

Executive Summary of FPL Turkey Point Position Paper

by

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The FPL Turkey Point nuclear facility sits on top of the Biscayne Aquifer, our primary source of drinking water and is located between two national parks, Everglades National Park (NP) to the west and Biscayne Bay NP as well as Card Sound to the east.

FPL uses an experimental, open and unlined cooling canal system (CCS) to cool water used to operate the nuclear reactors. The CCS is not used in any other nuclear plant in the world. It is an industrial cesspool, leaking nutrient and toxic material into the Biscayne Aquifer, our primary source of drinking water.

As the water evaporates from the CCS, salt is left behind. Additionally the ground cover between and around the CCS and the dumping of the materials back into the cooling canals has created high concentrations of nitrogen, ammonia, phosphorus and algae and non-biodegradable weed control chemical pollutants combine with the saltwater and sink to the bottom of the CCS because it is heavier than water.

The hydrostatic pressure of the water on the surface of the CCS pushes the hyper-saline water and pollutants to the bottom and through the porous rock of the unlined CCS causing over hundreds of millions of gallons of the hyper-saline polluted plume to enter the Biscayne Aquifer, our primary source of drinking water. **The hyper-saline polluted plume has been identified 2-4 miles in all directions beyond the Turkey Point property line, which is a major violation of the FPL NPDES permits and the Clean Water Act (CWA) that requires zero discharge off the permitted property.**

The positive hydrostatic pressure of concentrated salt water and pollutants and negative pressure from the drinking water wells on the west are pulling the hyper-saline polluted plume toward the drinking water well fields of Miami Dade County and Florida Keys Aqueduct Authority (FKAA)/Monroe County well fields.

The hyper-saline polluted plume in the Biscayne Aquifer is also moving east towards and into Biscayne Bay, Biscayne National Park and Card Sound. Recent surface water testing has shown mixing of the hyper-saline polluted plume into the surface waters of Biscayne Bay and Card Sound from the Biscayne aquifer in violation of the strict liability NPDES permit.

To replace the evaporated water in the cooling canals and reduce the salt concentration in the CCS, FPL pulls freshwater from the adjacent wetlands and pumps in seawater and also pumps brackish water from the Floridan Aquifer, which lies beneath the Biscayne Aquifer. However, the pressure FPL is creating by pumping this water into the CCS actually increases the leakage of the hyper-saline polluted plume into the surrounding areas.

In this process FPL is using water that should instead be used for critical Everglades Restoration. In addition, the salt loading of up to three million pounds per day is in direct conflict with the Comprehensive Everglades Restoration Plant (CERP) projects such as the Biscayne Bay Coastal Wetlands project. FPL must be required to use readily available, treated municipal wastewater for the nuclear plant thereby eliminating the need for any water from surrounding wetlands, surface water canals or the Florida aquifer, which is

already earmarked for Everglade's restoration projects and Miami-Dade County and Monroe County's drinking water.

Other negative impacts of the leakage are algae blooms along the coastal shores to the east, contamination of the aquatic food chain in Biscayne Bay and Card Sound and destruction and ecological failure of the coastal wetlands. Moreover, with rising seas and a severe tropical storm or hurricane surge the toxic water in the CCS could be flushed into Biscayne Bay and Card Sound causing irreparable damage in our lifetime.

The following was 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 radioactive tracer that demonstrates that the pollution is increasing and that there is leakage from the CCS. Miami-Dade County Department of Environmental Resources Management (DERM) has also found elevated levels of five pollutants outside of the CCS: ammonia, nitrogen, phosphorous, chlorophyll *a* and tritium.

There are documented exceedances of the state's Numeric Nutrient Criteria in the sampling sites adjacent to Turkey Point which are criteria set by Florida to ensure waterways are not over-enriched/over-loaded with nutrients. The Turkey Point pollution exceedances are violations of the Florida DEP, EPA and NPDES permits.

FPL's CCS is the source of the hyper-salinity and pollution traveling east and west from Turkey Point as evidenced by the tritium markers, which confirm the leaking of the CCS. From 1974 to 2016 tritium has continued to be present in high levels in the surrounding surface waters of Turkey Point, demonstrating that the CCS was never a closed loop system. Within the CCS the levels of tritium have several times exceeded the drinking water and EPA standards of 20,000 pi/Cu per L. The system is failing and exceeding EPA standards and should be a serious concern for residents and regulators.

The DERM agreement entered in 2016 with FPL is inadequate because:

1. It is a 10-year remediation program that permits FPL to install and use intermediate extraction wells on the west side of the FPL permitted area to reduce or stop the polluted hyper-saline plume's further movement towards the water well fields. It is highly questionable and could make the situation worse by drawing down the water levels in the surrounding wetlands and impacting the regional water supply.
2. The CCS will continue to generate and load salt daily and other contaminants into the Biscayne Aquifer and surrounding environment.
3. It does not at all address the source of contaminants, the CCS. The continued loading of three million pounds per day of salt and other contaminants into the Biscayne Aquifer and surrounding area should be the primary concern.
4. It does nothing to make FPL identify a more sustainable water source, such as reuse water. FPL continues to draw make-up water from the surrounding environment.
5. It fails to correct the violations of Numeric Nutrient Criteria and other deleterious impacts to Biscayne Bay, Biscayne National Park and Card Sound and does nothing to address concerns to the east of the Turkey Point facility.
6. The impacts from Turkey Point are in direct conflict with the goals of the CERP and are causing the degradation of Biscayne National Park and the Everglades.

The Dec. 2016 National Parks Department letter to the NRC concurred with the above stating that the operational problems at the Turkey Point facility created serious concerns about FPL's capability to implement the DERM proposed CCS pollution abatement plan; that FPL was in violation of the NPDES permit for more than a decade; and that allowing the pollution to continue will adversely affect the success of the multi-billion dollar CERP and the Biscayne Bay Coastal wetlands project as well as the ecological health of the Everglades and Biscayne National Park.

By approving the DERM Consent Order, the Miami Dade Commission gave FPL ten years to remediate the hyper-saline polluted plume based upon experimental modeling proposed by FPL even though the permanent, best industry practice solution to the leaking CCS -- the use of cooling towers -- could be built and operational in five years.

Both the Monroe County Commission and FCAA have recently passed resolutions condemning the FPL pollution and demanding that FPL construct industry standard cooling towers immediately and stop using the cooling canal system. Their well fields are in Miami Dade County and these requests have been ignored.

The Powers Report on the implementation of the cooling towers by FPL, shows that they can be built affordably built and operational in not more than five years. The 2015 gross and net annual revenue for FPL is approximately \$4 billion and \$2 billion, respectively. The capital cost of the cooling towers is estimated in 2017 dollars to be less than \$400 million by engineer Bill Powers, an expert in cooling technologies. This amount is only 5% of the net annual FPL revenue figure. The Powers Engineering Cooling Tower Report (July 11, 2016) is available at <http://bit.ly/2oxgdhB>. FPL, a monopoly for its designated customer base in Florida, can recover 100% of the cooling tower capital cost with approval from the Florida Public Service Commission.

Since FPL is in violation of its strict liability permit with the NPDES, and is also in violation of the CWA and Federal Court Order 1971 Final Judgment, why haven't the Florida DEP, EPA, Miami Dade County, NRC and/or the National Park Service, which have some jurisdiction over Turkey Point taken effective action? Why have our state and federal elected officials not required FPL to comply with the best industry practices, which are cooling towers and close the CCS and stop the pollution? We cannot wait another ten years on the flawed remediation plan to be completed or for the CWA federal lawsuit against FPL to come to fruition. The scope of potential damage is the irreversible fouling of our drinking water aquifer, Biscayne National Park, Biscayne Bay, Card Sound, Everglades National Park, our wildlife and fish and the loss of businesses and jobs. We ask that you take action now to protect us.

The Federal Lawsuit Against Florida Power and Light for Violations of the Clean Water Act at the Turkey Point Facility, A Position Paper and Summary of the History, Legal Issues, Evidence of Violations and Proposed Solutions and Supplement by Bonnie Rippingille Schoedinger

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