could also have significant impacts on the diverse ecosystems and valuable recreational experiences protected by our national parks. Biscayne National Park is particularly vulnerable to the impacts of the proposed project due to its location directly adjacent to Turkey Point. The park visitor center and entrance are located only two miles north of the site proposed for Units 6 & 7 and water areas of the park are just 2000 feet east of the proposed new units. Viewsheds from the waters of Biscayne will be significantly impacted above current levels due to the construction and presence of the new units and ancillary facilities, impacting visitor use and experience. Furthermore, changes to the salinity, quality and temperature of water in Biscayne may result in impacts to the seasonal behaviors of threatened and endangered species, such as the West Indian manatee and American crocodile.[7]

According to the standards of the Nuclear Regulatory Commission (NRC), "sites adjacent to lands devoted to public use may be considered unsuitable," and unacceptable impacts are "most apt to arise in areas adjacent to natural-resource-oriented areas."[8] In following the NRC's own standards, we advise against moving forward with the project as proposed due to the potential for

[5] Cullinane, Thomas C., C. Huber, and L. Koontz, *2014 National Park Visitor Spending Effects: Economic Contributions to Local Communities, States, and the Nation,* Natural Resource Report NPS/NRSS/EQD/NRR—2015/947, 2015, National Park Service, Fort Collins, Colorado, 16, 18.
[6] Ibid., 16, 18.
[7] Lewis, M. and D. B. Kimball, United States Department of Interior, National Park Service Letter to U. S. Nuclear Regulatory Commission, April 16, 2010, L 67, 16.
[8] United States Nuclear Regulatory Commission, *Regulatory Guide 4.7- General Site Suitability Criteria for Nuclear Power Stations*, Revision 2, 1998, Section C.

unacceptable impacts on the ecological integrity and economic viability of the surrounding national parks.

II. The Analysis of Direct, Indirect, and Cumulative Impacts of Proposed Radial Collector Wells is Inadequate

Some of our principal concerns regarding the potential adverse environmental impacts of this project are centered on the operation of the radial collector wells and their impacts on surrounding ecological areas. In order to dissipate waste heat generated by Units 6 & 7, two sources of water are identified for use in the DEIS. Up to 90 million gallons of water per day (MGD) of reclaimed wastewater from Miami Dade County will be used as the primary source of cooling water. However, when this water source is unavailable or insufficient in supply, radial collector wells will draw water from under Biscayne Bay as a backup water supply. The DEIS proposes the construction of four radial collector wells, which according to FPL, will withdraw saltwater from the Biscayne Aquifer. Radial wells would extend 900 feet horizontally beneath Biscayne Bay and would be installed approximately 25 to 40 feet below sediment surface.[9] Operation of the radial collector wells is to be limited to 60 days per year, with a maximum of volume of 7.5 billion gallons of water that may be pumped during that period.[10] It is important to note that radial collector well structures would be located under navigable Waters of the United States, as regulated under the Clean Water Act.[11]

Radial collector wells such as those described in the DEIS have never before been constructed in an estuarine environment anywhere else in the world.[12] A huge degree of uncertainty comes into play when predicting the impacts of the construction and operations of these wells on the surrounding environment, including the resources of Biscayne National Park, which are within the cone of influence of the radial collector wells. Despite the fact that radial wells will be located in the underlying aquifer, the primary source of intake water will be water from Biscayne Bay. According to the DEIS, "if the radial collector wells are used, the water would be pumped directly from the Biscayne aquifer beneath the bay and most of this water would be drawn downward from Biscayne Bay in an area adjacent to Biscayne National Park."[13] The DEIS fails to include an adequate analysis of these potential adverse impacts that could be caused by the installation and operation of radial collector wells.

The DEIS does not adequately analyze the potential for radial collector wells to impact salinity levels in Biscayne Bay and associated potential impacts on benthic flora and fauna. The DEIS acknowledges that 98% of water draw via the radial collector wells would come from Biscayne Bay, noting the hydrological connections between the aquifer and the bay.[14] However, it is possible that, due to these connections, pumping operations will draw down the freshwater lens found in the bay, impacting the flora, fauna and salinity of Biscayne Bay. According to the

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[9] United States Nuclear Regulatory Commission, *Environmental Impact Statement for Combined Licenses (COLs) for Turkey Point Nuclear Plant Units 6 and* 7, February 2015, NUREG-2176, 3-9.
[10] NRC, *DEIS,* 5-13.
[11] 40 C.F.R. § 230.3.
[12] West, B. United States Department of the Interior, National Park Service Letter to A. Williamson, U.S. Nuclear Regulatory Commission, November 25, 2014, SER PC, 6.
[13] NRC, *DEIS,* 2-27.
[14] Ibid., 498.

Florida Department of Environmental Protection (FDEP), radial wells located at a depth of 40 feet may ultimately withdraw freshwater from the aquifer, resulting in potential impacts to the seabed and salinity within the Bay.[15] Neither Biscayne Bay nor Biscayne Aquifer is characterized by a constant salinity. Rather, both the bay and the aquifer are subject to spatial and temporal variations in salinity.[16] The salinity model upon which the impacts analysis is based is inadequate and was not developed for the true scale at which the wells will operate. The DEIS admits that models used to predict the underground flow of water into the radial collector wells are insufficient to identify how water of different density (caused by differences in salinity) will move through the ground.[17]

As fresh water is withdrawn from either the aquifer and/or the bay, there may be less freshwater to replenish the system, affecting salinity levels within Biscayne Bay. The withdrawal of freshwater from either of these sources has the potential to permanently disrupt the system's saltwater regime and could have substantial impacts to local ecosystems, which are extremely sensitive to changes in salinity. Disruption in nearshore habitats and overall ecological stability may occur as a result of hydrologic impacts that change water quality and volume with the bay. Furthermore, as noted in the DEIS, removing large volumes of water from the aquifer could impact water-supply levels and ultimately increase saltwater intrusion into the Biscayne Aquifer.[18] South Florida's water supply is already extremely vulnerable to the impacts of salt water intrusion and an acceleration of the degradation of our water supply as a result of this project is unacceptable. Such potential impacts must be fully analyzed in the DEIS to comply with NRC regulations that require a complete discussion of the potential negative impacts of a project.[19]

The DEIS also fails to provide sufficient information about current species diversity, abundance, and habitat utilization in the vicinity of proposed radial collector wells and therefore fails to complete a full and adequate analysis of the impacts of the wells to the Biscayne Bay ecosystem. This data is necessary to determine the ways in which disruptions to the salinity regime caused by the radial collector wells will impact Biscayne National Park, wildlife species, and their habitats. The DEIS does not contain comprehensive biological studies on wildlife utilization, plant cover, and species in the area adjacent to the radial collector wells. Furthermore, a baseline survey of benthic fauna and seagrass cover has not been conducted near the location of the radial collector wells. Seagrasses can be particularly sensitive to changes in salinity and water quality and benthic habitat could be impacted by the radial collector wells.[20] The DEIS cannot fully consider the potential impacts of the wells on wildlife resulting from the disruption of salinity regimes without providing comprehensive surveys and studies of the flora and fauna within the bay, particularly in areas near the radial collector wells. Without providing this data, the DEIS fails to establish an environmental baseline by which to evaluate impacts and alternatives.

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[15] Florida Department of Environmental Protection, *Determination of Completeness, FPL Turkey Point Units 6 & 7*, August 10, 2009, 2.
[16] Miami-Dade County, *Third Completeness Comments for Plant and Non-Transmission Line Portions of the FPL Site Certification Application- Turkey Point Units 6 & 7*, May 28, 2010, 25.
[17] NRC, *DEIS,* G-29.
[18] NRC, *DEIS,* 5-13.
[19] 10 C.F.R. § 51.45(b).
[20] South Florida Water Management District, *Second Completeness Review, FPL Turkey Point Units 6 & 7, Site Certification Application, Power Plant & Associated* Facilities, January 2, 2010, 3.

The impacts analysis included in the DEIS regarding the impacts of the radial collector wells, already inadequate, is premised on the assumption that sufficient water supply will be available from reclaimed wastewater throughout the lifespan of this project. The determination that the operations of the radial collector wells would have minor impacts on groundwater is dependent on the reliability of reclaimed water.[21] Due to inherent uncertainties and risk regarding the continued future availability and supply of treated wastewater as cooling water, the impacts from the potential increased usage of radial collector wells beyond the 60 days identified in the DEIS must be analyzed. Such discussion should include possible adverse impacts to Biscayne National Park, benthic habitats and organisms, saltwater intrusion, migration of the hypersaline plume, and water levels at freshwater supply wells.

Cumulative Impacts of Cooling Canal System

According to NRC and NEPA requirements, the DEIS must discuss and analyze the environmental impacts of the proposed Turkey Point expansion, including the direct, indirect and cumulative impacts. Current operations of Turkey Point already pose risks to the ecological integrity of surrounding environments, particularly to Biscayne Bay and Biscayne National Park. Specifically, water from the cooling canal system (CCS), a designated industrial wastewater facility (IWF) used to cool waters from the operation of Units 3 & 4, is seeping into groundwater, creating a hypersaline plume emanating out in all directions.[22] Despite being described as a "closed system" by FPL, the CCS is an unlined system with direct connections to groundwater.

The DEIS does not adequately discuss potential cumulative impacts caused by the existing underground hypersaline plume produced by the current operations of the CCS. The findings of the uprate monitoring program for Units 3 & 4 identified the presence of CCS water in shallow groundwater (approximately 25' to 30') in wetlands adjacent to Biscayne Bay.[23] Radial wells will be constructed at approximately the same depth. According to FPL's groundwater modeling, the RCWs would draw approximately 2% of its water from the Industrial Wastewater Facility (IWF) cooling canal system.[24] The DEIS acknowledges that the operations of the radial collector wells could impact the movements of the hypersaline plume, likely increasing the flow velocity of hypersaline water eastward under Biscayne and changing the area impacted by the plume.[25] The DEIS states that "intermittent operation [of the radial collector wells] could result in an increase of hypersaline flow into the aquifer beneath the bay that could migrate into the bay when the RCW is not operating."[26] Despite admitting the potential for interactions, the DEIS fails to adequately analyze the adverse environmental impacts that could result if CCS water were to appear in the bay due to the operations of the radial collector wells.

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[21] NRC, *DEIS,* 7-12.
[22] Lewis, M. United States Department of the Interior, National Park Service Letter to M. Harris, Florida Department of Environmental Protection, November 13, 2009, L76, 1.
[23] West, B. United States Department of the Interior, National Park Service Letter to A. Williamson, U.S. Nuclear Regulatory Commission, November 25, 2014, SER PC, 6.
[24] NRC, *DEIS,* 5-14.
[25] Ibid., 5-16.
[26] Ibid., G-29.

The potential for interactions between the operations of the radial collector wells and the hypersaline plume leads to inherent risks and potential environmental impacts that are not adequately addressed in the DEIS. The construction and operation of Units 6 & 7 will likely increase the input of materials into the CCS, altering the concentrations of dissolved contaminants. Interactions between radial collector wells and CCS waters could result in the transport of contaminants and nutrients into underground waters that are connected with the waters of Biscayne Bay, potentially causing algal blooms and indirect threats to its ecological health and sustainability.[27] The DEIS must analyze and review monitoring information regarding contaminants of environmental concern, such as salinity, nutrients, metals, and sulfate.

In discussing such interactions, the DEIS admits that, "the steady-state nature of the FPL model and the assumption of constant density fluids make the model inadequate for modeling this potential scenario,"[28] in effect admitting uncertainty as to the interactions between the radial collector wells and hypersaline water from the plume. Despite the fact that the proposed system of radial collector wells would be located within or adjacent to the plume and will impact the movement and location of the plume, the DEIS fails to provide an adequate discussion of the ways in which the movement and composition of the plume may be affected by radial collector well withdrawals. There is an insufficient analysis of how the wells may capture or affect water from the plume and inadequate information regarding the possible impacts associated with causing plume water to flow towards the radial wells.

Cumulative Impacts of CERP

The DEIS fails to analyze the potential for the operations of radial collector wells to negatively impact the implementation of CERP, specifically the Biscayne Bay Coastal Wetlands (BBCW) project. BBCW is intended to restore freshwater flow to Biscayne Bay and Biscayne National Park, recharging sources of fresh groundwater and addressing high salinity in nearshore environments. Using radial wells to collect cooling water for Units 6 & 7 could negatively impact CERP goals of restoring freshwater flow to Biscayne Bay. Radial wells located at a depth of 40 feet may withdraw freshwater from the aquifer, potentially offsetting attempts to deliver more freshwater to Biscayne Bay's littoral zone.[29]

III. The Analysis of the Impacts of the Use and Disposal of Reclaimed Wastewater is Inadequate

The primary source of cooling water for the operations of Unit 6 & 7 would be reclaimed water from the Miami-Dade Water and Sewer Department (MDWSD). This water would be discharged into the Boulder Zone of the Lower Floridan Aquifer using twelve underground injection wells. The DEIS does not include an adequate analysis of the impacts that may arise from the disposal of this, wastewater -which contains ethylbenzene, heltachlor, tetrachloroethylene, and toluene-

[27] West, B. United States Department of the Interior, National Park Service Letter to A. Williamson, U.S. Nuclear Regulatory Commission, November 25, 2014, SER PC, 6-8.
[28] Ibid., G-29.
[29] Florida Department of Environmental Protection, *Determination of Completeness, FPL Turkey Point Units 6 & 7*, August 10, 2009, 2.

into the Boulder Zone using these wells. Moreover, the impacts of these contaminants migrating upward and into the Upper Floridan Aquifer are not adequately addressed.

The DEIS also does not include an adequate discussion and evaluation of the impacts associated with the construction of pipelines needed to convey reclaimed wastewater to the plant's wastewater treatment facility. Pipelines to transport reclaimed wastewater from the South Dade Water Treatment Plant to Turkey Point will be constructed in an area currently home to expansive wetlands using a corridor approximately nine miles long.[30] The DEIS must discuss how the construction and operation of these pipelines will impact wetlands, how FPL will properly avoid or mitigate impacts to wetlands, and whether reasonable alternatives exist to constructing pipelines in sensitive wetland areas.

Finally, the South Florida Water Management District plans to construct culverts on the east side of the L-31 E right-of-way for the BBCW project. FPL is also considering using the same right-of-way to accommodate the reclaimed water pipeline. The DEIS does not adequately discuss this potential conflict and how plans for reclaimed wastewater pipelines may negatively impact plans to proceed with Everglades restoration.[31] Considering the extensive loss of ecologically valuable wetlands in and around Turkey Point and Biscayne Bay that has already occurred and the commitment of the federal government and the state of Florida to restore and replenish wetland resources in these areas, the DEIS must include an adequate discussion of how the construction and operation of around nine miles of pipeline will further impact wetland resources and if reasonable alternatives exist.

The potential adverse impacts from use and reservation of reclaimed wastewater from the South District Water Treatment Plant to CERP and specifically, to BBCW, are not adequately discussed in the DEIS. BBCW, intended to restore freshwater flows in and around Biscayne Bay's littoral zone, is premised on the conveyance of freshwater that may include treated wastewater from Miami Dade County. The DEIS does not discuss the potential negative impacts to Everglades restoration efforts that may arise from the use of up to 90 MGD of reclaimed water to cool Units 6 & 7, water that may otherwise be used to supply freshwater to the BBCW project.

IV. The DEIS Fails to Adequately Analyze the Impacts of the Construction and Operation of Transmission Lines and Access Roads on Wetlands, Wildlife, and CERP Activities

Transmission Lines

In order to connect Units 6 & 7 to the power grid, FPL seeks to construct two new transmission line corridors. The proposed transmission line sites for the Western corridor are of primary concern due to their potential impacts on areas in and around Everglades National Park. The DEIS fails to adequately analyze the direct, indirect, and cumulative impacts of the construction and operation of transmission lines on wetlands, wildlife, and CERP. In its discussion of potential Western transmission line corridors, the DEIS limits its discussion to West Preferred

[30] NRC, *DEIS,* 3-20.
[31] South Florida Water Management District, *Third Completeness Comments, FPL Turkey Point Units 6 & 7, Site Certification Application Power Plant & Associated Facilities,* June 4, 2010, 14.

and West Consensus corridors. The construction and operation of transmission lines and access roads in either of these corridors could cause an array of adverse environmental impacts, including impacts to wildlife, habitat, and wetland resources, such as freshwater marshes, wetland hardwoods, and wet prairies; the disruption of hydrologic flows; air and water pollution; viewshed impacts; and impacts to national park visitor experiences. [32] The project could harm water-dependent birds, such as migratory birds and federally listed wood storks and snail kites. Woods storks are listed as a federally threatened species due to habitat loss, fragmentation, and degradation. Wading birds such as the wood stork are at risk of collision with powerlines because of their large size and inability to navigate obstacles while flying. In a scientific evaluation of wood stork mortality, collisions with powerlines were listed as the most significant cause of death.[33] It is reasonable to anticipate that, given the high collision risk of wood storks and wading birds, the construction of powerlines in critical wood stork habitat will lead to a sustained level of mortality for these threatened species throughout the life of the project. The construction and operation of transmission lines could also lead to the degradation and fragmentation of critical wetland areas, disturbing birds during the construction process and creating a permanent risk of bird collisions and injuries from transmission lines and associated structures.

Access Roads

Impacts associated with the construction and operation of access roads associated with Units 6 & 7 on wetlands and wildlife are not adequately discussed and analyzed within the DEIS. Access roads will be constructed in and adjacent to wetlands and conservation lands, including on lands that are part of the Miami-Dade County Environmentally Endangered Lands Program.[34] The construction and operation of such roads could have a number of negative impacts, such as the disruption of ecological corridors and sheet flow and the degradation of conservation lands.[35] The DEIS lacks sufficient information regarding the possible overlap of access roads and wildlife corridors. The discussion of such impacts is cursory and as such fails to comply with the requirements of section 102(2) of NEPA.[36]

V. Failure to Adequately Address the Cumulative Impacts of Constructing and Operating Units 6 & 7 on Salinity Levels in Groundwater, Surface Water, the Biscayne Aquifer, and Biscayne Bay

The DEIS fails to adequately address the cumulative impacts of constructing and operating Units 6 & 7 on salinity levels in groundwater, surface water, the Biscayne Aquifer, and Biscayne Bay. One of the most significant environmental impacts of the proposed action is the potential for greatly increased salinity levels in an ecosystem that is already stressed by high salinity. The construction and operation of Units 6 & 7 could lead to the expansion and continued migration of

[32] Florida Department of Environmental Protection, *Second Determination of Completeness, Transmission Lines*, September 17, 2009, 1.
[33] Forrester, D.J. and Spalding, M.G., "Ibises, Spoonbills, Flamingos, and Storks: Trauma," *Parasites and Diseases of Wild Birds in Florida*, 2003, University Press of Florida, Gainesville, 227-228.
[34] Miami-Dade County, *Third Completeness Comments for Plant and Non-Transmission Line Portions of the FPL Site Certification Application- Turkey Point Units 6 & 7*, May 28, 2010, 39.
[35] Ibid., 39.
[36] National Environmental Policy Act of 1969 §102(2) 42 U.S.C. § 4332.

the underground hypersaline plume that is currently threatening groundwater supplies. Construction activities would likely add an increased amount of nutrients and dissolved organic materials into the CCS. Adverse environmental impacts could occur if these contaminants reach the waters of Biscayne Bay. Increased salinities in the project area could result as cumulative impacts when combined with the use of radial wells that withdraw freshwater from Biscayne Bay and the Biscayne Aquifer (increasing salinity levels in the Bay); the reservation of municipal wastewater that might otherwise be used to provide freshwater to Biscayne Bay's littoral zone through BBCW; the failure of FPL to elevate the entire project area and its facilities to protect against saltwater intrusion from sea level rise and storm surge; and the use of injection wells that could increase salinities in the Floridan Aquifer.

According to NEPA, cumulative impacts are those that occur from the "incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions."[37] Every year, the SFWMD conducts fall agricultural draw downs in Miami-Dade County in order to manipulate groundwater storage to support agricultural interests at the end of the wet season. The result of these actions include the rapid release of water at the end of the wet season and an artificially early start to the dry season.[38] The dry season is therefore unnaturally dry, causing habitat loss, salinity issues and other negative ecological consequences.[39] The DEIS fails to include a discussion of how these annual draw downs, when coupled with the existing hypersaline plume and proposed operations of Units 6 & 7, will cumulatively impact salinity levels within Biscayne Bay and the Biscayne Aquifer.

VI. Failure to Adequately Analyze the Direct, Indirect, and Cumulative Impacts of Sea Level Rise on the Construction and Operation of Units 6 & 7 and Ancillary Facilities

Preparing for the impacts of impending sea level rise and ensuring that development, both existing and planned, takes into account these potential impacts is one of the most critical challenges facing South Florida. In considering such impacts, the DEIS fails to adequately address the direct, indirect, and cumulative impacts of sea level rise on the construction and operation of Units 6 & 7 and ancillary facilities. Turkey Point is located close to sea level, with an elevation of -2.4 feet to 0.8 feet. Over the last 100 years, sea level in the area of Turkey Point has risen approximately 9-12 inches.[40] According to the Miami-Dade Climate Change Task Force, by 2050, sea level rise could be between 1.5 and 5 feet.[41] With FPL seeking a COL valid for 40 years, Units 6 & 7 could still be operating when these predictions come to fruition. However, the DEIS fails to adequately analyze the potential impacts associated with this level of sea level rise.

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[37] 40 C.F.R. § 1508.7

[38] Kearns, E. J., A. Renshaw, and S. Bellmund. *Environmental Impacts of the Annual Agricultural Drawdown in Southern Miami Dade County*, Abstract, American Geophysical Union, 2008.

[39] Ibid.

[40] South Florida Water Management District, *FPL Turkey Point Units 6 & 7, Site Certification Application, First Completeness Review*, July 30, 2009, 34-35.

[41] Ibid., 34-35.

The DEIS acknowledges that global sea level is projected to rise by 1 to 4 feet by 2100 and that the vulnerability of Turkey Point to sea level rise is "high" to "very high."[42] According to the U.S. Global Change Research Program, as cited in the DEIS, there is "an imminent threat of increased inland flooding during heavy rain events in low-lying coastal areas such as southeastern Florida" and sea level rise will "accelerate saltwater intrusion into freshwater supplies."[43] Predictions for sea level rise globally and in specific regions can vary widely and the DEIS accounts for a very conservative estimate of sea level rise in its analysis. NOAA discourages decision makers from using only the most likely sea level rise scenarios when considering future impacts of sea level rise on development. Rather, in terms of the construction of power plants, NOAA recommends that a projection of over six feet of sea level rise by 2100 be used for planning purposes. [44] Under such recommendations, three feet of sea level rise by 2060 should be accounted for, which is within the lifetime of Units 6 & 7.

Despite the fact that new units would be constructed on elevated pads, transmission line facilities, reclaimed water pipelines, industrial wastewater facilities, access roads, and other facilities would be located at the current elevation of the plant. The DEIS omits an adequate discussion on how sea level rise could potentially impact these facilities and the operations of Units 6 & 7. Sea level rise could cut off road access to the Southern Waste Water Treatment Facility, impacting the plant's operations. Moreover, considering the porosity of the Biscayne Aquifer, increasing sea level rise could also increase groundwater levels in the region.[45] Impacts of sea level rise could affect the operations of the radial collector wells, particularly in regards to the percentage of water drawn from Biscayne Bay versus freshwater from the Biscayne Aquifer. The NRC should also look at the impacts of sea level rise beyond the 40 year lifetime of the plant, especially as nuclear waste will be stored onsite.

In addition, the DEIS does not adequately discuss the increased vulnerability of Units 6 & 7 to storm surge as a result of sea level rise. While sea level rise occurs slowly, impacts from storm surge can be sudden and immediate. Turkey Point is located between Biscayne Bay to the east and low-lying wetlands to the west. As sea level rises, Florida Bay could also border the Turkey Point site. Therefore, when anticipating future scenarios, storm surge could potentially come at the plant from three directions. Elliott Key, which currently acts as a barrier to the impacts of storms, may be underwater, leaving the facility more vulnerable to storm surge, high tides, winds, and ocean swell. Given projections, it is extremely likely that water from Biscayne Bay will rise to or above levels of water within the cooling canal system at some point in the project's lifetime. During storm events, it is possible that water levels may breach the height of the berms surrounding the CCS, causing Bay water to mix with CCS water before the water returns to Biscayne Bay.[46] The end result would be the increased presence of cooling canal system water in the bay, which could lead to nutrient loading and potentially devastating algal blooms within the

[42] NRC, *DEIS,* I-3.
[43] Ibid., I-3.
[44] Parris, A., P. Bromirski, V. Burkett, D. Cayan, M. Culver, J. Hall, R., Horton, K. Knuuti, R. Moss, J. Obejsekera, A. Sallenger, and J. Weiss. *Global Sea Level Rise Scenarios for the US National Climate Assessment*, NOAA Tech Memo OAR CPO-1, 2012, 2.
[45] South Florida Water Management District, *FPL Turkey Point Units 6 & 7, Site Certification Application, First Completeness Review*, July 30, 2009, 34-35.
[46] West, B. United States Department of the Interior, National Park Service Letter to A. Williamson, U.S. Nuclear Regulatory Commission, November 25, 2014, SER PC, 9.

bay.[47] The DEIS must account for such future scenarios and direct, indirect, and cumulative impacts of sea level rise and storm surge in its analysis of project impacts.

VII. Potential Mitigation Measures Are Speculative, Inadequate, and Based on Incomplete Information

The U.S. Army Corps of Engineers has an independent responsibility under Section 404 of the Clean Water Act to determine if the project is consistent with the "public" interest and if impacts to the Waters of the United States have been adequately avoided, minimized, or mitigated. As a cooperating agency, the Corps will depend on information included in the EIS to comply with the requirements of NEPA in issuing a permit under the Clean Water Act. The Corps makes this determination through its own Record of Decision (ROD) and Department of Army (DA) permit. The potential mitigation measures proposed in the DEIS are speculative and inadequate and their effectiveness is not properly examined as required under NEPA.

NEPA is "our basic national charter for protection of the environment,"[48] ensuring that federal agencies identify and analyze detailed information regarding significant environmental impacts of proposed projects and that such information is disseminated to a wide audience. Within an EIS, the EIS must describe the environmental impacts of the proposed action; "adverse environmental effects which cannot be avoided should the proposal be implemented;" alternatives to the action proposed; "the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity;" and any "irreversible or irretrievable commitment of resources which would be involved in the proposed action should it be implemented."[49]

The proposed project will impact approximately 1000 acres of tidal and freshwater wetlands in order to construct Units 6 & 7.[50] Portions of the project, as outlined in permit application number 2009-02417 (SP-MLC), include (1) new transmission lines, (2) Units 6 & 7 site, (3) pipelines for potable and reclaimed water, (4) equipment barge unloading area, (5) transmission line crossing under the Miami River, (6) access roads, (7) radial collector wells located under Biscayne Bay, and (8) pre-treatment building. Impacted wetlands include mangrove swamp, sawgrass marsh, seagrass, mixed wetland hardwoods, freshwater and saltwater marsh, and wetland shrub.[51] The project will directly impact approximately 300 acres of high quality mangrove wetlands, 40 acres of sawgrass marshes, and one acre of submerged aquatic vegetation, all of which are considered by the U.S. Environmental Protection Agency to be aquatic resources of national importance (ARNI).[52]

The DEIS fails to comply with NEPA because its determinations of the project's environmental impacts, dismissal of other alternatives, and recommendation to issue the COL are based on speculative mitigation measures that have not been adequately analyzed. NEPA requires an

[47] Ibid., 9.
[48] 40 C.F.R.§ 1500.1(a).
[49] 42 U.S.C. §4332(2)(c).
[50] Gattiana, J. L., United States Environmental Protection Agency Letter to Colonel Alan M. Dodd, U.S. Army Corps of Engineers, April 9, 2015, 1.
[51] Ibid., 1.
[52] Ibid., 1-2.

analysis and discussion of the extent to which adverse effects can be avoided.[53] Therefore, the DEIS is insufficient in satisfying the requirements of NEPA because it merely lists "possible" and "potential" mitigation measures for terrestrial impacts of the project.[54] It fails to adequately analyze the effectiveness of the proposed measures in mitigating project impacts,[55] despite the fact that an "essential component of a reasonably complete mitigation discussion is an assessment of whether the proposed mitigation measures can be effective."[56]

Notwithstanding the failure of the DEIS to adequately analyze the efficacy of "proposed" or "possible" mitigation activities, the DEIS gives an impact category to wetland and terrestrial impacts and recommends that the COL be issued based on potential mitigation measures described in the Environmental Report and DEIS.[57] The determination of an impact level category for each resource area is based on the assumption the mitigation activities are implemented. "Proposed mitigation efforts" are listed and include an in-lieu fee program, mitigation banks, or permittee responsible mitigation.[58]It is unclear as to which combination of mitigation measures will actually be implemented, considering that some possible mitigation options, including the NPS Hole-in-the Donut Mitigation Bank, are not federally approved and that some programs are not approved by the U.S. Army Corps of Engineers.[59] Furthermore, the DEIS does not describe why and how mitigation measures will sufficiently offset the loss of wetlands anticipated as a result of this project. In order to comply with NEPA, a more thorough analysis of concrete and actionable mitigation measures must be included in an EIS.

The NRC repeatedly states that the U.S. Army Corps of Engineers has not evaluated the proposed mitigation measures because the applicant has not demonstrated that wetland impacts have been avoided or minimized according to Clean Water Act section 404(b)(1) guidelines.[60] An evaluation of proposed mitigation measures by the Corps is expected as part of the Corps' Record of Decision, which will not be made until after the Final EIS is issued. Furthermore, the DEIS indicates that further mitigation for wetland and listed species impacts may be required.[61] It is premature for the NRC to issue a DEIS, assign impact analyses to affected resources, dismiss other alternatives, and issue a preliminary recommendation to issue a COL prior to any substantive analysis of the effectiveness of mitigation measures. The information requirement to make such a determination must be included in the DEIS, rather than any future decision-making process. After reviewing the proposed mitigation for the project, the EPA determined that a permit for the project should not be issued because of "substantial and unacceptable impacts to mangrove wetlands, sawgrass marshes, and submerged aquatic vegetation."[62] Pursuant to the Clean Water Act 404(b)(1) Guidelines[63] and a February 6, 1990 Memorandum of Agreement

[53] Roberston v. Methow Valley Citizens Council, 490 U.S. 332, 315-352, 1989, 352.
[54] Neighbors of Cuddy Mountain v. U.S. Forest Service, 137F.3d 1372, 1380, 9th Cir.1, 1998.
[55] NRC, *DEIS,* 4-3, 4-69, 4-72.
[56] S. Fork Band Council of W. Shoshone of Nevada v. U.S. Department of Interior, 588F.3d 718, 727, 9th Cir., 2009.
[57] NRC, *DEIS,* 10-28.
[58] Ibid., 10-6.
[59] Ibid., 4-71.
[60] Ibid., 4-69, 4-70, 4-73.
[61] Ibid., 4-72.
[62] Gattiana, J. L., United States Environmental Protection Agency Letter to Colonel Alan M. Dodd, U.S. Army Corps of Engineers, April 9, 2015, 4.
[63] 40 C.F.R. § 230.91(c).

between the Corps and the EPA regarding the Determination of Mitigation under the Clean Water Act 404(b)(1), "an applicant must demonstrate avoidance and minimization of wetland impacts before compensatory mitigation can be considered." [64] The DEIS must therefore include a more substantial discussion and analysis of mitigation measures, rather than a mere identification of "possible" or "potential" mitigation activities, and a sufficient discussion of how mitigation activities would effectively offset the impacts of the proposed projects.

In consideration of the fact that the proposed project will have significant negative impacts to the ecology and health of Biscayne Bay, Biscayne National Park, and adjacent sensitive ecological areas, any consideration of adequate mitigation must include mitigation activities that offset these negative impacts by improving the health of these important ecological areas. The BBCW project aims to improve the health of nearshore and wetland areas of Biscayne Bay and Biscayne National Park by rehydrating coastal wetlands. In order to achieve the goals of this project, significant water storage and delivery must be developed in the area adjacent to Turkey Point Power Plant. Much of the lands needed for public ownership to proceed with the project are currently owned and managed by FPL. Transferring such land into public ownership for the purposes of BBCW as originally envisioned by CERP would go a long way towards achieving Everglades restoration goals and the restoration of critical wetland habitat and function in Biscayne Bay. Thus, mitigation measures should include the transfer of FPL land within the footprint of the original and complete BBCW project to public ownership.

Conclusion

Thank you for the opportunity to comment on this document. We firmly believe that, due to the deficiencies in the information and analysis provided in the DEIS and the multitude of negative environmental impacts on the surrounding environment, the NRC should not issue COLs for Turkey Point Units 6 & 7.

Sincerely,

(Signatures waived to expedite delivery)

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[64] Gattiana, J. L., United States Environmental Protection Agency Letter to Colonel Alan M. Dodd, U.S. Army Corps of Engineers, April 9, 2015, 3.

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