

## TurkeyPoint34SLREISCEm Resource

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**From:** Sara Barczak <sara@cleanenergy.org>  
**Sent:** Thursday, June 21, 2018 6:11 PM  
**To:** TurkeyPoint34SLREIS Resource  
**Cc:** Laura Reynolds; George Cavros; Sara Barczak; Stephen Smith; Alan Farago FOE; Jose (Joe) Francisco Barros; Burton, William; James, Lois  
**Subject:** [External\_Sender] Docket NRC-2018-0101: environmental scoping comments re: FPL SLRA for Turkey Pt Units 3 & 4  
**Attachments:** F\_SACETASFOE\_NRCScopingComments\_TP3&4\_062118.pdf; ATT00001.htm

Dear Ms. Ma & NRC Staff,

We respectfully submit the attached Environmental Scoping Comments on FPL's Subsequent License Renewal Application for the Turkey Point Reactor Units 3 & 4, Docket NRC-2018-0101 on behalf of the Southern Alliance for Clean Energy (SACE), the Tropical Audubon Society (TAS) and the Friends of the Everglades (FOE).

If you have any questions or have any problems with the attachment, please do not hesitate to contact me.

Thank you,  
Sara Barczak

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**Southern Alliance for Clean Energy**  
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**Federal Register Notice:** 83FR23726  
**Comment Number:** 93

**Mail Envelope Properties** (769B0FDD-AB4D-42CA-BEA9-E837C5DC6475)

**Subject:** [External\_Sender] Docket NRC-2018-0101: environmental scoping comments re:  
FPL SLRA for Turkey Pt Units 3 & 4  
**Sent Date:** 6/21/2018 6:11:20 PM  
**Received Date:** 6/21/2018 6:11:30 PM  
**From:** Sara Barczak

**Created By:** sara@cleanenergy.org

**Recipients:**

**Post Office:** cleanenergy.org

<b>Files</b>	<b>Size</b>	<b>Date &amp; Time</b>
MESSAGE	632	6/21/2018 6:11:30 PM
F_SACETASFOE_NRCScopingComments_TP3&4_062118.pdf		272581
ATT00001.htm	531	

**Options**

**Priority:** Standard  
**Return Notification:** No  
**Reply Requested:** No  
**Sensitivity:** Normal  
**Expiration Date:**  
**Recipients Received:**

June 21, 2018

May Ma

US Nuclear Regulatory Commission

Chief, Program Management, Announcements and Editing Branch

Office of Administration, Mail Stop:

TWFN-7-A60M, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001

TurkeyPoint34SLREIS@nrc.gov

**RE: Environmental Scoping Comments from Southern Alliance for Clean Energy, Tropical Audubon Society, and the Friends of the Everglades on FPL's Subsequent License Renewal Application for the Turkey Point Reactor Units 3 & 4, Docket NRC-2018-0101**

Dear Ms. Ma,

We respectfully submit the following comments on behalf of the Southern Alliance for Clean Energy (SACE), the Tropical Audubon Society (TAS) and the Friends of the Everglades (FOE).

Southern Alliance for Clean Energy is a nonprofit, nonpartisan organization that promotes responsible energy choices that work to address the impacts of global climate change and ensure clean, safe and healthy communities in the Southeast.

Tropical Audubon Society is a nonprofit chapter of the National Audubon Society based in Miami Dade County, whose mission is to conserve and restore South Florida ecosystems, focusing on birds, other wildlife and their habitats.

Friends of the Everglades is a nonprofit organization founded in 1969 by renowned journalist, writer and activist Marjory Stoneman Douglas, whose mission is to preserve, protect, and restore the only Everglades in the world.

The above organizations serve as plaintiffs in an ongoing Clean Water Act Case [Case # 16-CV-23017-GAYLES/ OTAZO-REYES] regarding the Florida Power and Light Company's (FPL) continuing violation of their National Pollutant Discharge Permit (NPDES) permit, along with multiple local and federal pollution standards through the release of a plume of hyper-saline and nutrient enriched effluent from their Cooling Canal System (CCS, canal system or canal network) into the adjacent Biscayne Aquifer, as well as the Surface waters of Biscayne Bay (Biscayne National Park), Card Sound and the adjacent L-31E canal.

It is alarming that FPL has filed a Subsequent License Renewal Application (SLRA or renewal request) with the NRC requesting approval for operating an approximately 45-year old plant for additional 20 years for nuclear reactor units 3 (Operating License, DPR-31) & 4 (Operating License, DPR-41), while the NPDES permit for its only cooling system has been expired for 8 years and only purportedly "administratively extended" with no indication of renewal or additional conditions. Thus, these comments focus on the need for an alternatives

analysis in the development of the Environmental Impact Statement (EIS) for the FPL cooling water system.

## **I. Background**

The cooling canal system was constructed in 1972 in response to a 1971 Final Judgment of United States of America vs. Florida Power and Light, which called for the cessation of discharge into Biscayne Bay and Card Sound and the establishment of a closed loop cooling system at the site.

The Turkey Point cooling canal system consists of 5900 acres of shallow, unlined cooling canals dug into the oolitic limestone immediately south of the plant. The canals themselves are underlain by a portion of the Biscayne aquifer the state of Florida classifies as “G-III” water quality insofar as this defined G-III designated portion accepts the discharge of cooling water that seeps vertically downward through the limestone. The boundary of the state designated G-III portion of the aquifer follows the boundary of the cooling canal system, not by chance but by permit. Because the cooling canal system discharges into the G-III aquifer portion, and that discharge is permitted by the state of Florida, the NRC should consider the G-III designated aquifer as a component of the Cooling Canal System. Moreover, in the 1971 Final Judgment, the “cooling system, intake facilities and discharge canals” were paired together as distinct components of the overall cooling system. Discharge canals were defined therein as “all natural or artificial conduits through which water from Florida Power and Light's generating facilities is discharged to Biscayne Bay or Card Sound.” The Court’s description of the flow of cooling water prior to the construction of the canal system registers as an accurate description of the function of how the current canal system works with the G-III designated aquifer. The cooling canal system cannot function as designed and permitted without the discharge capacity into the G-III designated aquifer directly below the canal system.

The cooling canal system is not considered a safety-related structure, system or component, but it is defined as a non-safety-related component that could affect safety-related functions. More importantly and as discussed in more detail below, the CCS is producing a significant impact on the surrounding ecology, natural resources, and public health/safety in the region which must be taken into account in the development of an EIS for this secondary relicensing application. The cooling canal system is also designated by the state of Florida as an Industrial Waste Water Facility, as it accepts all non-solid waste from the plant, stormwater discharge, and discharges from the power units that can contain an array of heavy metals, solvents and other chemicals necessary for keeping the units’ plumbing free from calcification and other maladies. The discharges into the canal also contain Tritium.

**We urge NRC staff to consider the impacts and implications of the failing Cooling Canal System into the development of their Environmental Impact Statement, and to consider the G-III designated aquifer immediately underlying the canals or “cooling system” as a constituent component of the overall Cooling Canal System since the plant could not function without it.**

## **II. New Evidence and Developments Regarding the Cooling Canal System**

### **Unauthorized Groundwater Impacts**

A wealth of new information showing the nature of the environmental impacts of the cooling canal system on the surrounding area has emerged since the initial license renewal of these units by the NRC in 2002. This new information must be taken into consideration in the NRC's subsequent license renewal review because the information shows that the impacts are occurring now and that the impacts will continue to occur if the license is renewed without a requirement to implement an alternative cooling system.

During the initial license renewal process in 2002, the NRC assumed that the cooling canal system operated as a "closed system," in accordance with permits and the mandates of the 1971 Final Judgment. Since that time, evidence has emerged that shows the cooling canal system does not operate as a "closed system" as a matter of fact. Instead, the evidence is clear that the cooling canal water discharges downward into the G-III aquifer, as permitted. But the fallacy of the G-III designation underlying the cooling canals is that the G-III, similar to the shallow canals in the limestone, is not lined by any natural or man-made barrier. Therefore, just as the water flows from the canal system into the G-III, the water also flows from the G-III in all directions including into the higher quality G-II portion of the Biscayne Aquifer, in violation of the expired state NPDES permit. The chemical characteristics of the cooling canal system has also changed significantly since 2002 as a result of the temperature increases from FPL's uprate and the associated impacts from those changes, such as increasing evaporation leaving more salt in the canal system and the die-off of the cooling canal systems' sea-grass beds. The chemically changed water still flows into the G-III and into the surrounding G-II just like before, but now it has more salt, chemicals, and higher temperatures.

Evidence first began to emerge that the cooling canal system was in fact leaking effluent into the surrounding waters in 2005, when Miami Dade Water and Sewer Department (MDWASD) detected saline contamination in sentinel wells installed to protect drinking water wells. One such well in the area is the Newton Wellfield, located north west of the plant and approximately 5 miles away from the cooling canals and the G-III boundary. In the time since, private parties and multiple government agencies have demonstrated the extent of migration of the cooling water into the higher quality aquifer creating a pollution plume. Sampling from the plume shows elevated levels of Chloride, Nitrogen, Phosphorus, Chlorophyll a, Ammonia, and Tritium. All of these chemicals are known to exist in the cooling canals. The plume may also contain other toxic substances such as heavy metals due to the transport from the cooling canals into surrounding waters and sediments. Thus, an independent examination of all surrounding sediments should be completed by the NRC for acute toxicity as a requirement for the license renewal request process.

The pollution plume emanating from the cooling canal system has also been recognized by the Florida Keys Aqueduct Authority (FKAA), the Miami-Dade County Department of Environmental Resources Management (DERM), the South Florida Water Management District (SFWMD), the Florida Department of Environmental Protection (FDEP), Biscayne National Park (BNP), and the nearby rock-mining company, Atlantic Civil. Data collected by the above

entities confirms the migration of highly polluted, tritium-laden effluent from the cooling canal system into the groundwater of the adjacent G-II Biscayne aquifer. More recent data confirms that the polluted cooling canal water has and is discharging into the surface waters of Biscayne Bay and Card Sound, and the L-31 E canal, a man-made canal located parallel along the western boundary of the cooling canal system and plant that discharges directly into Biscayne Bay. Confirmation of the chemical and salt concentrations within this plume demonstrates that the cooling canal system functions as an open system as a matter of fact, not a “closed system.” Additional detailed information on the nature and extent of this plume can be found in the expert report of William Nuttle.<sup>1</sup>

### The Slow Cycling and Domino Effect of Ecological Collapse

The physical nature and functioning of the cooling canal system has also changed significantly since the initial license renewal in 2002. The heat of the canals has increased, as have salinity concentrations due mostly to evaporation because of the higher temperatures. In addition, the sea grass beds which once served to filter nutrient pollution within the cooling canals before it could leach out have died, now adding to the nutrient pollution. The canals are now subject to frequent and persistent algal blooms. These algal blooms are another source of nutrient pollution<sup>2</sup>, and provide another cause of increased temperatures within the canals. In 2014, FPL was forced to apply for an emergency authorization from the NRC to operate the cooling canals system in excess of 100°F allowing the average temperature in the canals to increase to 104°F.

In order to try to bring the canal system back into equilibrium, FPL has made several changes to its operation such as the removal of sediments containing legacy contamination, change in the berms in the south east end of the CCS, addition of Copper to kill algae, the addition of water from Marine Wells, the L-31 E and now the Floridan Aquifer. These changes were done by FPL in the effort to try to halt the surface to surface water connections and lower the water temperature and salinity in the canals since the nuclear units were uprated. Since the uprate, discharged cooling water temperatures have increased and increased monitoring efforts have shown the high levels of pollution surrounding the Turkey Point plant in the surface waters of the U.S.

**We request that in this Subsequent License Renewal review, the NRC must consider and evaluate why there was a need for changes in operations of the cooling canal system since the uprate in 2012, such as the additional reliance on water inputs from surrounding sources, sediment removal, and use of copper and other chemicals to control the algal blooms. In developing the draft Environmental Impact Statement, the NRC must acknowledge the “domino effect” that has occurred to the surrounding environment from the water temperature increases caused by the uprate, at the very least. The cooling canal**

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<sup>1</sup> Expert Report of William Nuttle, May 14, 2018. Delivered multiple discs with expert reports to NRC staff by Laura Reynolds, SACE consultant, at the scoping hearing in Homestead, Florida on May 31, 2018.

<sup>2</sup> Expert Report of Larry Brand, May 14, 2018. Delivered multiple discs with expert reports to NRC staff by Laura Reynolds, SACE consultant, at the scoping hearing in Homestead, Florida on May 31, 2018.

**system no longer contains sea-grass beds capable of filtering out nutrient pollution, and is now a source of nutrients and new chemicals used to control the nutrients which are now degrading the surrounding higher-quality ground water and surface water – similar to the continued migration of cooling canal water has caused a salt plume to migrate in all directions. The NRC must analyze the cumulative impacts of an additional license renewal as we are concerned that without a requirement for alternative cooling technologies, approval from the NRC would constitute an authorization for eventual ecological collapse.**

**III. Approval of the Subsequent License Renewal, Without Requiring Alternative Cooling Technologies, Would Effectively Represent an Approval of the Cooling Canal System Impacts to Biscayne Bay and Card Sound (Direct and Secondary Impacts)**

Biscayne Bay and Card Sound contain many characteristic and highly bio-productive ecosystems including extensive sea grass beds and mangrove forests. These waters include Biscayne National Park and the National Marine Sanctuary. The estuarine waters support numerous species, including 600 native fish, neo-tropical water birds and migratory habitat, and 20 threatened and endangered species including multiple species of sea turtles, the Florida manatee, the least tern, Schaus' swallowtail butterfly and the American crocodile. The waters are considered Outstanding National Resource Waters, pursuant to 40 C.F.R. 131.12(a)(3) and F.A.C. 62-302.700(10)(a).

The hyper-saline and nutrient enriched pollution within the cooling canal system has negative impacts on the water quality and ecology of the surrounding area because of pollution migration, as discussed above. The nearshore area bordering the cooling canal system has become much saltier than it should be for an estuarine system. Higher salt concentrations in an estuarine system will cause a die off of estuarine habitat, such as sea grasses.

The expert report of James W. Fourqurean describes the process by which sea grasses exposed to excess nutrients first increase in density and size, and then fall into die-off. Such die-offs have occurred in the area before, and Fourqurean notes that sea grass species' composition and abundance in data collected by ongoing sea grass monitoring programs shows that Turtle Grass biomass offshore from the CCS is unusually dense compared to other areas in southern Biscayne Bay, likely as a consequence of increased P availability in the region. Such conditions often precede die-off, and **sea grass beds in the region are now experiencing a slow die-off in some locations in the nearshore area bordering the cooling canals system**<sup>3</sup>.

When the sea grasses die off, the ecosystem and food chain experience a domino effect of damage from increased nutrient inputs, algal blooms and low dissolved oxygen (DO) levels from the oxygen consumption which occurs during decomposition. While we know pollution from the cooling canal system is not the only issue causing water quality problems in the larger surrounding area, operations of Turkey Point's antiquated cooling system cause a significant

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<sup>3</sup> Expert Report of J.W. Fourqurean, May 14, 2018. Delivered multiple discs with expert reports to NRC staff by Laura Reynolds, SACE consultant, at the scoping hearing in Homestead, Florida on May 31, 2018.

portion of the problems that Biscayne National Park and the National Marine Sanctuary are experiencing due to leakage through the transmissive limestone lining the cooling canal network. Approval of the subsequent license renewal would essentially be approval of the higher salt concentrations and pollution leakage and an implicit approval of negative impacts caused by the salt concentrations and pollution to a National Park for another 20-year period.

**In the development of the draft EIS, NRC must study and consider existing data of the impacts of hyper-saline pollution, nutrient pollution, and toxic substance pollution (both current and projected if the plant operates until 2053), on sea-grass beds, mangrove forests, fish and wildlife in the area of the plant. This analysis should consider all data that has been collected including by the Miami Dade County Department of Environmental Resources Management, the South Florida Water Management District, Florida Power & Light, the Florida Department of Environmental Protection, academics, researchers, environmental non-profits and nearby property and business interests, among others.**

**The NRC's review must also analyze the cause(s) of previous algal blooms, which increased in frequency since the uprate for Turkey Point Units 3 and 4 in 2012, and the probabilities of increased algal blooms in the future, given climate change impacts and the possible plant operation until 2053. Only when a comprehensive analysis is performed, can the NRC understand the impacts that an approval of a subsequent license renewal would have on the surrounding environment, which includes a National Park and Marine Sanctuary.**

**IV. Approval of the Subsequent License Renewal, Without Requiring Alternative Cooling Technologies, Would Effectively Represent the Approval of the Cooling Canal System Impacts on Endangered Species**

While FPL would like to consider the presence of Endangered American Saltwater Crocodiles in their canal system as evidence of a positive impact upon the species, the poor management and unstable conditions of these canals has put the species in jeopardy and has resulted in a significant number of deaths of the nesting endangered species as a result of the uprate.

The CCS has been identified as critical habitat for the Endangered American Saltwater Crocodile. Historically, the CCS canal banks drew individuals in and provided a location to create nests. However, this critical habitat has been managed poorly and subjected to unstable conditions as a result of FPL operations. After drawing the crocodiles in with ideal nesting locations and access to food for their young, the population soared, but the unstable conditions created by FPL's operations wreaked havoc on the community and led to many deaths of nests. FPL's own Environmental Report in the SLRA provides a chart showing nesting deaths increasing after the uprate.<sup>4</sup>

Furthermore, over the additional 20-year period which the approval of this SLRA would allow, there is a distinct possibility that nutrient and chloride discharge from the CCS will

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<sup>4</sup> Florida Power & Light Company's Application for Subsequent License Renewal for the Turkey Point Nuclear Power Plant, Units 3 and 4, Environmental Report, Table 3.7-13, p. 3-253.



continue to degrade and spur a major die-off in the nearshore sea grass beds of Biscayne National Park and the National Marine Sanctuary, with significant repercussions for the Endangered species which rely upon them, such as the Florida manatee and green sea turtle.

**In the development of the draft EIS, the NRC must consider previous data and studies of the interactions of Endangered Species within the cooling canal system, and the effects FPL operations have had and may continue to have for another 20-year period.**

**V. Approval of the Subsequent License Renewal, Without Requiring Alternative Cooling Technologies, Would Effectively Represent the Approval of the Cooling Canal System Impacts to the Freshwater Resources of the Biscayne Aquifer (Direct and Secondary Impacts)**

It has been well-recognized that a hyper-saline pollution plume emanating from the cooling canal system contributes to saltwater intrusion in the Biscayne aquifer. The expert reports of E.J. Wexler<sup>5</sup> and Edward Swakon<sup>6</sup> describe comprehensive modeling and research which clearly demonstrate the continued westward incursion of this hyper saline head.

At the expense of its rate payers, FPL has recently installed wells in the Biscayne Aquifer in hopes of pulling its salt contamination from the fresh water aquifer, the drinking water supply for Miami-Dade and Monroe counties, back towards its cooling system and the poorer water quality G-III boundary. Thus, the leakage through the transmissive limestone is an undisputed and accepted fact.

The pollution of the Biscayne Aquifer has negatively affected both permitted users and the residents of the region who rely upon the aquifer as a sole source for drinking water. Permitted users of the Biscayne Aquifer in the area include farmers and rock miners, who rely on an ample supply of fresh water in order to operate. The utilities of Miami-Dade County and the Florida Keys Aqueduct Authority have been particularly vocal about the negative impacts of the migrating salt contamination on their capacity to meet their institutional objective to deliver clean drinking water to residents of Miami and the Florida Keys. Not only does the pollution plume emanating from the cooling canals present a risk of drinking water well closures, such as the Miami-Dade's Newton Wellfield, it also presents a potential risk to human health due to the concentration of other potentially harmful substances within the plume.

The new FPL wells, intended to pull back the pollution plume, is merely evidence of FPL's acceptance of its responsibility for the hyper-saline plume in the Biscayne Aquifer. Until and unless alternative cooling technologies are installed, the volumes of hyper-saline water will still be added to the cooling canal network and will therefore still leak, or discharge, into the aquifer in every direction. Nothing about the purpose of design of the new wells changes that fact. Thus

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<sup>5</sup> Expert Report of E.J. Wexler, May 14, 2018. Delivered multiple discs with expert reports to NRC staff by Laura Reynolds, SACE consultant, at the scoping hearing in Homestead, Florida on May 31, 2018.

<sup>6</sup> Expert Report of Edward Swakon, May 14, 2018. Delivered multiple discs with expert reports to NRC staff by Laura Reynolds, SACE consultant, at the scoping hearing in Homestead, Florida on May 31, 2018.

far, FPL has not proposed a remedy that will actually abate or stop the hyper-saline water from leaking into the Biscayne Aquifer.

**In the development of the draft EIS, the NRC must consider existing data and the continued impacts to the freshwater resources of the Biscayne Aquifer and recognize that an approval of a subsequent license renewal would be a de facto approval of the continuation of these negative impacts.**

#### **VI. Cooling Canal System Conflicts with Everglades Restoration**

There are several Everglades restoration projects in the immediate vicinity of the Turkey Point nuclear plant. These federally approved and partly federally funded restoration projects are undermined by the leaking and discharging of the cooling canal's contents into the surrounding ground and surface waters. These projects include the Biscayne Bay Coastal Wetlands (BBCW) Project, the C-111 project, and the Everglades Mitigation Bank (owned and operated by FPL), which was originally purposed as a freshwater Mitigation Bank to aid in sheet flow.

The CCS undermines these projects through salinity loading from the plume of hypersaline polluted effluent, blocked groundwater flow, and competing water demands. The competing water demands have a particularly negative impact on the ability of the planned projects to provide the ecological lift they were designed to achieve. For example, the trigger at the S20F structure is identified at 2.9 feet to allow the maximum amount of water possible to percolate into the groundwater of the adjacent wetlands before being discharged to any adjacent estuary or canal. The CCS interceptor ditch trigger has been raised slightly by an Agreement with Dade County from 1.8 to 2.2 feet, but this level still remains too low to realize full restoration benefits. The end result is transferring away water that could otherwise go to support restoration benefits, but instead is being pumped into the CCS or is lost to tides.

The operations at Turkey Point are in direct conflict with the stated goals of restoration in this area. For example, the Biscayne Bay Coastal Wetlands project aims to return near shore salinity to mesohaline conditions, while the operations of Turkey Point cause massive salt loading in the area.

**In the development of the draft EIS, the NRC must consider all of the impacts of the leaking of hyper-saline water from the cooling canal system on Everglades Restoration efforts and recognize that an approval of a subsequent license renewal is an approval of another 20 years of these impacts to critical state and federal projects aimed at restoring freshwater flows to the southern estuaries for improved fish and wildlife, aquifer recharge, and preserving and restoring natural ecosystems.**

#### **VII. Cooling Canal System Influence on System Reliability/Vulnerability and Safety**

The nature of the cooling canal system fundamentally undermines the resilience of Turkey Point in the face of flooding, drought, and hurricanes, all of which are due to become even more pronounced and impactful under projected climate change effects in the coming decades.

The Southeast Florida region is experiencing a faster than average rate of sea level rise. Sea level rise will also result in higher storm surge elevation. Meanwhile, the submersion of keys and mangrove islands, which currently serve to shield Turkey Point and the CCS from the impacts of storm surge, will exacerbate potential damage to the facility. This is an issue of major concern.

Storm surge from Hurricane Irma demonstrated the vulnerability of the levees enclosing the CCS to damage from coastal storms. Levees along Biscayne Bay experienced erosion and over wash, and there is currently no armoring to protect the levees from erosion. There is also no emergency spillway to allow for the safe discharge of water from the CCS in the case of overflowing from extreme rainfall.

Climate change will also result in increased incidences and intensity of drought and flooding, which the CCS is highly vulnerable to. Prolonged periods of drought can lead to the increased concentration of pollutants in the canals while periods of heavy rainfall lead to the flushing of pollutants into the surrounding waters.

**In the development of the draft EIS, the NRC must consider the impacts of the outdated cooling canal system on the plant's capacity to remain reliable and resilient in the face of changing conditions brought about by global climate change. The NRC should use reasonable and current projections put forth by NOAA and the four-county climate compact in evaluating the likely impacts of climate change on the Turkey Point site for decades into the future in the consideration of a subsequent license renewal.**

#### **VIII. Legal and Regulatory Action Against FPL's Cooling Canal System Failures**

The discovery of this pollution plume has not just changed the understanding of how the CCS functions; it also forms the basis of a massive shift in the legal and regulatory environment surrounding the Turkey Point facility. Miami-Dade County and the Florida Department of Environmental Protection (FDEP) have both taken regulatory action as a result of this discovery. Miami-Dade County placed FPL under a Consent Agreement in October of 2015 while FDEP placed FPL under a consent order (Updated June of 2016). Both regulatory actions mandate the retraction of the hyper-saline plume from the higher quality G-II aquifer towards the cooling canal system and the lower quality G-III boundary. FPL has not yet demonstrated its capacity to successfully withdraw the plume. But as mentioned above, these regulatory actions do not require abatement or stopping the flow of pollution from the canal network into the surrounding waters. Therefore, SACE, FOE, and TAS have taken up legal action against FPL in order to require the total cessation of illegal discharges into the surrounding waters and implement an effective and comprehensive long-term solution.

Furthermore, in its plans for future cooling water sources, FPL is interested in using treated wastewater from Miami-Dade County as a new source of freshwater input to the cooling canal system. However, because there is no alternative to using the transmissive canal network for the repository of the treated wastewater, there will be no barriers to the wastewater migrating to ground and surface waters, just as has happened since 1972. The County and FPL seemed to disagree with the level of treatment required for this water, based on the accepted fact that

cooling water leaks from the canal system into surface and groundwater in all directions<sup>7</sup>. In fact, the plaintiffs' experts in the Clean Water Act litigation agree that pumping the proposed amounts of wastewater into the cooling canals will put pressure on legacy pollutants to be forced out into Biscayne Aquifer and into surface water, including a National Park. To eliminate the forced seepage by the added pressure of incoming water, FPL should be required to abate the source of pollution by shutting down the cooling canal system and removing the legacy pollution in the sediments. Updated cooling technology, such as cooling towers, should be required, especially if the NRC is inclined to consider approving this additional 20-year license renewal. Other mitigation measures, such as accelerating and supporting BBCW or expanding the scope of the BBCW and C-111 projects to support restoration activities in the area, should also be mandated to address the decades of damage to the area by the operations of the CCS at Turkey Point.

**The NRC should not make any undue assumptions about FPL's capacity to meet the demands of regulations and be in a position to be granted the wastewater necessary for use as a cooling water source. Because these ongoing legal and regulatory matters are of significant importance to the operations at Turkey Point, we urge the NRC not to approve the subsequent license renewal until these are resolved or without requiring alternative cooling technologies, to stop the impacts to the surrounding environment by the transmissive and leaky cooling canal system.**

**IX. The Cooling Water Alternative that will Promote the National Environmental Policy, as Expressed in NEPA's Section 101.**

The only condition under which SACE, FOE, and TAS would not be 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 and ensure that the Turkey Point nuclear plant comes into compliance with all of the permits governing this power plant and complies with all enforcement requirements before relicensing could occur.

The cooling canal system in particular constitutes an outdated technology and is not a "closed loop" system. The cooling canals require unnecessary amounts of fresh water that could be better used for other purposes and produces pollution that is threatening a National Park and drinking water supplies. The cooling canal system should be phased out and replaced with the alternative cooling technology of mechanical draft cooling towers, especially if the plant operates for many decades into the future. Cooling towers would not contribute to the pollution plume that has negatively impacted the surrounding environment for over four decades. Cooling towers 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 and 7 reactor units. The NRC granted a Combined Operating License earlier this year for that proposal. Overall, this technology is the best alternative to ensure the long-term resiliency of the plant and the health and well-being of local residents and the surrounding environment and would be economically and technically feasible to implement<sup>8</sup>.

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<sup>7</sup> FPL disputes agency claims that cooling canal water has leaked or is leaking into surface waters.

<sup>8</sup> Expert Report of William Powers, May 14, 2018. Delivered multiple discs with expert reports to NRC staff by Laura Reynolds, SACE consultant, at the scoping hearing in Homestead, Florida on May 31, 2018.

There are clear actions which FPL can undertake to address the negative impacts of their failing cooling system on the environment, local resources, public health and safety, and plant resilience, as well as put the plant back into compliance with its permitting and licenses. Ultimately, FPL's subsequent license renewal application should not be considered for approval until such time as FPL is in compliance with all permitting, licenses and federal law, including its NPDES permit and the Clean Water Act.

## **X. Conclusions**

The NRC can and should be part of the solutions by compelling FPL to undertake the following actions prior to or as a condition for approval of the proposed subsequent license renewal:

- The SLRA should not be approved until FPL has made significant progress in retracting the legacy hyper-saline plume. The plume should be extracted, not diluted and flushed into the surrounding ecosystem.
- Interceptor Ditch Operations should be halted now to allow the model lands to come up to 2.9 feet to benefit Everglades Restoration.
- The SLRA should not be approved until FPL has ceased all addition of nutrients into surrounding surface and G-II groundwater.
- The SLRA should not be approved until the cooling canal system's surface water to groundwater connection is abated.
- FPL should be required to provide mitigation for 45 years of damages to the surrounding ecosystem; this can be provided through offering support to BBCW in the form of land and water to expedite and improve the projects of CERP in this area.
- The cooling canal system must be decommissioned and replaced. SACE, FOE and TAS have recommended replacement with mechanical draft cooling towers, which would provide a truly closed-system and offer the most practicable and cost-effective replacement for this failing cooling canal system. Cooling towers have the capacity to solve the water discharge problem and restore compliance with permits, practicability and cost efficiency and provide superior safety and resilience in the face of the projected impacts from climate change.

In closing, we respectfully request that the NRC independently evaluate the concerns mentioned herein in development of the draft EIS and not rely solely on FPL's information in the SLRA. We urge the NRC not to consider approval of the secondary license renewal application until such time as Clean Water Act concerns are resolved, the NPDES permit is no longer simply administratively extended, and FPL has restored compliance with local, state, and federal laws.

If the NRC Staff or consultants have any questions about our requests, please do not hesitate to contact Laura Reynolds, our collective representative on this issue with any questions you may have: [lreynolds@conservationconceptsllc.org](mailto:lreynolds@conservationconceptsllc.org) or via phone, 786-543-1926

Sincerely,

A handwritten signature in black ink that reads "Stephen A. Smith". The signature is fluid and cursive.

Stephen Smith, Executive Director  
Southern Alliance for Clean Energy

A handwritten signature in black ink that reads "Alan Farago". The signature is cursive and somewhat stylized.

Alan Farago, Conservation Chair  
Friends of the Everglades

A handwritten signature in blue ink that reads "Jose Barros". The signature is cursive and includes a checkmark-like flourish at the end.

Jose Barros, President  
Tropical Audubon Society

cc:

William "Butch" Burton, NRC, Turkey Point Relicensing Environmental Project Manager  
william.burton@nrc.gov

