

**The Federal Lawsuit Against Florida Power and Light
for Violations of the Clean Water Act at the
Turkey Point Nuclear Facility**

**A Position Paper and Summary of the
History, the Legal Issues, Evidence of Violations
and Proposed Solutions**

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Foreword by James Leenhouts
Former Director, Discovery Development for Dow Chemical

As a resident of Ocean Reef and an avowed supporter of nuclear power generation, and by extension, a longtime admirer of Florida Power and Light Corporation's venture into it, I am very disheartened to read the position paper/summary attached: The Federal Lawsuit Against Florida Power and Light for Violations of the Clean Water Act at the Turkey Point Nuclear Facility. It's much more than just another corporation polluting the world's waters somewhere. Equally disheartening to me in reading the report was that the stewards of the technology I admire that sheds our addiction to carbon, the engineers and management of FPL and the appointed government regulators that we trust to assure safe operation, should so miserably fail again and again to recognize their special responsibility to Nuclear Power. I have every reason to argue with the author who argues with my heroes.

Instead, I conclude this position paper is a credible and objective account that provides a proven cost-effective solution, the construction of cooling towers to replace the canals. This conclusion comes from hours of studying this report, the related links the author has provided and combined with my own professional experiences with novel technology, wells, aquifers, toxic chemical disposal, water and waste treatment systems, success, failure and engineers, managers and regulators during my thirty years with Dow Chemical which included serving as Director, Discovery Development. That this report brings the reader up to date on an engineering, management and regulatory failure for remedial action after 40 years of benign neglect is urgent, nationally and financially important, and political, personal and outrageous.

Faced with the need to keep Biscayne Bay free from the direct discharge of hot water required to remove the heat from exhaust steam, the FPL engineers and management forsake conventional cooling towers, designed and built a novel technique never used before of a massive

series of cooling canal cells – a total of 650 miles long and spread over 5,900 acres. Perhaps the sheer novelty of the massive inspiration dissuaded serious critique among the engineers enchanted by their own genius, their managers and the ultra-concerned, hard-nosed nuclear power regulators. It is a wonder that the hot water made it around the 650 miles without disappearing into the earth, just like the child-fascinating disappearing puddle does, because the salt water in the novel canals was not contained, - the FPL canals were never lined on the bottom or sides. Apparently no one on the engineering team, nor the management team, nor even the regulatory teams thought to ask if whatever was under or adjacent to the unlined canals had any value short of China except in this instance the CCS is sitting on top of our primary source of drinking water, the Biscayne Aquifer.

That the saltwater plume is moving toward my drinking water is now a known matter resulting from the positive pressure of concentrated salt water leaking from the canals and negative pressure from the drinking water wells that are sucking high quality water for personal use. The fronts between different underground liquids under pressure, density and substrate differences vastly complicates and questions the effectiveness of a remedial program of intermediate wells to provide relief from the salt water plume's further encroachment. The author carefully points out the lack of data that a remedial program of intercepting wells will effectively pull back salt water but the success of the remedial program of intercepting wells, a subject of a contentious consent decree to pull the salt water from the aquifer back to FPL property lines remains a thorny issue for frustrated experts but legally important and even if it is successful, the unlined canals will still be leaking.

And concerning dumb, an adjective that pervades the entire matter, the author of the excellent report largely refrains from accusations, but does link the reader with the value of the contentious consent decree regarding the FPL remedial program that can be likened to the admonishing parent who firmly warns the wayward child that he or she, "had better shape up or we will have this discussion again in five years. – and if that threat doesn't work, by George, we'll have another

discussion in ten!” In ten years the child might be denied admission to a desired college education. Unfortunately, due to this Achilles Heel blunder by FPL, by the time the pending litigation winds its way through the courts and the Consent Decree comes to fruition in ten years, the disaster will have already occurred and FPL may have either shut down a portion of the generating capacity of the plant or seriously fouled the Biscayne Aquifer. Should the latter happen, the economic penalty vastly exceeds the cost of the remedial action: conventional, common, cooling towers as proposed by the author and Plaintiffs in the lawsuit. That the Federal Lawsuit succeeds with the EPA and the desired remedies outlined in the report are applied swiftly are my sincere hopes for the many blessings of power and unpolluted water that are too numerous to enumerate.

In summary, this position paper is an excellent, concise piece of work that I admire with sufficient documentation and related links that should be studied and endorsed by all those affected, including but not limited to, the Key Largo Anglers Club, the Ocean Reef Club, FKAA, Monroe County and the State of Florida. We all need to support the lawsuit and demand that FPL be required to install mechanical cooling towers and to decommission the cooling canal system.

Introduction

As a concerned resident of Florida, Ocean Reef and North Key Largo and because of my training and experience as a lawyer and former judge, I was asked by the Plaintiffs to review the documentary evidence and support the lawsuit against FPL and to encourage other Ocean Reef residents to do so. I reviewed the current evidence consisting of scientific reports, charts, history, testing and expert analysis and after doing so, I volunteered to compile and write this position paper on the lawsuit for violations of the Federal Clean Water Act by FPL at its Turkey Point Nuclear Facility. I have attached the electronic links to the Consent Decree, the current expert scientific reports, expert reports on the modeling for the extraction wells, the testing and analysis, the

National Parks letter regarding the violations, the charts and a copy of the lawsuit upon which this position paper is based. I hope that this will facilitate understanding of the issues presented and the solutions being sought by the Plaintiffs. This position paper explains in layperson's terms, the history, the facts, and the proof of violations and provides the solutions, which constitute the recognized best management practices in the nuclear energy industry.

In 1971, FPL began construction on the Turkey Point Facility, located on the shores of Biscayne Bay about 25 miles south of Miami and approximately 4 miles from Ocean Reef Club and Key Largo Anglers Club, and has operated it ever since. **FPL was permitted to build a highly unusual and unorthodox unlined cooling canal system (CCS) for its two-reactor nuclear power plant. This system is not used in the United States or anywhere else in the world. The CCS was an experiment then, and over 40 years later the CCS still has not been recognized as the appropriate model for nuclear energy facilities. No nuclear energy facilities in the world, other than Turkey Point, use this type of cooling canal system. FPL uses cooling towers at Unit 5, a natural gas facility, at Turkey Point and has proposed cooling towers for the proposed new nuclear reactors at Turkey Point (Unit 6 and 7). There is irrefutable scientific evidence that the CCS has been leaking contaminants into South Florida's groundwater and surface water for decades and the fact that it is sitting on top of our area's water supply, the Biscayne Aquifer, and between Everglades National Park, Biscayne National Park and Biscayne Bay/Card Sound is why we should all be concerned. The CCS is effectively failing.**

FPL has a "zero discharge" permit, which means any discharge of contaminants outside of its boundaries is a violation of this permit and a violation of the Clean Water Act (CWA). Since 2010, the scope and frequency of pollutant monitoring around the facility has increased. The scientific results I included in this summary clearly demonstrate that the contaminated saltwater plume is definitely beyond the FPL property and the vertical/horizontal limits stipulated in permits, not only to the west,

but also to the east into Card Sound, Biscayne National Park and Biscayne Bay. The scope, locations and frequency of pollutant monitoring needs to be expanded to fully characterize and track the extent of this contamination. There is irrefutable scientific evidence to prove that (1) the CCS is causing significant groundwater and surface water contamination and (2) the remedies proposed by the lawsuit will prevent this situation from continuing.

Because of FPL's continued resistance to implementing a proper solution for cleaning up and remediating the contamination from its Turkey Point Plant CCS, Tropical Audubon Society and Southern Alliance for Clean Energy (SACE) ("Plaintiffs") to be joined by the Friends of the Everglades, filed a federal Clean Water Act (CWA) lawsuit against FPL in July 2016 on behalf of all of us. **These groups are not anti-nuclear, but advocate for clean nuclear energy generation that effectively utilizes appropriate scientific methods for operation - not this experimental, unorthodox cooling canal system that has turned into an open, industrial cesspool in our backyard.**

Many thanks to the Plaintiffs and their staff members for their technical and editing assistance in my preparation and review of this position paper, and also to James Leenhouts for reviewing the scientific materials and endorsing this position paper. Finally, thank you for reading this paper and your consideration of the contents. It is our hope that after reading it, you will draw the same conclusions we did and participate in and support the lawsuit.

The History of the FPL Turkey Point Facility

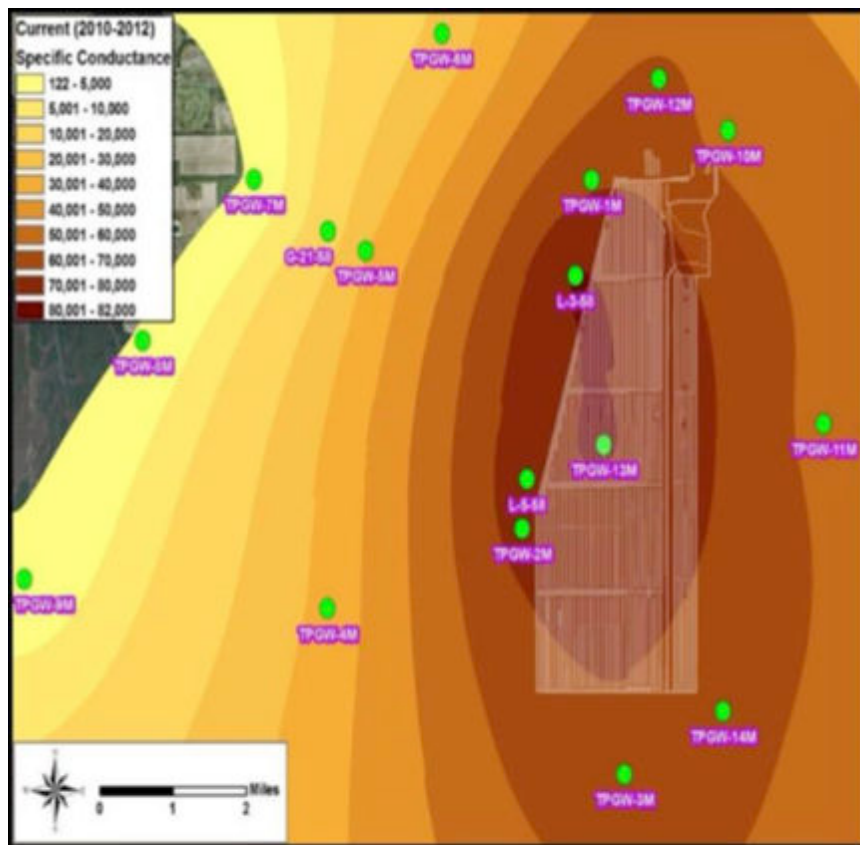
In 1971, as the result of a federal court order to stop discharging hot water into Biscayne Bay, FPL proposed and was granted a permit to begin construction on a giant, two-miles-wide-by five-miles-long, **unlined** cooling canal system (CCS) adjacent to Biscayne Bay on top of the Biscayne Aquifer, our primary source of drinking water, to recycle Turkey Point's cooling water and prevent all discharges to the Bay.

This was an experiment because the cooling canal system has not been recognized as the appropriate model for nuclear facilities and no other facility in the world uses this method (see [Powers report on Cooling Towers](#), discussed starting on page 20).



Figure 1: The destruction of 6,000 acres of wetlands was allowed because it was cheaper than building cooling towers to protect Biscayne Bay from discharges of hot water. Image by Division of Environmental Resource Management, 2010.

Over this forty year history, “hypersaline and nutrient rich” conditions have developed in the CCS and the heavier, much-saltier polluted water sinks to the bottom of the canals before leaking into groundwater, the Biscayne Aquifer and into Biscayne Bay. (See Figure 2 showing the plume at depth from 2010-2012.)



Specific Conductance: Intermediate horizon

Figure 2: Shows high salinity documented leaving Turkey Point’s Industrial Waste facility and entering the G-II boundary to the east and Biscayne National Park to the west during the 2010-2012 period. The impacts have only increased since this figure was created by the South Florida Water Management District.

FPL’s antiquated cooling canal system (CCS) at Turkey Point has a strict, “zero discharge” permit, which does not allow any discharges from the CCS. Water from the CCS is prohibited from being discharged from the FPL site into in any manner other than provided for by the government permits, but the CCS has failed as a “closed-loop system”; various pollutants have leaked out and have been found outside of the Turkey Point site boundaries in surrounding surface water and groundwater. These permit violations have been occurring for decades and continue to occur today.

Figure 3 shows the close proximity and official boundary between Turkey Point's industrial waste and potable water to the west and Biscayne Bay to the east.



Figure 3: Turkey Point Cooling canal system. Red boundary line indicates the permitted Industrial Waste facility. Outside this boundary to the west is potable water, or what is referred to as the G-II area. To the east is Biscayne National Park and Biscayne Aquatic Preserve and the Ocean Reef Club, which is less than three miles from the facility and the CCS.

In 2012, the Nuclear Regulatory Commission (NRC) granted a request from FPL to uprate the existing reactors to generate more electricity due to increased customer demand, which developed as a result of the

growth of Miami-Dade County and Monroe County. This has accelerated the failure of the cooling canal system and led to:

- (1) Serious and frequent algae blooms
- (2) Salt concentration levels three times that of seawater
- (3) Higher temperatures in the canals

This then led to **an unprecedented waiver from the U.S Nuclear Regulatory Commission (NRC) for the highest input temperatures at any nuclear plant in the nation.**

In the midst of this crisis, DEP and the South Florida Water Management District (SFWMD) issued permits for the addition of toxic chemicals to kill the algae and billions of gallons of additional freshwater to flush out the cooling canals, but this ultimately made the pollution in Biscayne Bay even worse. (See Figures 4 and 5.)

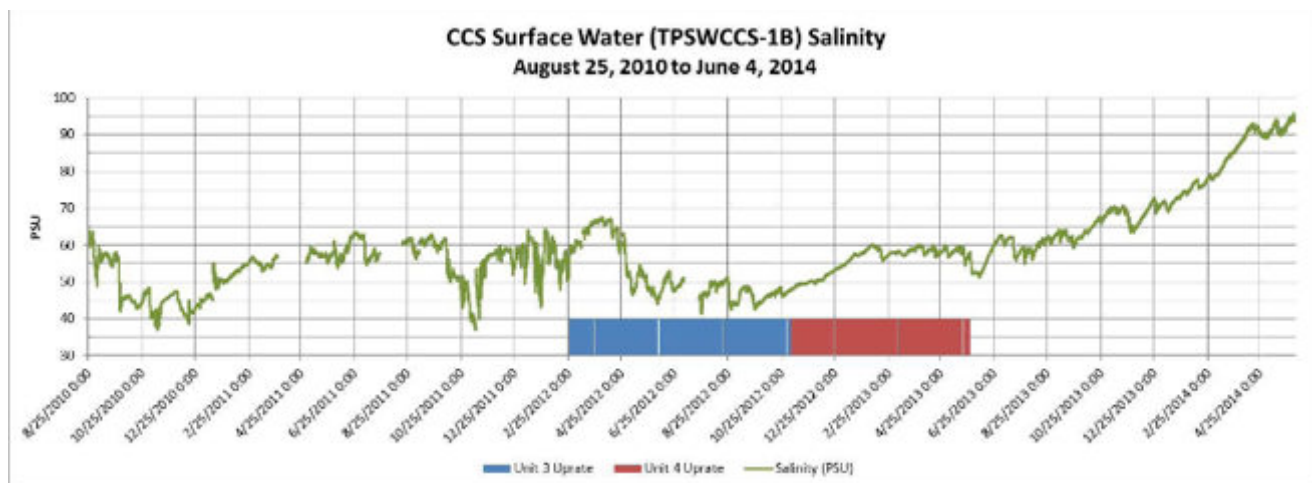


Figure 4: Shows rising salinity of CCS surface water from 2010 to 2014. (Source: <http://protectingyourpocket.blog.palmbeachpost.com/2016/05/31/nrc-turkey-point-environmental-report-was-deficient-judges-say-but/>)



Figure 5: The CCS from Google Earth in 2012, showing significant algae bloom in the cooling canals.

If this situation is not corrected it could lead to offsite algae blooms, fish kills and a failure of the Biscayne Bay Coastal Wetlands restoration project, which is a tax-funded Everglades Restoration project to restore Biscayne Bay.

Because of the historical pattern of failure to protect the environment, and the inability to solve the problem in a comprehensive manner, our

organizations have no confidence in the latest consent decree, or “deal,” between the Florida Department of Environmental Protection (DEP) and FPL, which covers the western area where the potable water wells for Miami-Dade County and the Florida Keys are located.

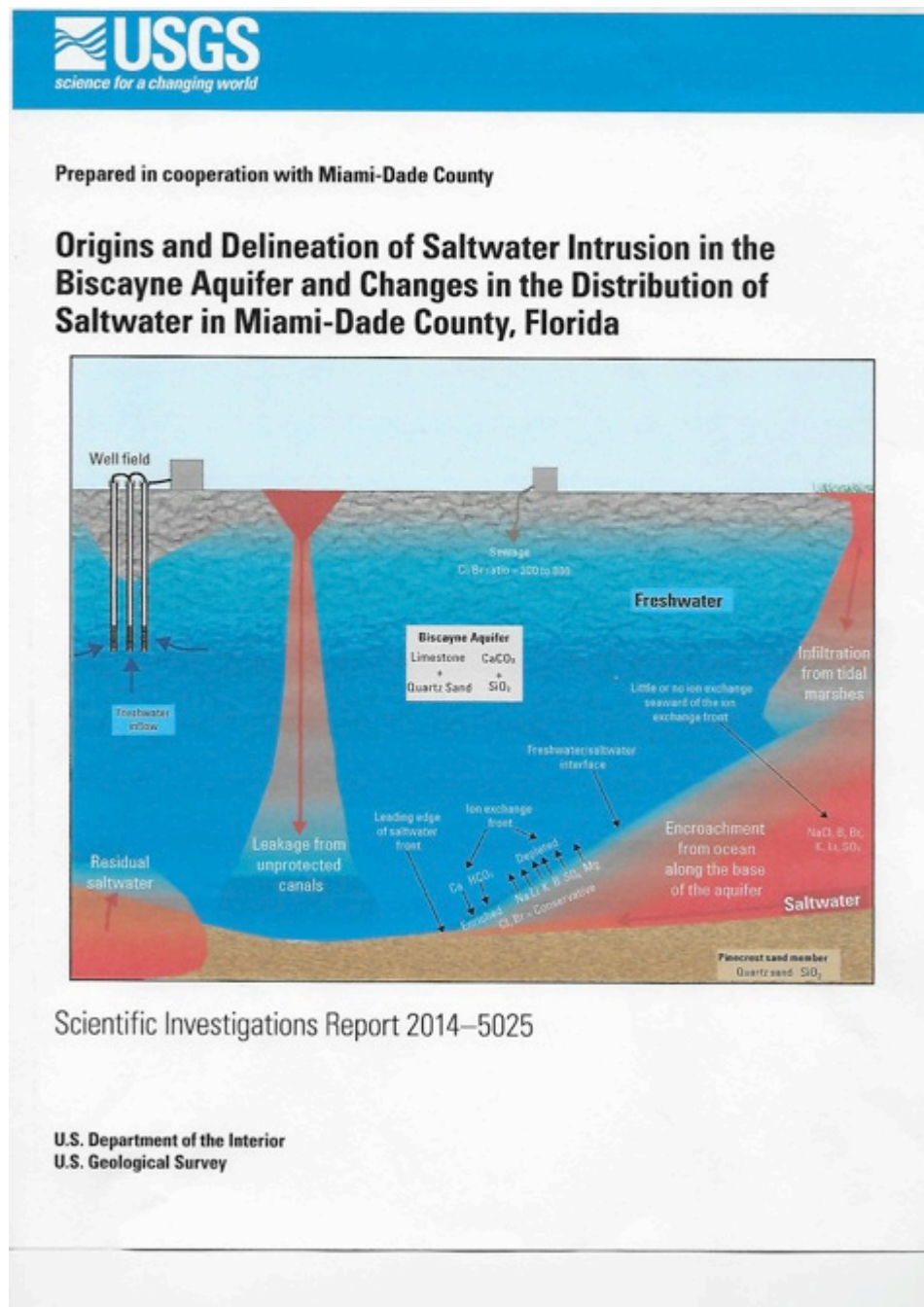


Figure 6: This illustration demonstrates how saltwater intrusion spreads to the Biscayne Aquifer.

The Lawsuit

Together, the Friends of the Everglades, Tropical Audubon Society and Southern Alliance for Clean Energy (SACE) (“Plaintiffs”) filed a federal Clean Water Act (CWA) lawsuit on July 12, 2016 on behalf of all of us ***to stop this leaking industrial cesspool from further contaminating Biscayne National Park, Card Sound and Biscayne Bay and threatening South Florida’s drinking water supply, upon which millions of residents rely.***

The lawsuit charges that FPL has violated and continues to violate its zero discharge permit (“National Pollutant Discharge Elimination System” or “NPDES” permit) by unauthorized discharges of pollutants into the waters of the United States (i.e., Biscayne Bay). See a copy of the federal complaint [here](#). Because of the porous nature of the cooling canal system, hypersaline water, which is heavier than normal seawater, sinks to the bottom of the unlined canals. It is also mixed with other nutrients and chemicals and this contamination plume then migrates into the groundwater in all directions.

The plume of contaminated water is moving east towards Ocean Reef, Key Largo Anglers Club, Biscayne National Park and Card Sound. Sampling wells to the west of Turkey Point demonstrate signs of this contamination as far offsite as four miles and approaching our potable water wells. Recent sampling east of Turkey Point demonstrates that this contaminated groundwater is coming into contact with surface water to the east, that is in Biscayne Bay, and contaminating the waters of Biscayne National Park and Card Sound.

Because groundwater is connected to the surface water through tidal flows, proper sampling techniques must be performed in order to capture the migration of the contaminants at the proper tide levels to fully characterize the extent of the contamination and to monitor it. Plaintiffs are working with the scientific community to better characterize the

extent of this contamination into Biscayne Bay, Biscayne National Park, and Card Sound.

The Evidence of the Violations

The Plaintiffs in the FPL Lawsuit can meet their burden of proof to show that FPL has violated the Clean Water Act based upon the evidence set forth below.

1. The following pollutants were found in sporadic sampling and include but are not limited to: **excess salinity, phosphorus, ammonia, TKN (Total Kjeldahl Nitrogen - a measurement of nitrogen levels), total nitrogen, and tritium, a tracer that demonstrates that the pollution is increasing and there is leakage from the CCS.** FPL has violated its NPDES Permit by discharging hypersaline into ground water, threatening the water supply for Miami-Dade County and the Florida Keys, Card Sound and Biscayne National Park.

2. **Miami-Dade County's Division of Environmental Resources Management (DERM)** has conducted additional monitoring and taken measurements at a variety of locations and found elevated levels of five pollutants outside of the CCS: ammonia, nitrogen, phosphorous, chlorophyll *a* and tritium.

3. There are documented **exceedances of Numeric Nutrient Criteria in sampling sites near Turkey Point**, as explained below.

Figure 7 (on page 14) shows the location of FPL's Turkey Point facility in relation to Florida DEP's boundaries for subdivisions of the Biscayne Bay Estuary for Numeric Nutrient Criteria, along with DERM's sampling locations. (These boundaries were downloaded from the Florida DEP GIS database called Map Direct.) Numeric Nutrient Criteria (NNC) are criteria set by the state of Florida to ensure waterways are not over-enriched with nutrients. NNC's are measured by taking an Annual Geometric Mean (AGM), which is an average that best

represents the nutrient levels over time. A minimum of two violations of the NNC over a three-year period should trigger action by the Florida Department of Environmental Protection. Because of the way the groundwater and surface water interact through tidal flows, sampling must be done at the proper time. While we have surpassed the minimum number of exceedances of pollution necessary to trigger a violation of the NNC, further sampling is necessary in order to fully characterize the extent of the problem and be used in a court of law to force the proper remedy on FPL.

The three areas with sampling sites east of and near Turkey Point, but outside of the FPL plant's boundaries, including Card Sound, are:

- **South Central Inshore** (monitoring sites TPBBSW-1 and TPBBSW-6)
- **South Central Mid-Bay** (monitoring site TPBBSW-2 and TPBBSW-3)
- **Card Sound** (monitoring sites TPBBSW-4 and TPBBSW-5)

The monitoring by the County shows sampling sites that demonstrate multiple-year Clean Water Act violations, which triggers violations of the Annual Geometric Mean (AGM) standard mentioned above. The monitoring results indicate elevated levels of contamination outside of Turkey Point's site boundaries as follows:

- The **phosphorous** AGM exceeded the Numeric Nutrient Criteria more than once in a three-year period from nearly all the sampling sites near Turkey Point (TPBBSW-1 through TPBBSW-5).
- **Chlorophyll *a*** and **total nitrogen** AGMs exceeded the NNC more than once in the two years of record at site TPBBSW-6.



Figure 7: Map of the new monitoring locations (in yellow) in the surface waters of Biscayne Bay, samples are split with Miami Dade County and FPL for processing. Depicted in orange are the DEP boundary lines for the numeric nutrient criteria rule.

4. The hyper salinity traveling eastward and westward is evidenced by the Tritium markers, which are increasing and demonstrate the leaking of the CCS. Using tritium as a diagnostic means of measuring the pollution, tests submitted by FPL for the monitoring

period from June 2010 through December 2015 demonstrate tritium concentrations as high as 15,487 pico Curies per liter (pCi/L) compared to the period from 1974 to 1975, which showed tritium concentrations in the FPL cooling canal system to be in the range of 1,556 – 4,846 pCi/L, an increase in the range of 220 to nearly 900 percent. From 1974 to 2015 the tritium numbers have gone from 10 to 30 percent of EPA standards to almost 80 percent of EPA standards.

These levels highlight the discharge of contaminated water with other pollutants and salt from the cooling canal system and the presence of tritium in the surface and groundwater near Turkey Point acts as a fingerprint, indicating that Turkey Point is the source of contamination. There is no other source of tritium at this level of concentration other than the FPL Turkey Point Nuclear Facility.

Prior Administrative Rulings on FPL Permit Violations

There are different regulatory bodies involved with different authorities. Miami-Dade County has certain authority under Chapter 24 of its municipal code to issue violations and the State of Florida, via the Florida DEP, has other elements of authority delegated by the EPA. Numerous impacts and violations have taken place to the west of Turkey Point; it is only recently that we are getting a better understanding of what is happening to the east of Turkey Point, in Biscayne Bay/Card Sound, i.e. the numerous elevated levels of ammonia, phosphorus, chlorophyll *a*, and tritium as discussed above.

This following is a summary of recent prior administrative rulings and what they cover:

- **Miami-Dade County** has authority to issue violations for any contaminants under Chapter 24 of the municipal code, however, not all pollutants have been tested for. The County can also issue

violations of state standards because the state standards are adopted within the code. Miami-Dade County has had to enforce these standards on their own independent authority, but they do not have enforcement authority over the discharge permit (NPDES) itself. (See Miami-Dade County's [March 7, 2016 report](#) on Biscayne Bay Water Quality Observations associated with FPL's Turkey Point CCS Operations.)

- **The County has already issued a [notice of violation](#) and [consent agreement](#) regarding chloride levels to the west side of the CCS – FPL pushed salty water into the County's drinking water supply.**
- **The County funded an [independent study by David Chin](#), Professor of Civil and Environmental Engineering at the University of Miami, on the root causes of the problems at Turkey Point.**
- **The County is currently working on issuing a violation for ammonia and possibly other nutrients to the east side of the CCS.**
- **The Florida Department of Environmental Protection (DEP)** has enforcement authority over the discharge permit (NPDES), including but not limited to the contaminants of sodium, chloride, nitrogen, phosphorous and chlorophyll *a*, but not ammonia.
 - Though the Annual Geometric Mean (AGM) standard was exceeded for phosphorous, nitrogen and chlorophyll *a* as described earlier, **DEP has only sent FPL a [warning letter](#) and proposed some band-aid solutions in a consent order** (discussed below).
 - The State can also issue a violation for sodium and chloride for Biscayne Bay, but DEP has not done so thus far. DEP also has not provided standards for estuarine waters to the public, even upon request.

- The Plaintiffs believe DEP should issue further violations on the east side for surface water contamination of Biscayne Bay and Card Sound as outlined in the lawsuit.

The National Park Service

The National Park Service, which has jurisdiction over Biscayne National Park, although not an enforcement authority, also believes violations have occurred given the monitoring results, as stated in their [May 13, 2016 letter](#) and the December 19, 2016 letter contained in the supplement.

Florida Keys Aqueduct Authority (FKAA)

The Plaintiffs have consulted with a scientist who works with the Florida Keys Aqueduct Authority (FKAA) and Monroe County to review the sampling data results. This scientist's review concurs with the Plaintiffs' argument that Florida's state standards have been violated. FKAA has also stated the cooling canal system has been in out of compliance in the December 29, 2016 letter contained in the supplement.

The Florida DEP Consent Decree is Inadequate

On June 20, 2016, DEP entered into a [consent decree](#) with FPL for remediation at the Turkey Point cooling canal system. The central principle in the consent decree is the use of extraction wells that FPL claims will pump out contaminated water based on a theoretical model that FPL has produced.

The Plaintiffs, in consultation with experts, question whether this extraction well plan will even be able to accomplish the stated goals, given problems with the modeling inputs that FPL provided to all the parties. According to the model analysis, there are real concerns as to whether the plume will still be moving at depth, even while FPL continues to extract contaminated water near the surface with the extraction wells. DEP's consent decree allows FPL up to three years before it has to demonstrate that the plume has even stopped moving

west, and up to five years before they have to show any retraction of the plume. DEP also gives FPL up to ten years before they have to get the contamination back into the boundaries of the facility.

The details of how this will be measured and the consequences of failure to meet these deadlines are not clearly articulated in the current consent decree. There are no clear penalties for failure to meet these very liberal deadlines. If FPL fails to meet a deadline, all DEP asks is that FPL provides an updated plan after the current period has been exceeded. This is not an adequate answer to these serious problems. Indeed, Water Science Associates concludes their [August 12, 2016 report](#) with the following paragraph:

“One of the objectives for the model development was to ‘ameliorate the westward movement of the saltwater and hypersaline water interface in the Biscayne aquifer.’ Proposed extraction wells in the scenarios reviewed indicated removal of salt from the aquifer and some mitigation of the westward extent of the hypersaline plume. However, none of the analyses indicated if these proposed remediation systems would sufficiently prevent the further westward migration of the saltwater interface west of the hypersaline water plume.”

EAS Engineering, Miami-Dade County and Water Science Associates all agree there are problems with the model inputs and question many of FPL’s methods and conclusions, all increasing the likelihood that none of the consent decree deadlines will be met in the future. DEP is the ultimate judge of whether the terms of the ill-defined consent decree are met and they have clearly demonstrated a political bias in favor of FPL. Meanwhile, operations at Turkey Point continue to illegally release a massive plume of pollution into Biscayne National Park, Card Sound and the Biscayne Aquifer.

The DEP Consent Decree is *inadequate because:*

- 1. *It does nothing to stop the interactions with the Biscayne Aquifer and does not propose abatement. The unlined CCS will continue to leak contaminants into the Biscayne Aquifer.***
- 2. *It does not address the underlying problem, which is the continued loading of three million pounds per day of salt and other contaminants into the groundwater beneath the CCS by the FPL Turkey Point Facility.***
- 3. *It does nothing to make FPL identify a more sustainable water source, such as reuse water. (Turkey Point is one of Florida's largest water users and it is exacerbating saltwater intrusion to the West and consuming our potable water supply.) Instead, FPL continues to draw its make-up water from the surrounding environment, allowing for the continued interaction of the industrial waste facility with the Biscayne Aquifer, our primary source of water.***
- 4. *It fails to note any violations of Numeric Nutrient Criteria and other deleterious impacts to Biscayne Bay and Card Sound. (As discussed above, scientific testing shows that the Numeric Nutrient Criteria have been violated.) The impacts from Turkey Point are in direct conflict with the goals of the Comprehensive Everglades Restoration Program (CERP) and are leading to the degradation of Biscayne National Park, Biscayne Bay and Card Sound.***

The Solution

While additional remediation of the contamination is going to be necessary, a comprehensive solution to this problem would require:

- 1. *Full closure and replacement of Turkey Point's failed cooling canal system with cooling towers to alleviate all interactions with the Biscayne Aquifer and Biscayne National Park.*** There is no other system operating like this in the world. Florida's fragile ecosystem, coupled with highly porous geology, has led to the problems we see

now. It would be impossible and costly to maintain the current system in accordance with the law; it is clearly not a contained closed loop system.

2. ***Investments in newer, safer technology at the Turkey Point facility should be made immediately.*** The best available technology, according to Powers Engineering in a recent feasibility study, is **mechanical draft cooling towers**, such as those illustrated in Figure 8.



Figure 8: Mechanical draft cooling towers in foreground

FPL refuses to build cooling towers for Turkey Point Units 3 and 4, claiming cooling towers are too expensive, yet they have operating cooling towers working at the site now for their natural gas Unit 5 and have proposed cooling towers for additional nuclear reactors, Units 6 and 7, that they are requesting to build at the same plant.

According to the Powers Report, the cost of building two cooling towers would be anywhere from \$220 to \$300 million. If you amortize \$300 million, for example, over 20 years, the annual cost to

FPL is \$15 million per year. With an estimated \$500 million per year in profits derived from the energy provided by its two existing nuclear reactors, the cost of building the two new towers amounts to just 3 percent of total annual profits (\$15 million divided by \$500 million). This makes construction of cooling towers at Units 3 and 4 an extremely affordable option. Today, interest rates are low, which also makes building cooling towers even more affordable. The project to install the cooling towers can be completed within four years of receiving the permit and the cost will be passed to the ratepayer, not FPL.

The Powers Study also suggests the best source of cooling water is recycled wastewater from Miami-Dade County. The County is under a mandate to recycle 117.5 million gallons of water per day by 2025. With the delay of Turkey Point Units 6 and 7 until 2031 or later, the County needs a large project that can take this water immediately.

Significantly, the use of reuse water would eliminate the need for any water from surrounding wetlands, surface water canals or the Florida aquifer, which is already earmarked for Everglades restoration projects and Miami-Dade County and Monroe County's drinking water. This would also eliminate the salt loading of three million pounds per day and abate the increased movement of the saltwater plume, which has accelerated due to operations at Turkey Point.

The construction of mechanical draft cooling towers for the existing nuclear reactors 3 and 4 followed by the decommissioning the existing cooling water canals will significantly benefit the residents and coastal environment of both Miami-Dade County and Monroe County, as well as the FPL Turkey Point Plant operation, and add to success of the Comprehensive Everglades Restoration Program (CERP).

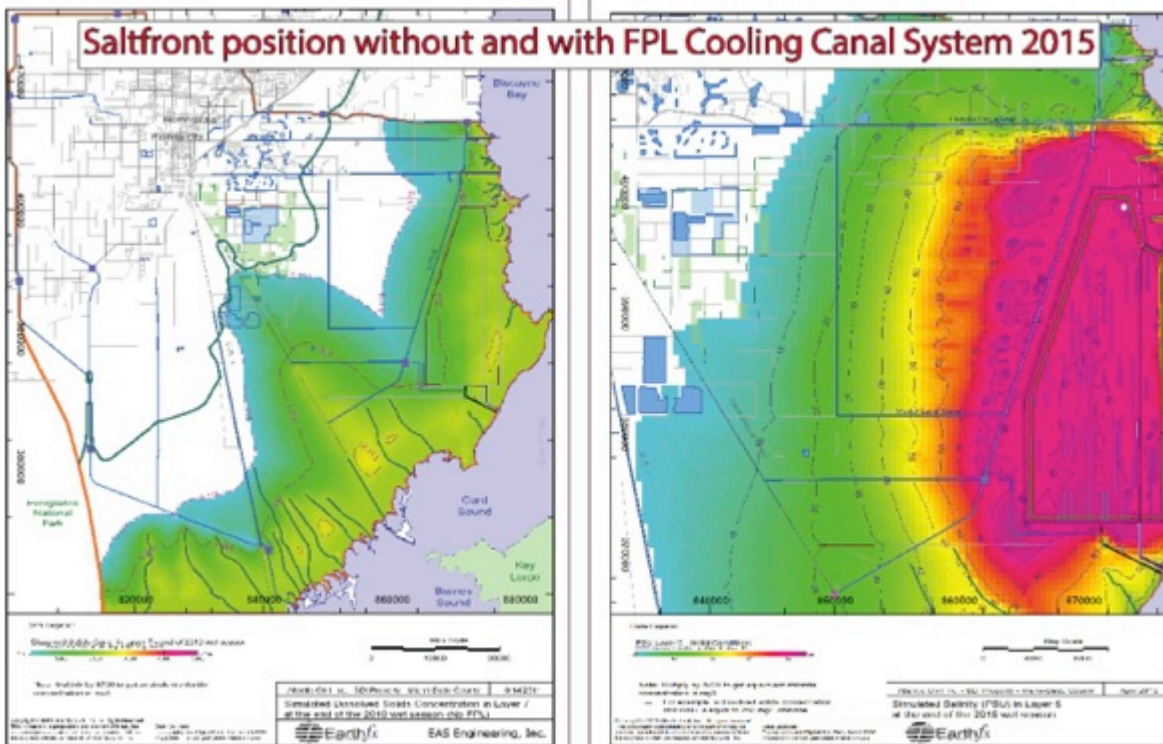


Figure 9: Model results from EAS Engineering showing the influence the pollution plume has had on the saltwater intrusion problem in Miami-Dade County

Conclusion

The FPL situation at the Turkey Point Nuclear Plant is a bi-partisan issue that affects all of us at Ocean Reef Club and Key Largo Anglers Club. We truly believe that the only way to keep the pressure on FPL to comply with the Clean Water Act and provide full abatement and remediation is through the Courts. It is undisputed that the saltwater plume is traveling both west and east in Card Sound and Biscayne Bay.

There is substantial competent evidence included in this report of FPL's violations of the Clean Water Act and that the violations are polluting the Biscayne Aquifer, our primary source of drinking water, Biscayne Bay, and Biscayne National Park, including Card Sound. The Florida DEP consent order clearly does not resolve the leaking of the CCS.

The **Powers Report** shows that the use of mechanical cooling towers is the most cost-effective, affordable and proven solution to abate the environmental pollution being caused by the CCS utilized by FPL at Turkey Point Nuclear Facility. They can be completed within four years of receiving a permit. **According to the Powers Report, the cost of building two cooling towers would be anywhere from \$220 to \$300 million. With an estimated \$500 million per year in profits derived from the energy provided by its two existing nuclear reactors, the cost of building the two new towers amounts to just 3 percent of total annual profits (\$15 million divided by \$500 million). If you amortize \$300 million, for example, over 20 years, the annual cost to FPL is \$15 million per year less than 3% of FPL's yearly profits from the two reactors. The Ratepayers will pay this and not FPL.**

Nevertheless, FPL still refuses to build the cooling towers, in spite of the fact that FPL itself has proposed cooling towers for proposed reactors 6 and 7 at the same Turkey Point Nuclear Facility and has cooling towers at Unit 5, a natural gas facility at Turkey Point. **Cooling towers represent the best practice for reducing the temperature of reactor cooling water from nuclear power plants before being discharged to the environment, not unlined cooling canal systems.** The leaking CCS needs to be decommissioned. FPL holds the electrical power monopoly in Florida and must be required to use these best practices of the nuclear energy industry at its Turkey Point Plant.

FPL must also be required to use readily-available, treated municipal wastewater for the nuclear plant. This would eliminate the need for any water from surrounding wetlands, surface water canals or the Florida aquifer, which is already earmarked for Everglades restoration projects and Miami-Dade County and Monroe County's drinking water.

Most of us in the Florida Keys believe that we live in the best, most beautiful place in the world, our paradise in the United States. Ask

yourself: where will we go if we lose our beautiful environment, our coastal water quality, wetlands, wildlife, aquatic life? The Biscayne Aquifer, which provides our drinking water, Card Sound and Biscayne Bay will be irreparably fouled if the plume of saltwater and other pollutants emanating from the FPL canals is not stopped! Is this the legacy we will leave to children and grandchildren? This is a win-win situation for Monroe County, the State of Florida and FPL. We need to implement the proposed solution now and not wait ten years.

We respectfully ask you to endorse and support this federal CWA lawsuit.

Bonnie Rippingille Schoedinger
Ocean Reef Resident and Equity Member
Attorney and Retired Judge

Sources Referenced in this Position Paper

Water Science Associates Technical Memorandum (August 12, 2016), available at: http://www.cleanenergy.org/wp-content/uploads/WSA_FKAA_Remedial-Model-Review-Tech-Memo_08122016.pdf

Powers Engineering Cooling Tower Report (July 11, 2016), available at: http://www.cleanenergy.org/wp-content/uploads/PowersReport_on_CoolingTowerFeasibility_Assessment_TurkeyPoint-Nuclear2016.pdf

Complaint, filed July 12, 2016, available at: http://www.cleanenergy.org/wp-content/uploads/COMPLAINT_CWA_07122016.pdf (Amended complaint filed October 11, 2016 here: http://www.cleanenergy.org/wp-content/uploads/AmendedTP3_4_CWA_Complaint_SACE_TAS_FoE_FILED_101116.pdf)

Miami-Dade County report Biscayne Bay Water Quality Observations associated with FPL's Turkey Point CCS Operations (March 7, 2016), available at <http://www.cleanenergy.org/wp->

[content/uploads/MiamiDade_DERMReportonRecentBiscayneBayWaterQualityObservations_030716.pdf](http://www.cleanenergy.org/wp-content/uploads/MiamiDade_DERMReportonRecentBiscayneBayWaterQualityObservations_030716.pdf)

Miami-Dade County Notice of Violation (October 2, 2015), available at:
<http://www.cleanenergy.org/wp-content/uploads/Miami-Dade-NOV-October-2015.pdf>

Miami-Dade County – FPL Consent Agreement (October 6, 2015), available at:
<http://www.cleanenergy.org/wp-content/uploads/Miami-Dade-County-Consent-Agreement.pdf>

“The Cooling-Canal System at the FPL Turkey Point Power Station” report by David A. Chin (May 2016), available at:
<http://www.miamidade.gov/mayor/library/memos-and-reports/2016/05/05.12.16-Final-Report-on-the-Cooling-Canal-Study-at-the-Florida-Power-and-Light-Turkey-Point-Power-Plant-Directive-151025.pdf>

FL DEP Warning Letter to FPL (April 25, 2016), available at:
<http://www.cleanenergy.org/wp-content/uploads/FLDEP-Warning-Letter-Surface-Water-April-2016.pdf>

National Park Service letter (May 13, 2016), available at:
http://www.cleanenergy.org/wp-content/uploads/LTrfromNPS_toEPA_FDEP_MDCDERM_reFPL_May13_2016.pdf

Florida Department of Environmental Protection – FPL Consent Decree (June 20, 2016), available at:
http://www.dep.state.fl.us/secretary/news/2016/files/SOGC_Doug_P.pdf

Supplement
February 1, 2017

This paper was completed on August 30th, 2016. Additional testing is being performed by the regulatory agencies to determine the extent of the hypersaline plume and contaminants migrating east of the Turkey Point plant in Biscayne Bay and Card Sound. Recent testing from Miami Dade shows hypersaline water emanating from natural upwellings into the surface waters of Biscayne Bay.

Most importantly to us as residents and members of Ocean Reef Club, the Ocean Reef Community Association (ORCA) under the leadership of David Ritz has committed to assist in scientific testing of the waters in our area, east of Turkey Point in order to assess independently the extent of the migration of contaminants from the FPL, Turkey Point Plant eastward in Card Sound and Biscayne National Park. We thank them for the contribution that they are making on behalf of all of us in Ocean Reef.

On December 19th, 2017, the National Parks Service sent a letter to the Nuclear Regulatory Commission regarding Turkey Point and FPL's request to build two new reactors at this facility. NPS is a cooperating agency with the Nuclear Regulatory Commission (NRC) and the U.S Army Corps of Engineers (USACE) for the development of the Final Environmental Impact Statement (FEIS) re Combined License for Turkey Point Nuclear Plan Unit 6 and 7 proposed by FPL. This letter is one of the most powerful and persuasive statements on the situation at

Turkey Point to date. It is attached as Exhibit One to this Supplement.

Additionally, the Florida Keys Aqueduct Authority, the governing authority on water in Monroe County has issued a letter to the NRC dated December 29, 2016 in which it recommends the construction of cooling towers at the FPL Turkey Point facility and the closure of the cooling canals. The letter is attached as Exhibit Two.

The Monroe County Commission has passed a resolution demanding that the implementation of cooling towers and closure of the canals attached as Exhibit Three.

Exhibits 1-3 attached are cited as additional authority for this position paper.

Please contact me for additional information at 305-367-2665 or by email at rippdinger@aol.com

Thank you for your interest.

Bonnie Rippingille Schoedinger



United States Department of the Interior



IN REPLY REFER TO:
1.A.2 (SERO-RD)

NATIONAL PARK SERVICE
Southeast Regional Office
Atlanta Federal Center
1924 Building
100 Alabama St., SW.
Atlanta, Georgia 30303

DEC 19 2016

Mr. Frank Akstulewicz
Director, New Reactor Licensing
Office of Administration, Mail Stop: OWFN 12 H8
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Colonel Jason Kirk
District Commander
U.S. Army Corps of Engineers
701 San Marco Boulevard
Jacksonville, Florida 32207

Dear Mr. Akstulewicz and Colonel Kirk:

The National Park Service (NPS) appreciates the opportunity to be a cooperating agency with the Nuclear Regulatory Commission (NRC) and the U.S. Army Corps of Engineers (USACE) for the development of the Final Environmental Impact Statement (FEIS) regarding Combined Licenses for Turkey Point Nuclear Plant Units 6 and 7 as proposed by Florida Power and Light (FPL). We appreciate the extensive work done by the NRC and the USACE staff and their willingness to meet extensively with the NPS. However, the NPS continues to have serious concerns regarding the adequacy and accuracy of the FEIS. The NPS is also taking this opportunity to comment on the NRC's Final Safety Evaluation Report (FSER) because it describes natural phenomena, including hurricanes and storm surge, which may negatively affect Units 6 and 7 and have both human and environmental consequences for Biscayne and Everglades National Parks (NP).

USACE is preparing a Least Environmentally Damaging Practicable Alternative (LEDPA) for Clean Water Act Section 404 wetland permits and a Public Interest Review (PIR) in accordance with Clean Water Act Sections 10 and 14 of the Rivers and Harbors Act. According to the FEIS, neither the LEDPA nor the PIR is addressed in this FEIS but will be part of USACE's Record of Decision (ROD). The NPS asserts that there is strong public interest regarding ongoing operational problems with the existing Turkey Point facility, which would be complicated by Units 6 and 7, affecting the success of the multi-billion dollar Comprehensive Everglades Restoration Plan (CERP) and its Biscayne Bay Coastal Wetlands (BBCW) project, as well as the ecological health of Biscayne and Everglades NP fragile resources. As such, the NPS formally

requests that USACE provide its LEDPA and PIR for public review before it issues its ROD. Public comment is not only warranted on the review of the LEDPA, but vital to ensuring that USACE decisions are not contrary to the public interest; are in agreement with the content of the FEIS; and ensure CERP and NPS resources are unnecessarily adversely impacted.

On June 20, 2009, FPL submitted a Combined Construction and Operating License (COL) application to the NRC to build two additional nuclear reactors at the Turkey Point power plant facility in Homestead, Florida. Other proposed infrastructure includes the construction of additional access roads, bridges, a reclaimed water treatment facility, reclaimed and potable water pipelines, Radial Collector Wells (RCW) and associated pipelines, expansion of an existing barge basin, and two separate electric transmission corridors. The Turkey Point power plant complex is located adjacent and contiguous to Biscayne NP and Biscayne Bay and two miles south of Biscayne NP's visitor center. Everglades NP's boundary is located seven miles west of the facility and, as will be articulated throughout this letter, its resources would also be impacted by construction and operation of the project. FPL has also proposed to construct the western powerline adjacent to Everglades NP and the eastern powerline corridor within a small portion of Biscayne NP where FPL has an existing powerline easement. Taken together, this project poses serious direct and cumulative impacts to NPS resources. As such, the NPS questions whether it is good public policy to further expand a nuclear power plant already experiencing environmental problems in a location between two national parks, experiencing an elevated rate of sea level rise, and is highly vulnerable to storm surge. Moreover, the NPS does not have confidence that mitigation can adequately compensate for adverse impacts.

As a cooperating agency, the NPS has continually shared its concerns regarding the accuracy and adequacy of the impacts analysis regarding NPS resources and the CERP. The NPS submitted comments on the Preliminary Draft FEIS on July 8, 2016; Draft Environmental Impact Statement (DEIS) on July 17 and 23, 2015; preliminary draft hydrology and ecology sections of the DEIS on October 8, 2014 and November 25, 2014; Draft Biological Assessments and Essential Fish Habitat Report on January 31, 2014; and scoping comments on August 16, 2010. We have enclosed these documents and incorporated them by reference into this letter.

I. Alternative Site Analysis

As the NPS has stressed throughout this process, it does not seem to be in the public interest to expand a power plant adjacent to Biscayne NP and near Everglades NP. Combined, these National Parks contributed approximately \$135 million in 2015 to the local economy, and further provide a critical function of buffering inland areas that would otherwise be more vulnerable to hurricanes, storm surge, and sea level rise. Moreover, both parks contain numerous fragile threatened and endangered species, and are undergoing major multi-billion dollar ecological restoration activities. Nonetheless, the NRC and USACE have not fully considered alternative sites for the project aside from Turkey Point.

The analysis of environmental impacts for all of the energy generating alternatives is based on locating them solely at the Turkey Point location. As an example, the analysis for the natural gas alternative assumed building and operation of a natural-gas-fired plant at the Turkey Point site without analyzing siting the plant at a different location.

FPL applied different criteria to screening the non-Turkey Point sites than it used to screen the existing Turkey Point site. In the analysis of environmental impacts for siting locations at Glades, Martin, Okeechobee, and St. Lucie, these sites were only evaluated as to the environmental impacts of siting a new two-unit nuclear power plant. It is unlikely that the Turkey Point site would have ranked as high for FPL if there was not an existing, operating nuclear power plant at that site. FPL selectively applied its own screening criteria to the other candidate areas including, but not limited to, avoidance of high population areas, ecologically sensitive and special designations, and special dedicated land uses such as national parks. It is probable that the Turkey Point site would have been screened out utilizing the above criteria.

The siting analysis overlooks the impact of supporting infrastructure, such as the FPL's proposed Western Transmission Corridor nearly adjacent to Everglades NP. It also neglects to consider:

- the presence of major Federal investments including Biscayne and Everglades NPs and numerous other protected areas;
- the high concentration of sensitive Federal and State listed Threatened and Endangered species in South Florida, a biodiversity hotspot;
- Federal, state, and nonprofit investment in the multi-billion CERP BBCW Project;
- major problems relating to the Industrial Wastewater Facility (IWF), including violation of its National Pollution Discharge Elimination System (NPDES) permit, recent algae blooms, and a demonstrated hydrologic connection to Biscayne Bay and Biscayne NP;
- the subterranean hypersaline plume underlying the Turkey Point facility and Biscayne NP, which was created by (and remains hydrologically connected to) the IWF;
- radioactive tritium, a tracer for the IWF, is found well above background levels within Biscayne NP and Biscayne Bay;
- the IWF poses an acute risk to sensitive NPS resources from hurricane and storm surge events;
- sea level rise is occurring at an increased rate in South Florida;
- the site of Units 6 and 7 is important mud flat and wetland habitat for shorebirds and nearly adjacent to the NPS boundary;
- impacts to the experience of National Park visitors and recreationists, where park visitations brings an estimated \$135 million (2015) to the local economy; and
- the presence of Metropolitan Miami, which is clearly within the 50 mile radius and is the eighth most populous urban area in the United States. Any evacuation would require a route going north toward the City of Miami and heavily populated areas which are downwind of prevailing winds during much of the year.

As such, cumulative impact levels for water and ecological resources at Turkey Point are grossly underrated in the FEIS.

The NPS contends the FEIS does not sufficiently support the NRC's conclusion that "from an environmental perspective, none of the viable alternatives is environmentally preferable to building a new baseload nuclear power generation plant at the Turkey Point site." It appears that the four inland alternative locations do not pose the same level of environmental concern.

Additionally, a number of pending legal actions exist that have an impact either directly or indirectly on this project. Among these is a now final order issued by the Third District Court of Appeal (3rd DCA) reversing and remanding the Final Order on Certification (Siting Order) rendered by Florida's State Siting Board; FPL's pending motions were denied on November 22, 2016. The Siting Order was reversed in its entirety (i.e. Units 6 and 7 and supporting infrastructure, including the Western Transmission Corridor), not in part, and remanded for further review consistent with local environmental regulations, comprehensive plans, and applicable environmental regulations.

As further evidence of the existing and potential future infeasibility of nuclear expansion at the Turkey Point site, FPL has stated earlier this year before the Florida Public Service Commission that they plan to take at least a four year "pause" before construction to analyze economic factors affecting the decision to proceed with an expanded nuclear facility at Turkey Point.

The NPS continues to assert that scientific uncertainty and numerous legal and regulatory issues, most of which relate to the IWF, and the uncertainty of when this project could be built should be considered and resolved before Units 6 and 7 are built because they may exacerbate current problems.

II. Units 6 and 7 Increases IWF Risk to Biscayne NP

A basic question neither the FEIS or FSER addresses is how the construction and operation of Units 6 and 7, which would be surrounded by IWF canals, would impact the surrounding area if a hurricane and major storm surge event were to occur. Because of its coastal location, experts have noted and it has been well publicized that reactors at Turkey Point are similarly susceptible as those in Fukushima, Japan to natural disasters. For example, how would the outer walls of the Units 6 and 7 block island affect the IWF, Biscayne NP and Biscayne Bay, if the eye of Hurricane Matthew, or a comparable storm, passed over Turkey Point? In October 2016, Hurricane Matthew passed very close to the Florida coast as a Category 3 to 4 storm and created more than 12 feet of storm surge in Lake Worth, located 90 miles north.

A concerning and reasonably foreseeable scenario is that a storm surge event would push Biscayne Bay water westward over the narrow eastern berm and across an IWF canal before contacting the outer wall of Units 6 and 7. Polluted IWF water could then be pulled back in part into Biscayne NP and Biscayne Bay either over the narrow eastern levee or through subsurface connectivity. There is also a high likelihood that such a storm surge event upon contact with the outer walls of Units 6 and 7 could be driven back toward the levee thereby causing a breach of the eastern levee and driving significant amounts of polluted IWF water into Biscayne NP and the Biscayne Bay. Breaches of the levee further south could also cause newly stored Units 6 and 7 dredge spoils to enter Biscayne NP and Biscayne Bay. These risks would likely increase when future sea level rise is combined with a storm's anticipated storm surge. These reasonably foreseeable scenarios are not analyzed in either the FEIS or Safety Report. The enclosed map titled "Hurricane/Storm Surge Risk to Biscayne National Park" depicts this concern in detail.

Even though much can be learned from prior storm events, models that analyze past storm forward speed, trajectory, and initial tide level show that a storm as small as a Category 3 could

lead to over wash of the IWF under the right conditions, and larger storms and sea level rise increase that likelihood. The NPS enclosed map titled “Modeled Storm Surge from Category 3 and Category 5 Hurricanes” further illustrates this concern.

The NPS raised these concerns previously and was advised by NRC that they would be considered in the FSER. However, upon review, it appears that the FSER solely analyzes safety issues within the Unit 6 and 7 block island. The NPS has routinely asserted that the IWF is unsustainable and that its presence adjacent to the National Park System’s preeminent marine park poses a serious risk to sensitive NPS resources in the event of a major hurricane and storm surge event. Excessive IWF water entering Biscayne NP and Biscayne Bay would likely impair NPS resources for future generations to enjoy, which the NPS is required to prevent under the 1916 NPS Organic Act, as well as the “rare combination of terrestrial, marine, and amphibious life in a tropical setting” that Biscayne NP was established to preserve.

III. Direct and Cumulative Impacts to Federal Investments

The FEIS neglects to recognize and accurately reflect past and existing environmental impacts from the Turkey Point facility and reasonably foreseeable future impacts that would occur through the construction and operation of Units 6 and 7 and supporting infrastructure.

- **Comprehensive Everglades Restoration Plan and Biscayne Bay Coastal Wetlands Project:** The NPS disagrees with the impact levels that USACE has assigned to the cumulative impacts for surface water use, groundwater use, surface water quality, and groundwater quality. While stating in one part of the FEIS that withdrawals of surface water from the L-31E Canal would only be allowed during periods of excess flow, consumptive use of surface water from L-31E would not alter the volume of water in Biscayne Bay. As such, the FEIS is inaccurate because the important issue is maintaining freshwater delivery to Biscayne Bay, not the volume of saltwater in the Bay. Elsewhere the FEIS states that the use of surface water from the L-31E Canal diverts it from and could result in less freshwater available for CERP BBCW Project. The NPS considers this a diversion and elimination of freshwater that will negatively impact Biscayne NP, Biscayne Bay, and the BBCW Project.
- **Industrial Wastewater Facility:** The FEIS understates the negative cumulative impacts of past, present, and future use of the IWF. Despite extensive monitoring over a period of years, a hypersaline plume also containing other pollutants such as phosphorus, nitrogen and ammonia has been allowed to migrate west toward Miami-Dade County’s drinking water wellfield and east to Biscayne NP and Biscayne Bay. The presence of the tracer element tritium in Bay waters adjacent to the Turkey Point facility is evidence of connectivity and movement of the IWF water into the ecologically sensitive waters of Biscayne NP and Biscayne Bay in violation of FPL’s strict liability NPDES permit as well as the Federal Court 1971 Final Judgment. At present there is no guarantee that any efforts to eliminate the plume and its movement will be successful.
- **Radial Collector Wells:** The NPS is concerned that the analysis in the FEIS is inaccurate because it relies on an assumption that the RCWs will be used as a water source only in an emergency and on a short-term basis. The FEIS does not analyze whether extended RCW operations could draw the subterranean hypersaline plume

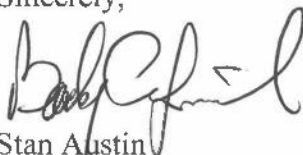
further eastward into Biscayne NP or if RCW operation may impact nearby seagrass communities within the park adding to the future negative cumulative impacts. An additional modeling effort by the NRC considered RCW operation on the hypersaline groundwater plume beneath the Turkey Point site (Biscayne NP and Biscayne Bay). While helpful, the modeling effort has a number of limitations that are not made clear in the FEIS. First, it doesn't address issues such as the source of the freshwater necessary to create the proposed scenarios. Second, the model does not address the recently observed leakage from the IWF system into surface waters. Third, the model tracks the salt associated with the hypersaline IWF water, but does not track the motion of nutrients, which are expected to have adverse impacts on the natural system in Biscayne NP and Biscayne Bay.

- **Western Transmission Corridors:** For purposes of the evaluation of impacts, the FEIS incorrectly considers the transmission line route and conditions reviewed and approved by the Florida Siting Board as the most current information regarding the transmission lines and associated mitigation measures, and should be revised accordingly. The 3rd DCA order reversing and remanding the Final Order on Certification, along with the Conditions of Certification, became final on November 22, 2016, thereby leaving the location of the transmission line corridors uncertain. FPL's western transmission line corridor as contained in the FEIS is adjacent to Everglades NP. The extent of the future adverse cumulative impacts of the transmission lines as considered in the FEIS is reflected in the 3rd DCA decision, which draws on an earlier review by the NPS of the impacts of the transmission lines on avian species. The 3rd DCA found that the West Preferred Corridor would adversely impact the environment and the ecology of the land and its wildlife including listed species under the Endangered Species Act. Two of these species, the wood stork and the snail kite, nest and forage for food very close to or in the West Preferred Corridor. Filling wetlands in the area would destroy foraging habitat of these birds. There is also substantial risk that the birds, particularly young birds that have not yet learned how to avoid obstacles, will collide with transmission poles, transmission lines, and guy wires. Such collision is especially concerning because there would be a total of three transmission lines located together; two 500 kV (up to 150 feet tall) transmission lines (containing a total of five wires each) and one 230 kV (up to 105 feet tall) transmission line (containing a total of three wires). Thus, altogether there would be 13 horizontal wires and numerous guy wires within the corridor posing a dangerous obstacle to Everglades NP's renowned birds. The FEIS assumption is invalid that the Conditions of Certification will be effective.
- **Construction of Units 6 and 7:** Construction of proposed Units 6 and 7 would add to the negative future cumulative impacts affecting the IWF by 1) increasing stormwater runoff, 2) demucking of the plant area and muck/spoils disposal, and 3) dewatering from excavation. These activities risk exacerbating problems with the operation of the IWF, which is already likely degrading the NPS's marine and water resources. We are especially concerned that the two million cubic yards of excavated muck stored on the banks of IWF canals could rapidly erode into Biscayne Bay during a storm surge event that breaches the IWF perimeter levee, causing severe damage to Biscayne NP's fragile resources. Also, Units 6 and 7 would be built upon a rare mud flat and approximately 300 acres of wetlands utilized by shorebirds and migratory birds further negatively impacting NPS resources.

- **Chemicals of Emerging Concern (CECs):** Given the large volume of reclaimed wastewater used for Units 6 and 7 (up to 120 Million Gallons per Day (MGD)), even a very low concentration of CECs that are released and fall within the NPS boundary or the Bay, will provide a loading over time that is physiologically and ecologically significant. These areas as Outstanding Florida Waters have and non-degradation standard under the state.
- **Roads:** The 3rd DCA found that filling land and constructing structures in the East Everglades would negatively impact sheet flow and the hydrologic resources of the area thereby adding more negative cumulative impacts to the proposed expansion project. The 3rd DCA further found that the effect on the area's hydrology would destroy the plant species that supplies the base for the food chain in the ecosystem and will adversely affect the endangered birds that nest and feed on the west side of the L-31N Canal; in addition, these adverse impacts would also affect the County's water supply. However, given the 3rd DCA decision, the location of roads is uncertain at present.

If you have any questions, or need additional information regarding our comments, please contact Energy and Environmental Protection Specialist Bryan Faehner at (202) 513-7256 or bryan_faehner@nps.gov.

Sincerely,


 Stan Austin
 Regional Director

Enclosures (2)

Map titled "Hurricane/Storm Surge Risk to Biscayne National Park"

Map titled "Modeled Storm Surge from Category 3 and Category 5 Hurricanes"

cc:

Chairman Stephen G. Burns, Commissioner, U.S. Nuclear Regulatory Commission

Kristine L. Svinicki, Commissioner, U.S. Nuclear Regulatory Commission

Jeff Baran, Commissioner, U.S. Nuclear Regulatory Commission

Vonna Ordaz, Office Director (Acting), Office of New Reactors, U.S. Nuclear Regulatory Commission

Anna Bradford, Deputy Division Director, Division of New Reactor Licensing, Office of New Reactors, U.S. Nuclear Regulatory Commission

Alicia Williamson, Project Manager, NRL, U.S. Nuclear Regulatory Commission

Manny Comar, Project Manager, NRL, U.S. Nuclear Regulatory Commission

Megan Clouser, Senior Project Manager, U.S. Army Corps of Engineers

Ashleigh Blackford, Supervisory Biologist, U.S. Fish and Wildlife Service

Chris Militscher, Chief of the NEPA Program Office, U.S. Environmental Protection Agency

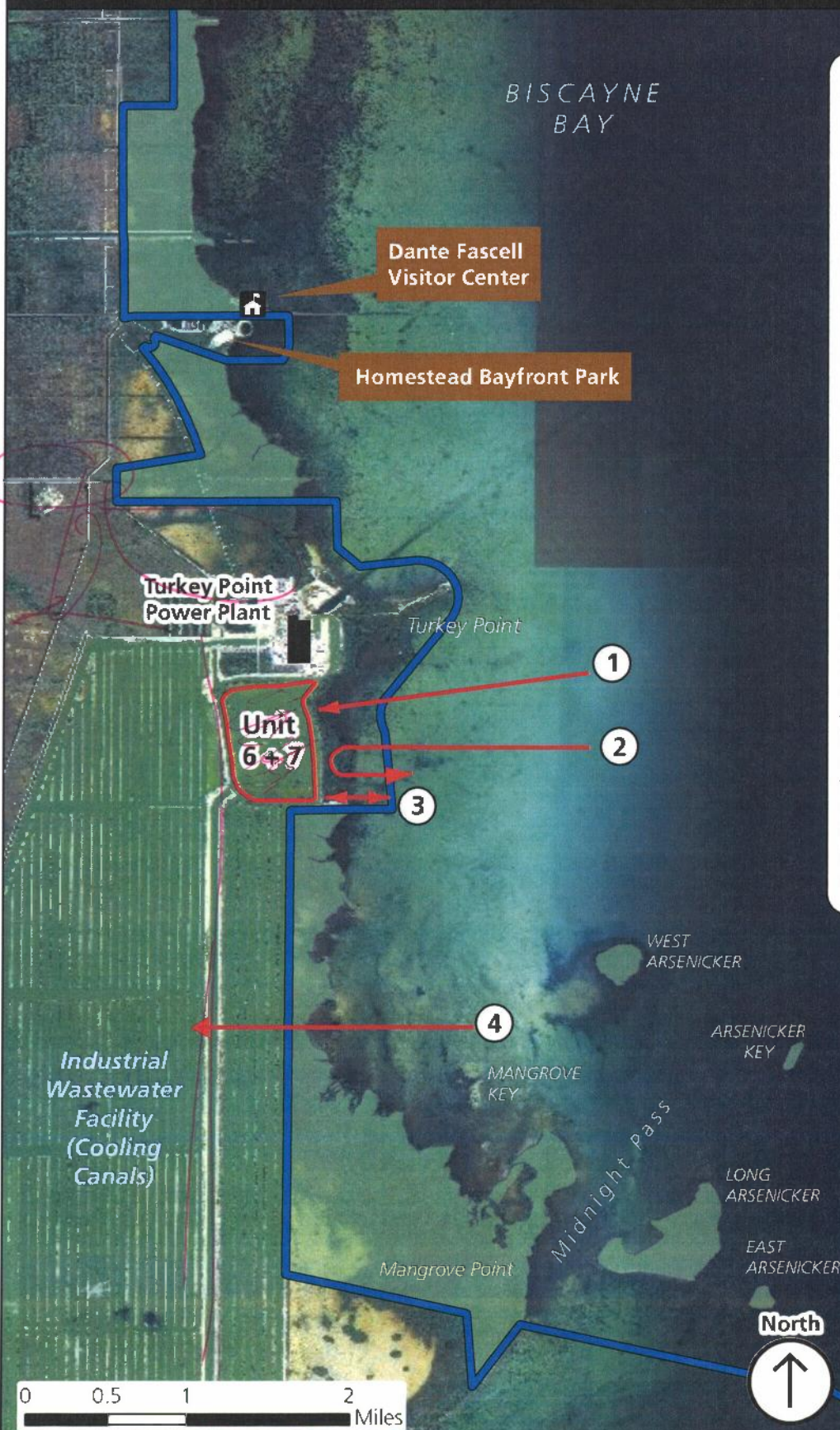
Pedro Ramos, Superintendent, National Park Service

Margaret Goodro, Superintendent, National Park Service

Hurricane/Storm Surge Risk to Biscayne National Park

Biscayne National Park, Florida

National Park Service
U.S. Department of the Interior



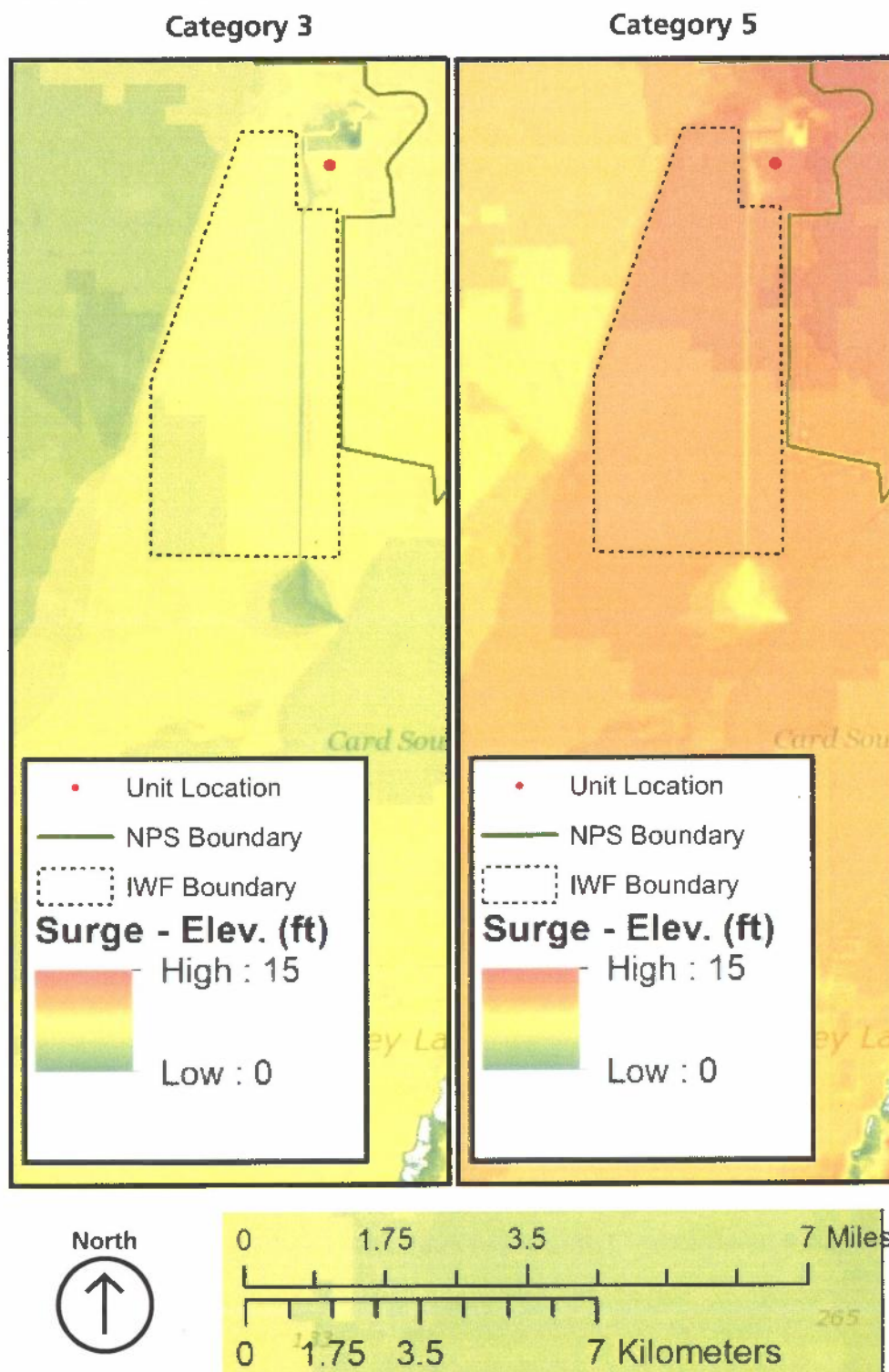
1. Placement of Units 6 and 7 would result in these Units being surrounded by the polluted canals of the Industrial Waste Facility (IWF). A portion of the IWF canals would be located between the outer walls of Units 6 and 7 and Biscayne National Park (NP) and Biscayne Bay (Bay).

2. It is reasonably foreseeable that a hurricane/storm surge event would wash over the IWF canal and its levee before contacting the outer eastern wall of Units 6 and 7. As the hurricane/storm surge event receded, it would draw polluted IWF water back into Biscayne NP and the Bay. This concern is not analyzed in either the FEIS or Safety Report.

3. There is also a high likelihood that such a storm surge event upon contact with the outer walls of Units 6 and 7 would be driven back toward the levee thereby causing a breach of the eastern levee and driving significant amounts of polluted IWF water into Biscayne NP and the Bay. Breaches of the levee further south would cause newly stored Units 6 and 7 dredge spoils to enter Biscayne NP and Bay. These concerns are not analyzed in either the FEIS or Safety Report.

4. The IWF is not a closed hydrologic system. It is connected to Biscayne NP and Bay, as documented by the presence of tritium (a tracer of IWF water) in Biscayne NP and Bay waters. Other IWF constituent pollutants concurrently enter Biscayne NP and Bay and pose significant ecological risk to the park and Bay.



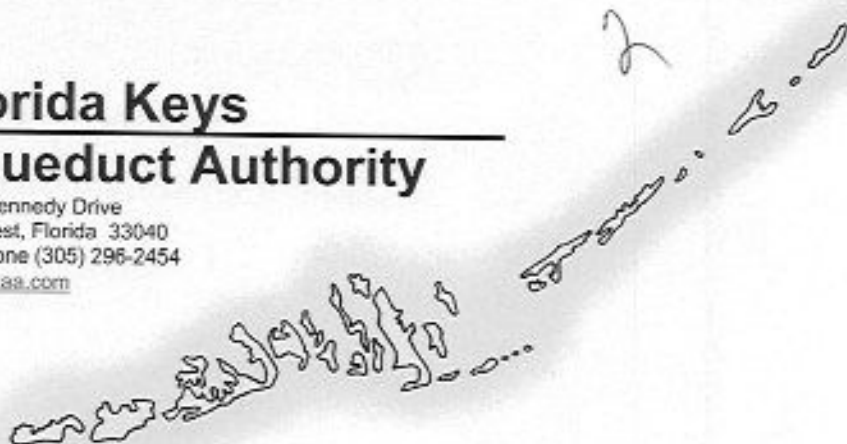


The Industrial Wastewater Facility (IWF) is highly susceptible to hurricane driven storm surge events. These two maps show outcomes from NPS runs of the National Weather Service's Sea, Lake and Overland Surges from Hurricanes (SLOSH) model conducted earlier this year. Both the Category 3 (left) and Category 5 (right) hurricane maps show anticipated storm surge based on high tide. Results indicate that storm surge waters would flow over levees separating the IWF from Biscayne National Park (NP) and Biscayne Bay (Bay). Such events increase the likelihood that contaminants in the IWF waters, as well as newly stored dredge spoils from Units 6 & 7 excavation, would enter Biscayne NP and Bay via overwashing and/or breach of the eastern levee (as discussed in accompanying map) in the foreseeable future. This concern is not analyzed in either the FEIS or Safety Report.



Florida Keys Aqueduct Authority

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Key West, Florida 33040
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Richard J. Toppino
District 2

Kirk C. Zuelch
Executive Director

December 29, 2016

Annette L. Vietti-Cook, Secretary
US Nuclear Regulatory Commission
Washington, D.C. 20555-0001

RE: DOCKETS 52-040 AND 52-041

Issuance of Combined Licenses for FPL's Turkey Point Units 6 and 7

Dear Secretary Vietti-Cook:

This letter is to present issues for consideration at your Evidentiary Hearing on February 9, 2017 regarding the application to construct and operate two new nuclear plants in southeast Miami-Dade County. The Florida Keys Aqueduct Authority is an Independent Special District of the State of Florida with the responsibility of supplying the entire group of islands known as the Florida Keys with drinking water from the Class I Biscayne Aquifer located in southeast Miami-Dade County. Our Board of Directors is appointed by the Governor of the State of Florida and has directed staff to prepare this letter in accordance with your correspondence, dated December 8, 2016.

For more than a decade, Florida Power & Light Company (FPL) has been out of compliance with operating requirements of its cooling canal system (CCS). The salinity values in the CCS have risen to concentrations higher than found in seawater. These high concentrations were not contained to acceptable levels as required by FPL's interceptor canal, and as a result, hypersaline conditions have migrated more than two miles beyond FPL's property and a plume of hypersaline has contaminated a large portion of the Biscayne Aquifer. This hypersaline plume and its influence on the movement of saline water as much as four miles westward toward critical drinking water supplies has been an issue that FPL has ignored for years. In 2014, the CCS temperature increased above the permitted range and emergency provisions were granted to allow higher operating temperatures and to tap into unpermitted surface water supplies to reduce temperatures. The CCS experienced increased salinity, regulated nutrients, and other constituents during this emergency. It was later determined, that the CCS had not been properly maintained for many years resulting in sediment accumulation that limited the volume of cooling water and restricted the water flow regime between the canals and the groundwater below and adjacent to the CCS. The primary impact to the Florida Keys from the failure of FPL to conduct the operation of its plant appropriately is to have put at risk the source of all the potable water we provide to our customers. If our wells, which are located approximately ten miles from the FPL plant, are contaminated by the FPL created high salinity plume, the entire water supply to the Florida Keys is gone.

After these FPL failures were discovered, both the State of Florida and Miami-Dade County found FPL in violation of their operating conditions. Both the State and Miami-Dade County filed regulatory and permit violations against FPL. FPL entered into Consent Orders with both entities rather than contest the violations in court. The primary element of both orders is to reduce the salinities in the groundwater aquifer which have been contaminated by FPL. Secondary impacts include nutrient loading from the CCS into Biscayne Bay. Because of the magnitude of these problems and the sensitivity of adjacent, environmentally-sensitive areas, the improvements will take many years to achieve even under favorable conditions.

There are serious concerns expressed by agency, university, and private sector experts that the plan proposed by FPL to fix the hypersaline problem is based on assumptions and analyses that are incorrect and/or inadequate and therefore will not provide the needed scope, capacities, and cost commitments to bring the aquifer back to pre-existing conditions.

Past and current operational issues caused by FPL have led to the environmental degradation of a sole-source aquifer and Biscayne Bay. FPL had shown little interest in dealing with these unpermitted consequences of its operation until enforcement action was taken. Even with consent orders in place, there is no clear evidence that FPL can resolve the issues they have caused by using the CCS over many years nor can they prove that the CCS is still a viable option to handle thermal loads from the existing nuclear reactors.

FKAA believes that the existing damage to the local environment must be fully reversed before FPL is granted any additional increase to thermal load capacity at its Turkey Point power plant. It makes no sense to allow this expansion when FPL has such a poor track record operating the existing system.

FKAA also requests the USNRC require cooling towers be built for use with the existing operation and the closure of the existing CCS. Once built, the towers would alleviate the thermal loads being imposed by the CCS, leading to recovery of the Biscayne Aquifer and Bay with proven technology.

We appreciate the opportunity to provide these comments to your Commission. If there are any questions regarding our comments, please let me know at your earliest convenience.

Sincerely,

Kirk C. Zuelch
Executive Director

cc: J. Robert Dean, FKAA Board of Directors
Antoinette M. Appell, FKAA Board of Directors
David C. Ritz, FKAA Board of Directors
Cara Higgins, FKAA Board of Directors
Richard J. Toppino, FKAA Board of Directors

George Neugent, Monroe County Commissioner
David Rice, Monroe County Commissioner
Danny Kolhage, Monroe County Commissioner
Heather Carruthers, Monroe County Commissioner
Sylvia Murphy, Monroe County Commissioner
Roman Gastesi, Monroe County Administrator

RESOLUTION NO. 043 - 2017

A RESOLUTION OF THE BOARD OF COUNTY COMMISSIONERS OF MONROE COUNTY, FLORIDA SUPPORTING EFFORTS TO SEEK A COMMITMENT FROM FLORIDA POWER AND LIGHT TO DISCONTINUE USE OF THE COOLING CANAL SYSTEM AT THE TURKEY POINT NUCLEAR POWER PLANT AS SOON AS POSSIBLE; PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, The Florida Power and Light Turkey Point Nuclear Power Plant, located in south Miami-Dade County, utilizes a cooling canal system which consists of a network of approximately 5,900 acres of unlined canals; and

WHEREAS, The Florida Power and Light Turkey Point Nuclear Power Plant is the only facility in the world that uses a cooling canal system instead of mechanical draft cooling towers; and

WHEREAS, water from this cooling canal system communicates with the surrounding groundwater, and long-term monitoring data has shown that a hypersaline plume of water from the cooling canals has been migrating into and contaminating the groundwater, beyond the boundaries of the cooling canals; and

WHEREAS, Miami-Dade County took action to address this issue, including, but not limited to issuing a Notice of Violation in 2015 to Florida Power and Light for certain water quality violations in the groundwater, and requiring, through an administrative consent agreement, the Florida Power and Light take certain remedial actions to retract and contain the hypersaline ground water plume; and

WHEREAS, at that time, the issues were focused on the westward migration of the hypersaline ground water plume from the cooling canals, more recent water quality sampling has detected exceedances of water quality standards in certain surface water locations in or connected to Biscayne Bay, adjacent to and east of the cooling canal system; and

WHEREAS, this Board, the residents of Monroe County and members of the general public are concerned about these recent discoveries and potential impacts on Card Sound, Biscayne Bay, and the Florida Keys' drinking water supply, and such discoveries serve to highlight the challenges posed by the continued operation of the cooling canal system; and

WHEREAS, Florida Power and Light has a license from the federal government to operate the Turkey Point Power Plant units that use the cooling canal system until 2033; and

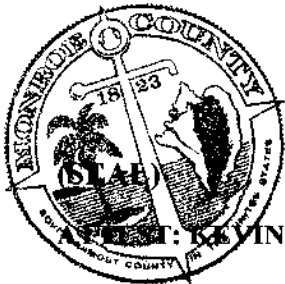
WHEREAS, this Board is seeking a commitment from Florida Power and Light to discontinue the use of the cooling canal system in favor of a more modern mechanical draft cooling tower system that would remove all future interactions with ground water and make use of Miami-Dade County's reuse water;

NOW THEREFORE, BE IT RESOLVED BY THE BOARD OF COUNTY COMMISSIONERS OF MONROE COUNTY, FLORIDA that:

1. The Monroe County Board of County Commissioners seeks a commitment from Florida Power and Light to discontinue the use of the cooling canal system at its Turkey Point Nuclear Power Plant, as soon as possible, in favor of mechanical draft cooling towers.
2. This resolution shall take effect upon adoption.

PASSED AND ADOPTED by the Board of County Commissioners of Monroe County, Florida, at a regular meeting of said Board held on the 15th day of February, 2017.

Mayor George Neugent	<u>Yes</u>
Mayor Pro Tem David Rice	<u>Yes</u>
Commissioner Danny Kolhage	<u>Yes</u>
Commissioner Heather Carruthers	<u>Yes</u>
Commissioner Sylvia Murphy	<u>Yes</u>



By: Kevin Madok
Deputy Clerk

BOARD OF COUNTY COMMISSIONERS
OF MONROE COUNTY, FLORIDA
By: George E. Neugent
Mayor

CLK, CIR. CL.
MONROE COUNTY, FLA

2017 FEB 22 PM 5:03

FILED FOR RECORD

MONROE COUNTY ATTORNEY
APPROVED AS TO FORM:
Robert B. Shillinger, Jr.
ROBERT B. SHILLINGER, JR.
COUNTY ATTORNEY
Date 2/24/17
Have you filed
1/31/17