LBP-15-13

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:
Michael M. Gibson, Chairman
Dr. Michael F. Kennedy
Dr. William W. Sager

In the Matter of	)	Docket Nos.
	)	50-250-LA and 50-251-LA
	)	
FLORIDA POWER & LIGHT COMPANY	)	
	)	ASLBP No.
	)	15-935-02-LA-BD01
(Turkey Point Nuclear Generating Units 3 and 4)	)	

October 9, 2015

CITIZENS ALLIED FOR SAFE ENERGY INITIAL STATEMENT OF POSITION, TESTIMONY, AFFIDAVITS AND EXHIBITS (For January, 2015 Evidentiary Hearing)

INDEX

INTRODUCTION

Citizens Allied for Safe Energy, Inc. (CASE), a Florida non-profit, all volunteer corporation, is the petitioner in these proceedings. On May 8, 2015 this ASLB issued an Initial Scheduling Order [1] (Order) which states, at 8,

> "By October 9, 2015, CASE shall file its initial written statement of position, written testimony with supporting affidavits, and exhibits, pursuant to 10 C.F.R. § 2.1207(a)(1)."

This filing is a timely response to that directive.

(1) INITIAL SCHEDULING ORDER May 8, 2014 ML15128A369

BACKGROUND

On March 23, 2014 this Board issued MEMORANDUM AND ORDER (Granting CASE's Petition to Intervene) [2] (Order). That Order provides, at 2,3,and 4, a detailed review of the filings in these proceedings so it will not be duplicated here. The critical document in this filing is the Environmental Assessment And Final Finding Of No Significant Impact; Issuance [3] (2014 EA) dated July 28, 2014 issued by Licensing Branch II-2, Division of Operating Reactor Licensing, Office of Nuclear Reactor Regulation. and posted in the Federal Register on July 31, 2014.

(2) MEMORANDUM AND ORDER Granting CASE's Petition to Intervene) March 23, 2014 ML15082A197

(3) TURKEY POINT NUCLEAR GENERATING UNIT NOS. 3 AND 4- ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT RELATED TO THE ULTIMATE HEAT SINK TEMPERATURE LIMIT (TAC NOS. MF4392 AND MF4393) July 28, 2014 ML14209A031

TESTIMONY AND AFFIDAVITS

CASE has no testimony or affidavits to submit at this time. None of these potential expert witnesses would voluntarily provide sworn testimony. CASE will file a motion requesting that subpoenas be issued for expert witnesses to provide sworn testimony. Expert witnesses identified so far: [4]

Mr. Lee N. Hefty
Director of Environmental Resources Management (DERM),
Miami-Dade Department of Regulatory and Economic Resources

Mr Craig Grossenbacher
Geologist, Environmental Resources Management (DERM),
Miami-Dade Department of Regulatory and Economic Resources

Mr. Brian Carlstrom
Superintendent, Biscayne National Park
Ms. Sarah Bellmund
Ecologist, Biscayne National Park

4) CASE Notice Of Supplemental Disclosures September 25, 2014. Emailed to Hearing Dockets

RESTATED CONTENTION ONE

The SO at 24, states,:

(b) Admission of Contention One

"CASE identifies the concern that precipitated its filing of a petition by stating that "[w]e saw the solutions to mitigate the problem which we considered evasive and problematic. And their failure to consider other options as causes."119 The Board views this statement as a basic summation of CASE's contention, but has narrowed the contention to eliminate those areas where CASE alleges the omission of information that is, in fact, discussed in the NRC Staff's 2014 EA.120 As such, the Board admits Contention 1, narrowed and reformulated to read as follows:

The NRC's environmental assessment, in support of its finding of no significant impact related to the 2014 Turkey Point Units 3 and 4 license amendments, does not adequately address the impact of increased temperature and salinity in the CCS on saltwater intrusion arising from (1) migration out of the CCS; and (2) the withdrawal of fresh water from surrounding aquifers to mitigate conditions within the CCS. (emphasis added)

Of course, the question whether the 2014 EA is, in fact, suffi cient to satisfy the NRC Staff's NEPA requirements is not the

focus of our inquiry here but must await consideration at a full evidentiary hearing.121"

INFORMATION

Given the proposition inherent in the restated Contention, that the 2014 EA inadequately addressed the impact of the actions approved on the various aspects of the environment in question, this discussion will look at the impact of what was authorized and the impact of not considering other factors which could have or should have also been considered; commission and omission are both at play.

CASE will present events which have occurred since the authorized actions, some quite severe and unfortunate, which adequate analysis by NRC staff might have anticipated and, possibly, prevented. We will also address NEPA issues of large and signifiant impact on the CCS on the environment, showing that the CCS is not a closed system and is actually part of a vast system, and that an EIS should have been done.

CASE is not contesting that FPL obtained all necessary authority for their actions regarding the operation of

Nuclear Reactors 3 & 4 at Turkey Point and for all action regarding the Cooling Canal System (CCS). The focus of this inquiry is only as stated in the paragraphs above.

In one email to CASE on August 18, 2015, Dr. Christopher Kelble, based on the shore of Biscayne Bay at Miami, (Oceanographer, NOAA Atlantic Oceanographic and Meteorological Laboratory, Ocean Chemistry Division 4301 Rickenbacker Causeway,Miami, FL 33143, <chris.kelble@noaa.gov>) summed up CASE's concerns and the definitive reply to the restated contention:

> "Biscayne Bay has been shown to be a nursery ground for juvenile reef fish that live on the fringing reefs just outside of Biscayne Bay (i.e. east of Elliott Key). It is also an important habitat for other fish species. These juvenile fish are sensitive to high salinities often preferring salinities that are less than the open ocean, but higher than freshwater. It is my understanding that the area around Turkey Point, especially adjacent to the mainland, already experiences salinities greater than oceanic salinities at certain times of the year. If more freshwater is removed from this part of the ecosystem, it will increase salinities further in this area. I believe this will cause physiological stress on the fish, including these juvenile reef fish, in this area. This stress, I believe, will decrease the survivorship of fish in this area.

> At 100 psu, there would most likely be no native fish living in there. Toadfish are great osmoregulars and we see them die-off at around 60 psu and temperature of 35C."

CASE will show that saltwater intrusion from the CCS has degraded the environment in the entire area and that this information was not part of the 2014 EA.

SCIENCE OF THE TURKEY POINT WETLAND

NOTE: The terms PSU/Practical Salinity Units and PPT/parts per thousand are functionally equivalent.

Attachment 1, *Science Of The Turkey Point Wetland,* presents extensive citations about and links to the complex nature of the area including: *What Is Saltwater Intrusion?, water table concerns, the role of freshwater , USGS studies, description of the Biscayne Aquifer, impact of ground water alterations on marine species, Knowledge of Groundwater Responses— A Critical Factor in Saving Florida's Threatened and Endangered Species Part I: Marine Ecological Disturbances,* "*A Case Study of Turkey Point Nuclear Generating Station.*

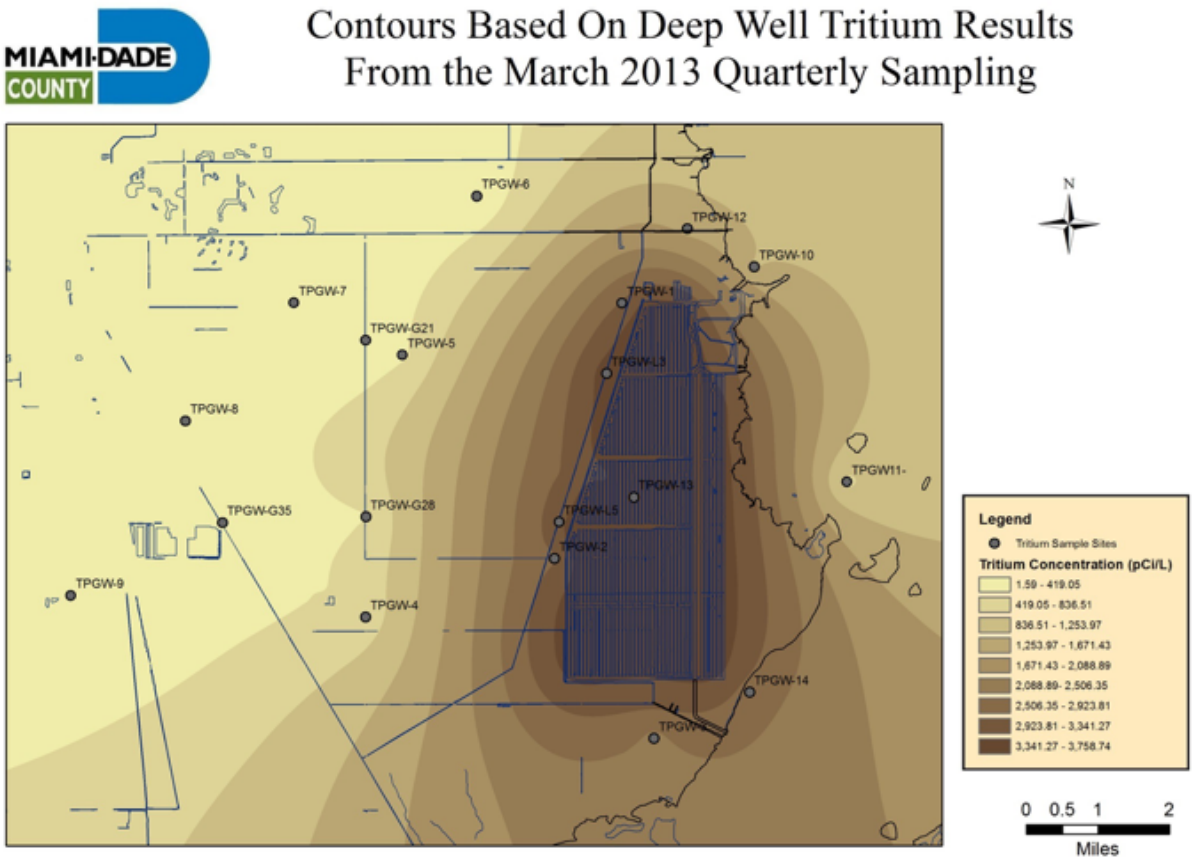
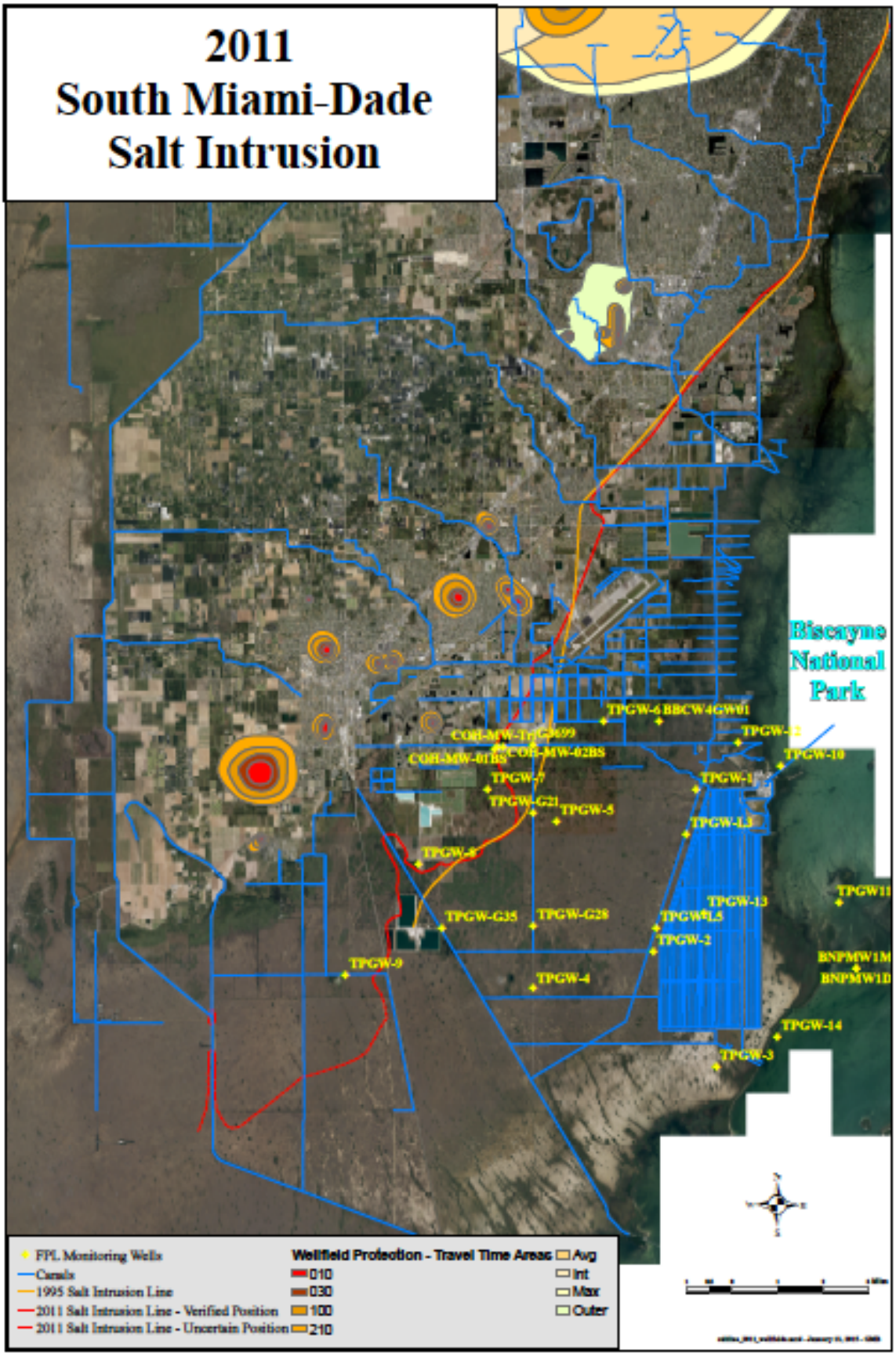


Illustration 1. Migration of water from the Turkey Point Cooling Canal System. From Attachment 2, Slide 10. Analysis by Miami-Dade County

Migration of water from the unlined, dirt CCS occurs in several ways: 1) evaporation, 2) exchange with surrounding ground water, (Illustration 1- Contours…) and 3) the sinking of the dense, hypersaline, chemically laden water from each CCS furrow to the bottom of the Biscayne Aquifer about 150 feet below where it spreads out (Illustration 3 - Origins And Delineations Of Salt Water Intrusion…)

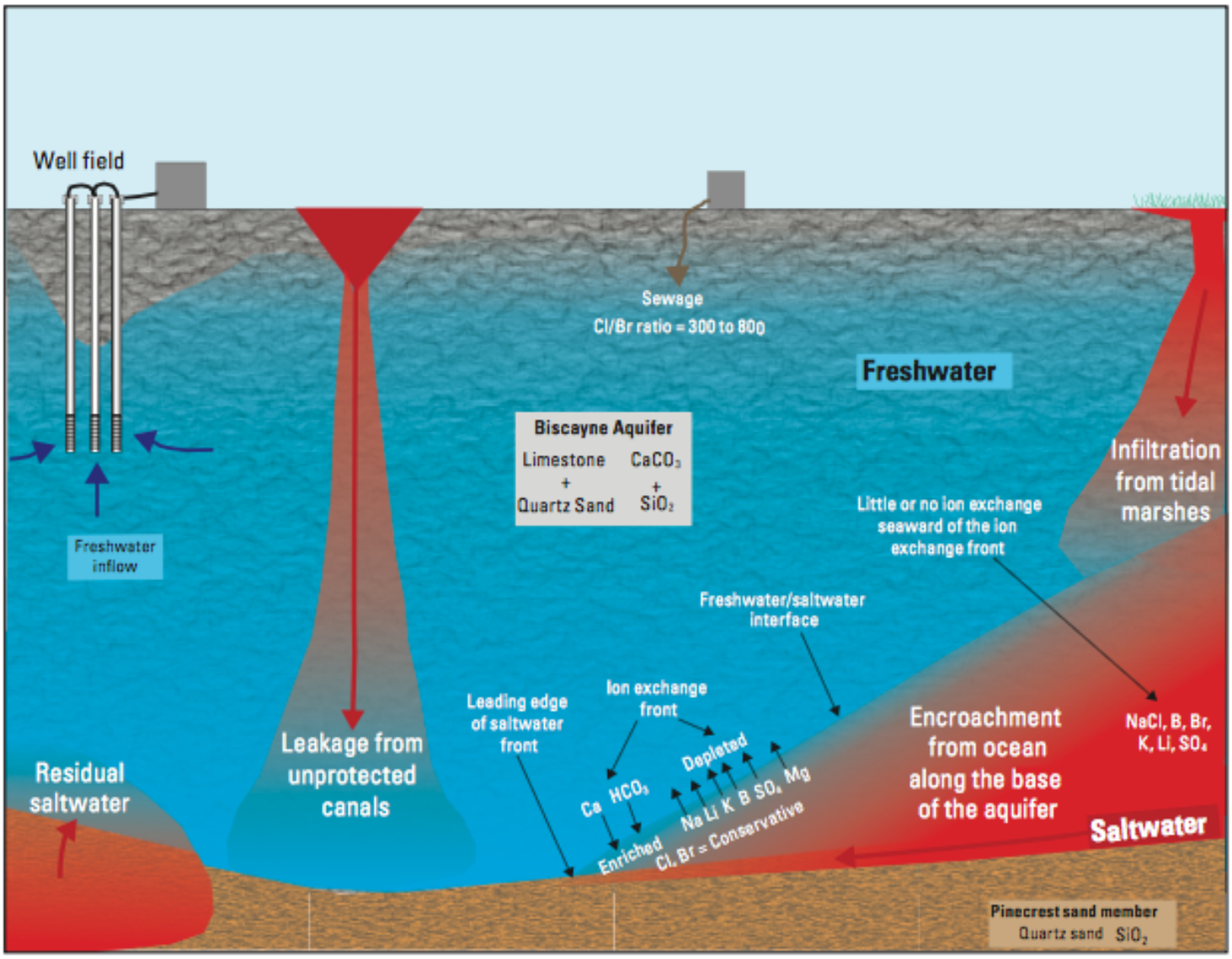
2011
South Miami-Dade
Salt Intrusion



science for a changing world

Prepared in cooperation with Miami-Dade County

Origins and Delineation of Saltwater Intrusion in the Biscayne Aquifer and Changes in the Distribution of Saltwater in Miami-Dade County, Florida



Scientific Investigations Report 2014–5025

Saltwater intrusion is the movement of saltwater inland from the coast. Attachment 1 has an extensive explanation of this and Illustration 2 (2011 South Miami-Dade Salt Intrusion) shows the extent of intrusion as of 2011 (orange and red lines). In the early part of the last century freshwater extended two miles out to sea from the Turkey

(Below) Illustration 2. 2011 South Miami-Dade Salt Intrusion, USGS

(above) Illustration 3 From *Origins and Delineation of Saltwater Intrusion in the Biscayne Aquifer and Changes in the Distribution of Saltwater in Miami-Dade County, Florida* in Attachment 1

Point Wetland; today saltwater has intruded four miles inland. A report in Attachment 1, *Origins and Delineation of Saltwater Intrusion in the Biscayne Aquifer and Changes in the Distribution of Saltwater in Miami-Dade County, Florida* states, in part:

> *"Intrusion of saltwater into parts of the shallow karst Biscayne aquifer is a major concern for the 2.5 million residents of Miami-Dade County that rely on this aquifer as their primary drinking water supply. Saltwater intrusion of this aquifer began when the Everglades were drained to provide dry land for urban development and agriculture. The reduction in water levels caused by this drainage, combined with periodic droughts, allowed saltwater*

to flow inland along the base of the aquifer and to seep di rectly into the aquifer from the canals."

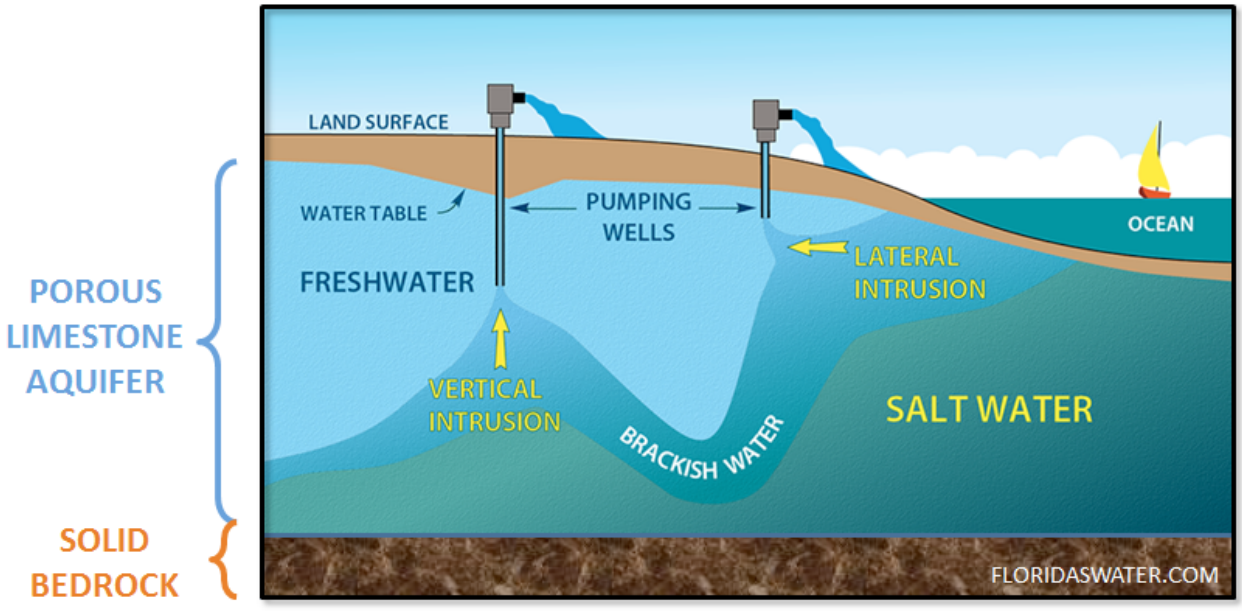
So, while the CCS did not create saltwater intrusion at Turkey Point, migration of hypersaline water from it and the withdrawal of billions of gallons of freshwater from the Biscayne Aquifer for use in the canals, as authorized by by the SFWMD over the last few years has exacerbated saltwater intrusion to the west of the CCS.

The CCS was dug into the Turkey Point Wetland in 1973. The canals are unlined and the earth that was dug up was piled along side the canals to create burns. The water in the canals is exchanged with the water in the Biscayne Aquifer on which the CCS sits. As Illustration 3 shows, leakage from the unprotected canals occurs vertically under each furrow; multi-columned cascades of water from the CCS channels descend down to the bottom of the aquifer. At that point, the heavy salt and chemical laden water accumulates and spread mainly to the west as the pulse of the ocean seawater carries it inland. It is this mass of water and sediment which has moved four miles inland and is the base of the saltwater intrusion front. The reduction in available freshwater, as explained below, permits the heavier saltwater to intrude.

An Attack from Below

Water, Water, Everywhere: Sea Level Rise in MiamiUniversity of Miami Rosenstiel School Of Marine and Atmospheric Science, Miami, http://www.rsmas.miami.edu/blog/2014/10/03/sea-level-rise-in-miami/

In addition to surface flooding, there is trouble brewing below the surface too. That trouble is called ***saltwater intrusion****, and it is already taking place along coastal communities in south Florida. Saltwater intrusion occurs when saltwater from the ocean or bay advances further into the porous limestone aquifer. That aquifer also happens to supply about 90% of south Florida's drinking water. Municipal wells pump fresh water up from the aquifer for residential and agricultural use, but* ***some cities have already had to shut down some wells because the water being pumped up was brackish*** *(for example, Hallandale Beach has already closed 6 of its 8 wells due to saltwater contamination).*



Schematic drawing of saltwater intrusion. Sea level rise, water use, and rainfall all control the severity of the intrusion. (floridaswater.com)

The wedge of salt water advances and retreats naturally during the dry and rainy seasons, but ***the combination of fresh water extraction and sea level rise is drawing that wedge closer to land laterally and vertically.***

In other words, ***the water table rises as sea level rises, so with higher sea level, the saltwater exerts more pressure on the fresh water in the aquifer, shoving the fresh water further away from the coast and upward toward the surface.***

Water management authorities in Miami-Dade County and FPL are withdrawing from and injecting water into the aquifers at all levels with total discregard for the ultimate impact of doing so. Billions of gallons of sewage, some un-treated, have been injected into the boulder zone, under 3,000 feet, with the assumption that it is totally confined; some research shows otherwise. FPL has been authorized to extract hundreds of millions of gallons of freshwater from the Biscayne Aquifer and from the Floridan Aquifer just below it. Some cities, as noted above, are already sucking up seawater; Miami-Dade could start sucking up sewage and FPL will soon have to go far afield to find freshwater for the CCS. And none of this was on the NRC radar for the 2014 EA.

The Biscayne Aquifer

CASE will show that the CCS is contained but not closed; it is actually a part of the Biscayne Aquifer, a vast freshwater system and of the Biscayne Bay Estuary which begins with Biscayne National Park next to the CCS.

USGS GROUND WATER ATLAS of the UNITED STATES Alabama, Florida, Georgia, South Carolina (Attachment 1, citations and link)

> "The Biscayne aquifer underlies an area of about 4,000 square miles and is the principal source of water for all of Dade and Broward Counties and the southeastern part of Palm Beach County in southern Florida … Major population centers that depend on the Biscayne aquifer for water supply include Boca Raton, Pompano Beach, Fort Lauderdale, Hollywood, Hialeah, Miami, Miami Beach, and Homestead. The Florida Keys also are supplied primarily by water from the Biscayne aquifer that is transported from the mainland by pipeline. Because the Biscayne aquifer is highly permeable and lies at shallow depths everywhere, it is readily susceptible to contamination. The aquifer is the only source of drinking water for about 3 million people.Water in the Biscayne aquifer

> is under unconfined, or water-table, conditions and the water table fluctuates in direct and rapid response to variations in precipitation. The aquifer extends beneath Biscayne Bay, from whence it was named, and the Atlantic Ocean. The aquifer is highly permeable where it forms part of the floor of the bay and the ocean, and contains saltwater there. Some of this saltwater has migrated inland in response to the lowering of inland ground-water levels adjacent to canals …"

An understanding of the nature of the Biscayne Aquifer and, as we shall describe below, the fluid and unconfined interaction of its water with that of the water in the CCS is critical for anyone who regulates it. This geophysical interaction should have been central to any conclusion regarding the NRC Staff action; it was not.

DISCUSSION OF CONTENTION ONE

TEMPERATURE

THE IMPACT OF INCREASED *TEMPERATURE …*IN THE CCS ON SALTWATER INTRUSION ARISING FROM MIGRATION OUT OF THE CCS

On July 10, 2015 FPL asked the NRC for permission to increase the temperature of water returning to Turkey Point Nuclear Reactors 3 & 4 to 104 oF in the Cooling Canal System (CCS). However, the average daily temperature of water in the CCS, given the increased authorized return temperature of up to 104 oF would increase to the average temperature to approximately 108 oF.

2014 EA at 9,

> "*Under the proposed action, the CCS could experience temperatures between 100 oF and 104 oF at the TS monitoring location* ***near the north end of the system for short durations*** *during periods of peak summer air temperatures and low rainfall. Such conditions may not be experienced at all depending on site and weather conditions.* ***Temperature increases would also increase CCS water evaporation rates and result in higher salinity***

***levels**. This effect would also be **temporary and of short** in duration because salinity would again decrease upon natural freshwater recharge of the system (i.e., through rainfall, stormwater runoff, and **groundwater exchange**). No other onsite or offsite waters would be affected by the proposed UHS temperature limit increase."*

This 2014 EA citations contains the crux of this entire pleading.

"***Temperature increases would also increase CCS water evaporation rates and result in higher salinity levels**.*

All other concerns and impacts follow from this principle. It is the increase in temperature in the CCS caused by the increase in the permitted temperature of the water being discharged from the reactors, as well the heat generated by the interaction of the hypersaline water and the cyanobacteria algae in the CCs which increase evaporation. The failure of the NRC staff to fully vet its full impact renders the entire EA inadequate. The increased temperature causes increased evaporation leading to increased salinity and to increased convection which increases the exchange of water in the CCS with the water in the surround Biscayne Aquifer and increases the evaporation of

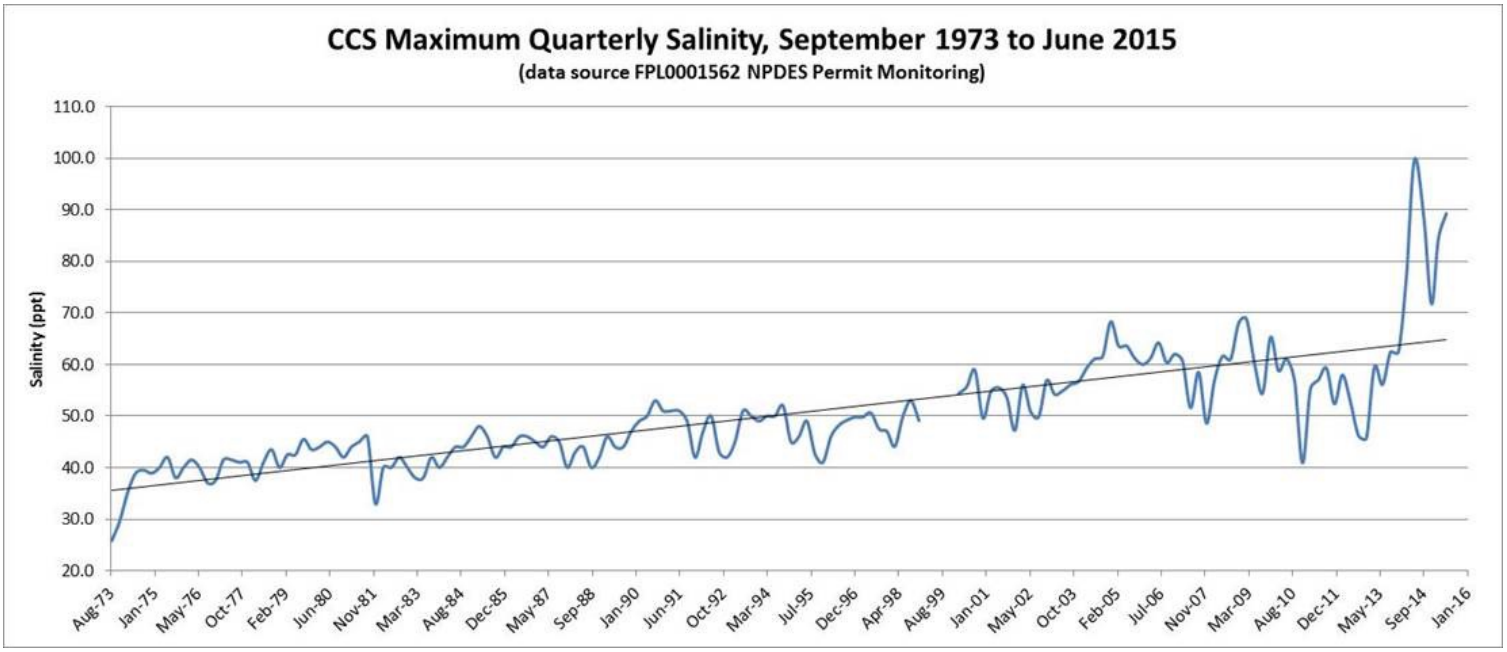
freshwater which is required to hold back saltwater intrusion. Saltwater and the cyanobacteria algae in the CCS, growing out of control, possibly due to increased nutrients, work together to produce heat further increasing the temperature in the CCS. How can you make decisions about the CCS just based on FPL information and statements without having your own understanding of the ecology involved? The statement cited shows that they knew that this would occur but they did not go beyond it to determine the full impact of that dynamic. They did not consider the **IMPACT** of what they were approving.

While the temperature of water returning to the reactors at the northeast part of the CCS 44 hours after being discharged from the reactors at the northwest point must be below 104 oF, the water entering the CCS will approximately be between 119 oF to 134 oF and the average temperature of the water in the CCS will be about 108 oF. Thus, evaporation of freshwater from the CCS, which FPL said in the 2012 EA would be about 44MGD when the average CCS water temperatures was about 94 oF will be and is **much higher.** Had the requested increase been fully examined and quantified, the salinity readings in the CCS above 90 ppt could have been postulated and the

impact of such salinity levels on algae growth, wildlife and saltwater intrusion might have been discussed. This did not happen. Instead, the EA simply notes, as cited above, that this would occur but mitigated the fact by immediately saying *"it would be temporary and of short duration"*. But what **would** the impact be when the with an average CCS temperature108 oF, **14 degrees above what the 2012 EA predicted?** How much evaporation? How many more MGD of precious freshwater would evaporate beyond the 44 MGD the CCS already evaporates? How much more saline would the water be because of the increased rate of evaporation? How much more freshwater water be required to mitigate the increased salinity due to faster

Illustration 4. CCS Maximum Quarterly Salinity, September 1973 to June 2015. Miami-Dade County DERM based on FPL data. (Attachment 3)

evaporation at the higher temperatures? And where would that freshwater come from? What would be the impact of drawing down so much freshwater from the Biscayne Aquifer. What is the status of the CCS regarding current and historic cumulative cumulative temperatures and salinity. How would the higher temperatures impact the exchange of the hypersaline water in the unlined, dirt CCS



with the surrounding Biscayne Aquifer water. Where does that water go? For how long? How does it impact local flora and fauna. Could such high temperatures and salinity not impact them at all? With FPL alleging that the Exigent Situation was due to decreased rainfall and higher ambient temperatures wouldn't higher temperatures in the CCS exacerbate the condition there including production of more cyanobacteria aphanothece sp. algae? What is the relationship between temperature and nitrogen fixation for this algae. What is the nature of the algae; is it toxic to humans? To animals? Is it the only algae in the canals? The 2014 EA does not ask or answer these questions and concerns.

The graph above, Illustration 4 (also as Attachment 3) shows that in September, 1973, salinity in the CCS was about 26ppt, less than that of seawater, 34ppt. (This does show that they put the CCS into a near pristine area). Salinity steadily increased until August, 2010 and dropped significantly until about September 2014. Since then, until early 2014 when it reached the record high of 100ppt and was at 90ppt at the last recorded reading. While it is not for us in this inquiry to speculate why these readings are as they are, we can see that, based on available FPL data, the trend of salinity in the CCS was documented and available. This information could have been used by FPL Staff to predict the IMPACT of any decision based on the 2014 EA. Just saying, as they did, that

> "…*the CCS could experience temperatures between 100 oF and 104 oF at the TS monitoring location* ***near the north end of the system for short durations"***

was hardly sufficient analysis. Saying "the north end' is somewhat confusing since they would have to clarify which side of the "north end" they mean. On the east side you have the intake area; on the west side you have the discharge area. The statement really conveys little information or insight into understanding the process and the **implications** of what is being addressed. The actual average temperature in the CCS was higher. The 2012 EA [5] states, at 7,

”The seasonal temperature of the canal water ranges from approximately 85 OF to 105 of (29°C to 40°C) for heated water entering the CCS with cooled water returning to the power plants at approximately 70 of to 90 of (21°C to 32°C).”

Authorizing an increase in temperature from the highest authorized temperature of 90 oF in the 2012 EA to 104 oF as requested in the current action amounts to an increase of 15.5%. In nature, that is a tremendous difference when an increase of a fraction of a degree will cause any given species in nature to change to adapt. What animals and plant life would die off or mutate with such a temperature difference?

In the 2012 EA, at 8, we read,

“The licensee calculated that the higher water temperature will increase water losses from the CCS due to evaporation resulting in a slight increase in salinity of approximately 2 to 3 ppt.”

The 2014 EA simply states, at 9,

“Temperature increases would also increase CCS water evaporation rates and result in higher salinity levels.”

There is no estimate as to exactly how much additional freshwater would evaporate daily under the 2014 EA authorized increase of up to 104 oF. The 2012 does state, at 8,

> *'The licensee calculated that the maximum change in water temperature due to the proposed EPU would be approximately 2.0 OF to 2.5 OF (1.1 °c to 1.4 0c) for a total maximum water temperature up to 108.6 OF (42.6 0c) for water entering the CCS and a 0.9 OF (0.5 °C) increase with a total maximum water temperature up to 92.8 OF (33.8 0c) for the water returning to the power plants.*

Using these figures, if an increase of temperature of .7 oF in the CCS would yield a 2 to 3 ppt increase in salinity, what would an increase of 14 oF do to evaporation. Who knows? The question was not asked by the NRC staff. And, with the volume of water in the CCS at 4 billion gallons, any increase is a lot of additional freshwater being evaporated from the Biscayne Aquifer. Does it matter? Again, *no one asked the question.*

An increase in temperature in the CCS creates an increase in convection which increases the exchange of water through the permeable CCS with the surface waters of

the Biscayne Aquifer. While this does have some cooling affect, the greater impact is to increase the flow of hyper-saline water into the aquifer and the rate of exchange. This is discussed further under Freshwater below.

SALINITY

THE IMPACT OF INCREASED SALINITY…IN THE CCS ON SALTWATER INTRUSION ARISING FROM MIGRATION OUT OF THE CCS

The 2014 EA, at 4,

> *"The site features a 6,1 00-ac (2,500-ha) closed cooling canal system (CCS)"*

The 2014 EA, at 9,

> "*No other onsite or offsite waters would be affected by the proposed UHS temperature limit increase."*
>
> "...the CCS does not discharge directly to fresh or marine surface waters"

These statements are at variance with a letter below on the subject sent in 2010 from Miami-Dade County DERM to the FDEP (emphasis added):

Department of Environmental Resources Management
Office of The Director

701 NW 1st Court, 4th Floor

Miami,Florida 3316-3912

T 305-372-6754 F 305-372-6759

miamidade.gov

February 1 2010

Mr. Marc Harris, P.E., Supervisor

lIndustrial Waste Water Section
Florida Department Of Environmental Protection
2600 Blair Slone Road MS 3545
Tallahassee, Fl 32399·2400

RER Application to Renew Turkey Point Industrial Wastewater Facility Permit Number Fzl0001582

Dear Mr. Harris:

Miami-Dade County Department of Environmental Resources Management (DERM) has reviewed the above referenced application for permit renewal and provides the following comments. **The application asserts that the facility is a "zero discharge facility" and that there are no discharges to the surface waters beyond the Cooling Canal System (CCS).** This is **contrary to recent findings** of the interagency team from the SFWMD, DEP and DERM that has been reviewing discharges from this wastewater treatment system.

Furthermore, based on FPL monitoring data and reports submitted to the SFWMD as well as sampling conducted by SFWMD and DERM in conjunction with FPL, best available information indicates the likelihood that **water from the CCS is affecting fresh groundwater west of the G III groundwater boundary.** The data also indicate the potential for surface waters **impacts** at least partially through **interaction between this groundwater plum and the nearby canal systems. This include the L-31E canal** and the canal that discharges into Card Sound from the S-20 waste management structure. DERM believes the DEP has already been provided with these data, but can provide copies to your office upon request.

Although the current FDEP **monitoring** (under the existing permit) is apparently **not designed to detect impacts beyond the wastewater treatment facility,** it does indicate a continuing **deterioration of water quality within the cooling canal system** (see Attachment A). **This continued deterioration of water quality over the life of the wastewater treatment system is also evident in groundwater data reported to the SFWMD from FPL's monitoring well network, which extends several miles to the west (upgradient) of the CCS** (See Attachment B).

Based on the long term trend in these data **it does not appear that operation of this wastewater treatment facility is sustainable without changes.** It is therefore recommended that an interagency team be convened (similar to that of the recent Uprate Project) to determine what actions are appropriate prior to

renewal of this permit, including but not limited to improvements in monitoring. Based on the data collected to date, **monitoring should be required for all constituents that leave the CCS including monitoring of the thermal plume.**

DERM also requests to be notified is the issuance of the permit requires a variance to any state or local water quality standards. Please contact Mr. Lee Hefty, Assistant Director of my staff at (305) 372-6750 if you have any questions regarding this matter.

Sincerely,

Carlos Espinosa, P. E.

Enclosures

c: Barbara Linkiewiz, FPL
Tim Powell, FDEP Southeast District
Terrie Bates, SFWMD

Here we see, five years ago, the Miami-Dade County department charged with overseeing the Turkey Point Wetland strongly challenging the State of Florida DEP regarding the exact position taken by the NRC staff in the 2014 EA. How could the Federal licensing agency ultimately responsible for regulating a nuclear power plant not be aware of such concerns? Those closest to the site and who live and work less than twenty five miles from it were aware of it years ago. DERM says: The canal water

is leaking out and affecting ground water! The quality of the water is deteriorating. There is no effective monitoring in place. The situation is not sustainable. And it does not look like there is a mechanism for advising the NRC of these observations, and they do not seem to looking for them. And such local concerns have continued over the years. We will invite Mr. Lee Hefty, now Director of DERM, to provide sworn testimony in this matter to review the current status of these concerns and to advise us of what interaction he has had over the years to inform the NRC staff of them.

And what was, is, DERM actually worried about? The hypersaline, chemically laden water flowing from what FDEP classifys as an Industrial Wastewater Facility (IWF). FPL uses the CCS to dispose of waste water from currently operating nuclear Units 3 & 4 and from gas powered Unit 5. This includes many industrial chemicals as well as chemicals used periodically to scrub the reactor piping. Adding these chemicals and wastes to the hypersaline CCS water raises the conceerns of DERM as well as FDEP. On Decmeber 23, 2014 the FDEP issued an Admiistrative Order (Attachment4) directing FPL to take major steps to resolve the problems in the CCS. In the AO, at 6,

"a. The primary goal of the Management Plan shall be to **reduce the hypersalinity of the CCS to abate westward movement of CCS groundwater** into class G-II(< 10,000 mg/L TDS) ground waters of the State. This westward movement abate ment shall be evidenced by decreasing salinity trends in the monitor wells located adjacent to the CCS specifically those designated as TPGW-1, TPGW-2, TPGW-13, L-3 and L-5. For the purposes of this Order, the term 'abate' or 'abatement' means to reduce in amount, degree or intensity; lessen; dimin ish. To achieve this goal, **FPL shall reduce and maintain the average annual salinity of the CCS at a practical salinity of 34** and monitor salinity trends in groundwater wells as speci fied in Paragraph 37.f. below".

As we shall explain below, achieving a salinity level of 34psu (ppt) when the CCS is approaching 100 at times is a tall order. Right now FPL says they have reduced the salinity to 60ppt but we must ask for how long. And 60 is not 34. Again, our goal is to address the actual problems in the CCS but to point to factors which should have been more thoroughly considered by the NRC Staff in preparing the 2014 EA. It is interesting to note that when Turkey-Point was licensed in 1973 [5] we read in Appendix B, at 3,

(5) FLORIDA POWER AND LIGHT COMPANY DOCKET NO. 50-251 FACILITY OPERATING LICENSE License No. DPR-41 April; 10. 1973 ML013400438

"The salinity of water which is discharged from the cooling channel system, as measured at the outlet to Card Sound, shall not exceed 1.10 times the salinityof the water of Card Sound and shall not exceed 44 parts per thousand."

(5) FLORIDA POWER AND LIGHT COMPANY DOCKET NO. 50-251 FACILITY OPERATING LICENSE License No. DPR-41 April; 10. 1973 ML013400438

Clearly, salinity has exceeded the levels anticipated in 1973 for quite a while. And now the FDEP wants a roll back. Will not be easy, and one might speculate, or possible. NRC did not examine this on on the first try; maybe it will happen with an EIS.

Perhaps the strongest statement CASE found regarding the issue of migration out of the CCS due to their permeability was made by Dr. Sydney T. Bacchus in his paper *Knowledge Of Ground Water Responses* .[6] He states,

(5) FLORIDA POWER AND LIGHT COMPANY DOCKET NO. 50-251 FACILITY OPERATING LICENSE License No. DPR-41 April; 10. 1973 ML013400438

(6) *Knowledge Of Ground Water Responses - Critical Factor in Saving Florida's Threatened and Endangered Species Part I: Marine Ecological Disturbances Sydney T. Bacchus* Applied Environmental Services, P. O. Box 174, Athens, GA 30603; appliedenvirserv@mindspring.com https://www.nirs.org/nukerelapse/levy/exhf2bacchus.pd (Also in Attachment 1)

“Florida's marine species, including threatened and endangered species, are subjected to adverse environmental conditions due to ***groundwater alterations*** *because agencies charged with implementing and enforcing the Clean Water Act and Endangered Species Act f****ail to consider those impacts.*** *Examples of anthropogenic groundwater perturbations that can result in direct, indirect, secondary and cumulative impacts to marine species include: (1)* ***aquifer injection of effluent and other ecologically hazardous wastes; …*** *Groundwater flow in Florida's regional karst aquifer system varies greatly both spatially and temporally, in response to those anthropogenic alterations. Those perturbations can result in significant physical, chemical and biological changes in the marine ecosystem.* ***Related adverse impacts can include:*** *(1) predisposing organisms to disease (e.g., decreasing host resistance, increasing pathogen vigor), including catalyzation by carbon-loading; (2) introducing new pathogens; (3) promoting rapid, antagonistic evolution of microbes; and (4) introducing hazardous chemicals, including endocrine disrupters. The adverse effects of those alterations may be a significant factor in the major ecological disturbances of Florida's marine environment described in volume 18(1) of Endangered Species*

UPDATE. The magnitude of adverse impacts to marine species from those **groundwater perturbations is unknown. Currently, the agencies have not fulfilled their fiducal responsibilities by failing to require the necessary studies, proceeding with permitting actions in the absence of that required information, and failing to take enforcement action against existing violations.**

As Dr. Bacchus states above, ” …direct, indirect, secondary and cumulative **impacts** to marine species include … aquifer injection of effluent and other ecologically hazardous wastes …” The CCS is classified by the FDEP as an Industrial Waste Facility(IWF).

As the foregoing illustrates, concern with the **impact** of salinity and all that the CCS water contains migrating from the CCS should have been a major undertaking. For the 2014 it was a walkover.

MONITORING

The 2014 EA mentions monitoring at several points.

at 5, The proposed action would increase the UHS water tem perature limit specified in the Turkey Point TSs and add a sur veillance requirement to monitor the UHS temperature more fre quently if the UHS temperature approaches the new limit.

at 5, Currently, TS LOC 3/4.7.4 includes a Surveillance Re quirement (SR) that necessitates the licensee to verify the UHS (CCS) temperature once every 24-hour period and confirm that the average supply water temperature is within the 100°F limit. The proposed license amendments would modify the SR to re quire the licensee to verify the average supply water tempera ture to be within the new TS limit at least once per 24 hours, and once per hour when the water temperature exceeds 100 °F. FPL monitors the UHS (CCS) temperature at a point in the ICW sys tem piping going into the inlet of the CCW Heat Exchangers

at 7, the proposed license amendments involve TS changes that would only result in changes in procedural and operational as pects undertaken by FPL personnel for monitoring and maintain ing the UHS temperature limit as measured at the ICW system piping going into the inlet of the CCW Heat Exchangers.

The citations above from the 2014 EA are the only men-tion of monitoring in the document. As the highlighted words indicate the NRC Staff only addressed temperature within the CCS. This is understandable when you read statements such as this elsewhere in the 2014 EA, at 11

"Based on the NRC staff's biological assessment determina tions, the NRC concludes that the proposed action would have no significant impact on Federally-protected species or habitats.

Once the NRC Staff decided that there was no need to look beyond the CCS, or even within it, to monitor 36

anything but temperature within the CCS, any concerns about the impacts of the measures they were condoning or others that might have been considered as alternative causes or solutions were off the table. The impact on all wildlife in and near the CCS or on the geophysical setting in which the canals sit or the Biscayne Aquifer of which it is a part did not figure into their concept of what the this EA should include. This is at variance with the concerns of the Staff at DERM in Miami. Read these statements from them which highlight some of the other variables which could be monitored.

DERM INTERNAL COMMUNICATIONS REGARDING THE CCS
From CASE FOIA request; copies sent to NRC and to FPL

From: Burzycki, Gwen (RER)
Sent: Friday, August 29, 2014 12:05 PM
To: Guerra, Cynthia (RER)
Subject: RE: FPL Cooling Canals

"It has become clear that the Cooling Canal System (CCS) that provides cooling for FPL's Units 3 and 4 is ***damaging the ecological values in the South Dade Wetlands.*** *Operations at the Turkey Point power plant complex result in* ***harvesting of water from the surrounding areas,*** *including the* ***fresh water i****n the South Dade Wetlands, to provide make-up water for the CCS. …"*

From: Alvear, Elsa [mailto:elsa_alvear@nps.gov]
Sent: Friday, ***August 22, 2014*** *5:32 PM*
To: Bryan Faehner; Sarah Bellmund; Vanessa McDonough; Ty lan Dean; Erik Stabenau; Jimi Sadle; Alicia Williamson; Clouser, Megan L SAJ; Grossenbacher, Craig (RER); Patrick Pitts
Cc: Kevin Whelan; Brian Carlstrom
Subject: Cormorant colony closest to FPL cooling canals undergoing severe decline

"…I have recently received a report that the colony of double-crested ***cormorants*** *in Mangrove Key, the* ***closest nesting is land to the FPL cooling canals i****nTurkey Point, has under gone a* ***severe decline*** *in the four years it has been regularly monitored…."*

From: Otero, Luis (RER)
Sent: Wednesday, May 14, 2014 12:57 PM
To: Burns, Scott; Steve Krupa (skrupa@sfwmd.gov); Janzen, John
Cc: Grossenbacher, Craig (RER); Blair, Stephen (RER)
Subject: Uprate monitoring issues

As you have seen from some of the graphs (CASE Note: Illustrations 5,6,7) *I have shared with you lately,* ***the data show some changes in the water quality*** *of some monitoring stations and these changes appear to coincide with the period of time when Units 3 & 4 were undergoing their Uprate. Unit 3 was off−line to be uprated from February 26 to August 29, 2012 gradually brought back to full operating capacity by November 5, 2012. Unit 4 was off−line to be uprated from November*

5, 2012 to April 6, 2013 gradually brought back to full operating capacity by May 27, 2013. ***Changes of particular note are the increase in tritium concentration in the groundwater at monitoring station TPGW10 (TPGW−10D in particular), and the increase in TKN in the surface waters of the CCS*** *(see graphs below). I plotted the groundwater levels of monitoring station TPGW−13 to see if these would provide any clues as to what happened to groundwater levels in the CCS during the Uprate period but unfortunately it appears that* ***none of the water level sensors at TPGW−13 were working for a very long time (over 1 year), including during the Uprate period, see graph below. Were any of you aware that the water level monitoring at TPGW13 had been off line for this period.*** (emphasis added)

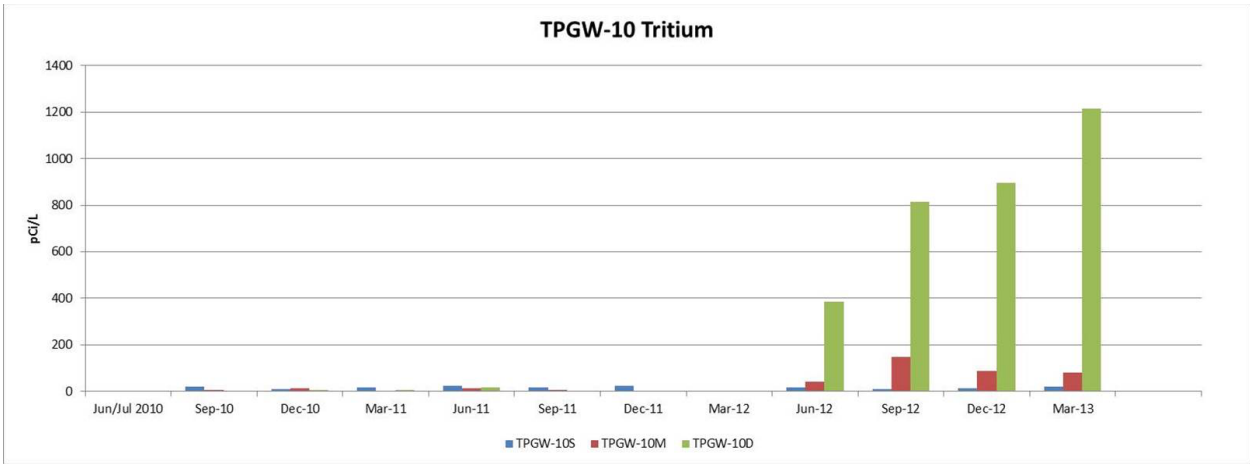
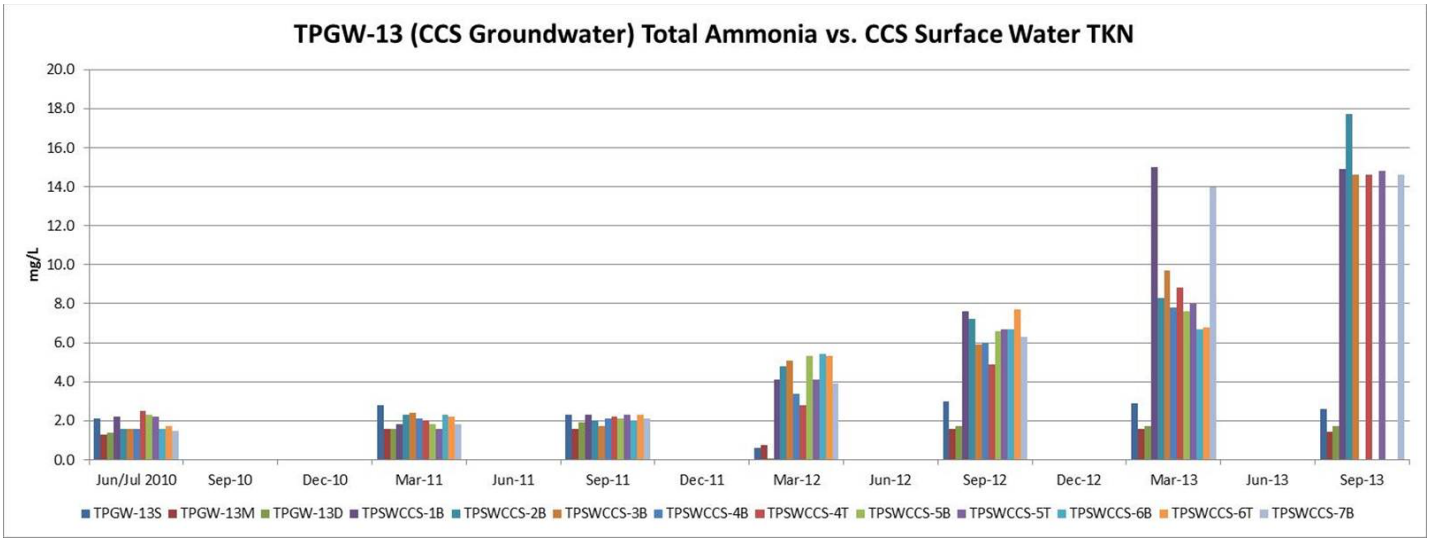


Illustration 5 - TPGW - 10 Tritium Miami-Dade DERM



Ilustration 6 - TPGW-13 (CCS Groundwater) Total Ammonia vs CCS Surface Water TKN - Miami-Dade DERM

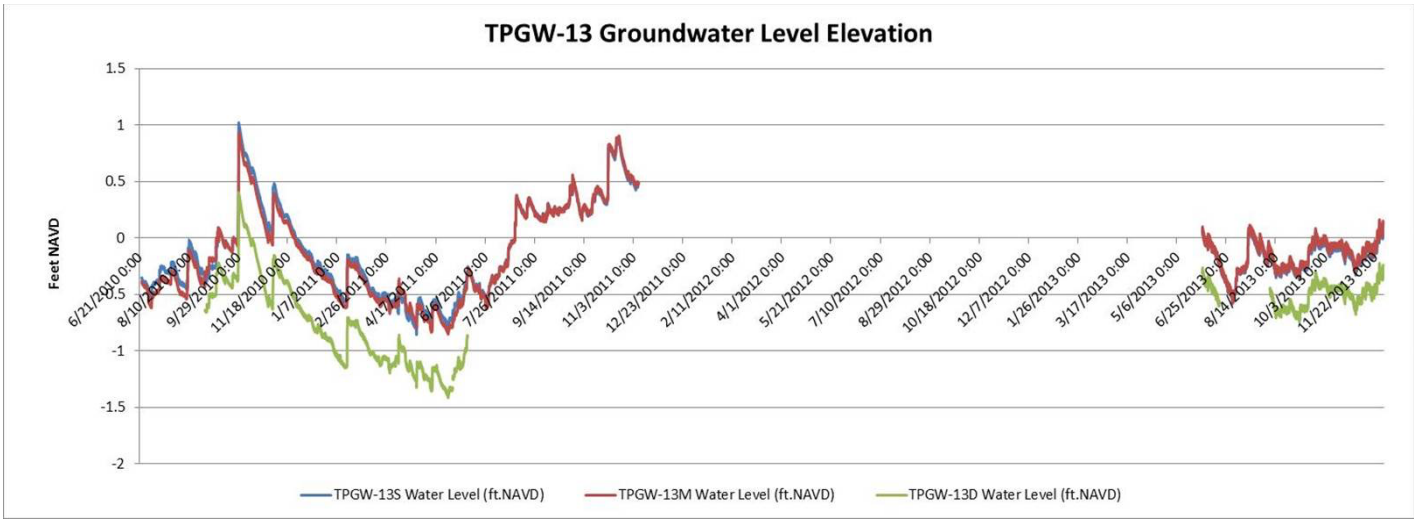


Illustration 7 - TPGW - 13 Groundwater Level Elevation - Miami-Dade DERM

From: Otero, Luis (RER)
Sent: Wednesday, ***April 09, 2014*** *10:39 AM*

To: Burns, Scott; Steve Krupa (skrupa@sfwmd.gov); Janzen, John; Iricanin, Nenad; 'Hunt, Melody'
Cc: Blair, Stephen (RER); Grossenbacher, Craig (RER)
Subject: CCS surface water TKN

"…It has been a long time since we last got on the subject of Uprate monitoring so I wanted to share the below graph with you all to see if any of you have anyideas or theories as to what could possibly be causing the ***dramatic increase in TKN in the surface waters of the CCS*** *first observed in the March of 2012 semiannual sampling. Please note that the September 2013 data reflect the fact that* ***monitoring stations*** *TPSWCCS−4B, TPSWCCS−5B, TPSWCCS−6B and TPSWCCS−6T* ***are no longer being sampled.***

From: Grossenbacher, Craig (RER)
Sent: Tuesday, ***April 14, 2015*** *12:21 PM*
To: 'Pitts, Patrick'
Subject: FW: FPL Annual Crocodile Report

"Here is the bottom line from last year's monitioring report. We have contacted FPL to ask why all hatchlings have been relocated outside of the cooling canal system and they said they would get back to me on this. ***Most of this area within the cooling canals is designated critical habitat and our concerns during permit ting were that this habitat could become adversely impacted contrary to our CDMP.*** *From this and other data including the* ***signifiant deterioration of the water quality of this habitat*** *due to the Uprate, such may have already."*

From: Otero, Luis (RER)
*Sent: Thursday, **June 11, 2015** 5:53 PM*
To: 'Shaw, Jonathan' (SFWMD)
Cc: Grossenbacher, Craig (RER); Burzycki, Gwen (RER)
Subject: RE: Turkey Point Units 3&4 Uprate Addendum - Tritium
Attachments: 2014 Post Uprate Report MDC Draft Comments

*"…I want to emphasize that **Miami−Dade County (MDC) strongly disagrees with FPL's recommendations i**n Section 7 of the report particularly in view of the current problems that he CCS is experiencing, specifically the recommendations that MDC objects to are:*

*-Based on data consistency over the monitoring duration in the groundwater stations, FPL recommends **reducing the automated recording of groundwater quality data and level measurements** at non-tidal stations (TPGW-1, -2, -4, -5, -6, -7, -8, -9 well clusters) from hourly to daily.*

*-Based on the lack of ecological changes from the Pre-Uprate to the Post-Uprate, FPL recommends **eliminating all (Biscayne Bay, marsh and mangrove) ecological monitoring."***

November 26, 2014
From Lee N. Hefty, Director, DERM
To: Phil Coram, FDEP

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"Based on the above concerns with some of the data, the County considers that FPL's recommendations in Section 8 of the report to: a) **Discontinue sampling for trace metals,** b) **Eliminate sampling for all ions and isotopes** (except for chloride, sodium and tritium), and c) **eliminate sampling and analysis of nutrients** are

premature and therefore should not be approved until data of acceptable quality has been provided and the agencies have had an opportunity to review and evaluate it." (emphasis added)

As the citations above indicate, there are and were many more impacts of NRC Staff actions to be considered than they did. No mention is made of existing or proposed increases in monitoring (discussed below) outside of the CCS, and, since copper sulfate was to be used in increased amounts to control cyanobacteria algae, specific monitoring for heavy metals; there was a proposal to eliminate it. The NRC staff did not only not fully consider and evaluate the impact of copper sulfate on the reproductive cycle of the crocodiles, they did not consider the impact of increased usage of the toxic metal on the surrounding aquifer having already decided that nothing flows out of the CCS while stating specifically that it does. We read, at 7

"Based on the above and the available information reviewed by the staff, the NRC concludes that the proposed action would result in no significant impact on **land use,** visual re sources, air quality, noise, **the geologic environment, groundwater resources, terrestrial resources**, historic and cultural resources, **socioeconomic conditions**

including minority and low income populations (environ mental justice), or waste generation and management ac tivities".

* * * * * * * * * * * *

THREE DAYS AGO, OCTOBER 6, 2015 FPL WAS SERVED WITH A NOTICE OF VIOLATION REGARDING MIGRATION OF HYPERCHLORIDE WATER FROM THE CCS:

(Attachments 5 and 6)

October 6, 2015

From: Barbara Brown, Code Enforcement Officer, Miami-Dade County, Florida
To: Randall R LaBauve, NextEra Energy, Juno Beach, Florida
Eric E. Silagy, FPL, Juno Beach, Florida

Re: FPL Turkey Point power plant facility located at, near or in the vicinity of 9700 SW 344 Street, Unincorporated, Miami-Dade County, Florida

NOTICE OF VIOLATION AND ORDERS FOR CORRECTIVE ACTION

Dear Messrs. LaBauve and Silagy:

Miami-Dade County Department of Regulatory and Economic Resources, Division of Environmental Resources Management

(DERM) has reviewed data submitter in monitoring reports related to the Florida Power & Lignt (FPL) power plant at Turkey Point. This review revealed levels of chloride in samples collect from groundwater monitoring wells, including but not limited toTPGW-L3, TPGW-15, TP GW-1 AND TPGW-12. ***These wells arelocated outside of the FPL cooling canal system (CCS) and beyond the boundaries of the property. The chloride levels constitute violations of the water quality standards*** *in Section 24-42(4) of the Code of Miami-Dade County.*

In addition, these elevated ***chloride levels exceed the applicable clean-up target leve****l set forth in Section 24-44* ***and therefore constitute water polllution*** *as defioned in Section 24-5. On Septemeber26, 2012, the South Florida Water Management District identified tritium as the trace for determining* ***the presence of CCS water. A review of tritium data showsthat the groundwater originating from the CCS has expanded beyond FPL property boundaries.*** *Based on the foregoing information, DERM maintains that* ***hypersaline water attributable to FPL exists in the grounwate outside the CCS and outside the propery boundaries.*** (emphasis added)

As the letter above states, there can be no doubt that water from the CCS is migrating from it, and is poluting the Biscayne Aquifer. Attachments 5 and 6 contain the full letter and the Consent Agreement entered into by the parties. DERM Staff clearly sees that more than the temperatures within the CCS need to be monitored; so should have the NRC Staff.

CROCODILES AND WILDLIFE IN THE CCS

The 2014 EA, at 11

> *"The NRC staff prepared a biological assessment (ADAMS Accession No. ML14206A806) that considers the potential for the proposed action to reduce* ***hatchling survival,*** *alter croc odile* ***growth rates,*** *and* ***reduce habitat availability*** *and con cludes that the proposed action is not likely to adversely affect the* ***American crocodile*** *and would have* ***no effect on the species' designated critical habitat.*** *Based on the NRC staff's biological assessment determinations, the NRC con cludes that the proposed action would have no significant im pact on Federally-protected species or habitats."*

The following information would indicate that the forgoing conclustion by the NRC Staff might not have been on target. Each of the factors high lighted above, as it turns out, has been a problem even before the 2014 EA was written. Information provided by the Miami-Dade County government to, following a Freedom Of Information Act request, reveals that the crocodile population has dropped to almost zero in the CCS. In 2013 there were 24 nests in the canals; in 2014 there were 22 and in 2015 there are 5.

On July 16, 2015 Dr. Frank Mazzotti (University of Florida Ecologist) wrote to Mr. John Wrublik (U.S. Fish and Wildlife Service, Vero Beach, FL) :

> *"John FYI, At Turkey Point 5 nests in the system, 2 in the mitigation. Maybe 2 more in the system yet to hatch. 33 hatchlings tagged. In ENP (Everglades National Park) more than 80 nest(s) and over 900 hatchlings tagged. Frank"*

In 2006 Dr. Mazzotti and Dr. Michael S Cherkiss published *Ecology and Conservation of the American Crocodile (Crocodylus acutus) in Florida.* The study clearly shows that **the crocodile is rarely seen where salinity is above 35 ppt (parts per thousand).** The salinity in the cooling canals is currently about 90 ppt, three times the salinity of seawater. **This study. almost ten years old, and others have been available to FPL and the NRC yet they repeatedly approve modifications in the operation at Turkey Point which increase the temperature and the salinity in the canals endangering all wildlife there.**

On March 1, 2015 Mr. Michael Pearce, Senior Director at FPL wrote to Mr. Steve Scroggs, FPL's senior director for project development,

“In my 25 years associated with PTN (Turkey Point Nuclear Plant), we have never experienced a situation with emaciated crocodiles ***(I think we have signifi cantly underestimated the fallout if we are threat ening the crocs. at PTN (Turkey Point Nuclear Plant).”*** (emphasis added)

What are the threats and impacts of hypersalinity to wildlife? It is a threat to all wildlife since, as Dr. Philip Stoddard, biologist, tells us, “the kidneys cannot process the salt.” Nutrient pollution causes algae blooms that take oxygen out of the water, suffocating much of the natural flora and fauna. Salinity and algae create heat. Whether the water is inside of the CCS or it migrates as shown in Illustrations 1 and 3, it is hardly of “no significant impact”; nothing introduced unnaturally to nature is. And no one who ever walked or worked the land could think otherwise.

On May 22, 2015 Miami-Dade County Derm sent a comment on the DEiS for Turkey Point 6 & 7 [8] which would seem to address issues which the 2014 EA should have considered:

8) DEIS Comment Submittal from Miami-Dade County. May 22, 2015 ML15146A118

AMERICAN CROCODILES AND DESIGNATED CRITICAL HABITAT

Appendix F Section 5.10 describes 270 acres of permanent loss of federally designated critical habitat for the American crocodile as a result of wetlands and surface waters that would be directly destroyed by the project and 211 acres of additional critical habitat that would be adversely affected for resident crocodiles. … ***Please clarify whether the USFWS has considered the cumulative impacts of this project in addition to the continuing degradation of adjacent critical habitat in and adjacent to the cooling canal system as temperatures and pollutant loads increase due to operation of Units 3 and 4.***

…FPL agreed to the establishment of development setbacks to prevent both direct and indirect ***impacts*** *to crocodile habitat and these requirements are included within the land use approval. Has the NRC's analysis indicated any development setbacks that could reduce the acreage of impact to designated critical habitat for the crocodile? Have any other mitigation measures (beyond that proposed by the applicant) been identified through this review process, either by the NRC or USFWS to reduce these "unavoidable impacts"? An analysis of the cumulative impacts of the proposed project combined with* ***the continuing degradation of adjacent critical habitat in and adjacent to the cooling canal system as temperatures and pollutant loads increase due to Units 3 and 4 is needed as part of this effort.*** *MDC also requests information and clarification on the following issues:*

…we understand that the USFWS has concurred with FPL that ***the water quality in the CCS surface water has become inappropriate for release of crocodile hatchlings due to increased salinity and temperature, and therefore all hatchlings last year were relocated to areas outside the cooling canals.*** *Please confirm if our understanding is correct. Has the ongoing monitoring data on the adult crocodiles within this area been examined to determine whether there is any indication that the overall health of the adults may be decreasing or if their numbers are decreasing?* ***Has the NRC or FWS considered the indirect as well as cumulative impacts to the crocodile mitigation area that was required by the Army Corps for the unit 5 project?*** *Should the degradation or loss of this habitat require mitigation since it was* ***previously required*** *as a regulatory action?*

This citation has been made not only for the important information it provides regarding the conditions in the CCS only nine months after the 2014 EA was issued, but also as an example of the type of questions a robust and purposeful inquiry NEPA and ESA expect. Clearly, DERM Staff, based less than twenty-five miles from the CCS is most conversant with the status of the CCS; wouldn't one expect that an adequate and objective approach by the NRC staff to an EA preparation would welcome and seek their input? Did any such negative information reach the NRC staff during the drafting of the 2014 EA? There does not seem to be a mechanism for that.

FRESHWATER

THE IMPACT OF INCREASED TEMPERATURE AND SALINITY IN THE CCS ON SALTWATER INTRUSION ARISING FROM … (2) THE WITHDRAWAL OF FRESH WATER FROM SURROUNDING AQUIFERS TO MITIGATE CONDITIONS WITHIN THE CCS.

USGS GROUND WATER ATLAS of the UNITED STATES Alabama, Florida, Georgia, South Carolina (Attachment 1 citation and link)

"SALTWATER ENCROACHMENT "The delicate natural balance between ***freshwater*** *and saltwater in the Biscayne aquifer is tipped* ***when canals and well fields are superimposed on it.*** *Where a highly permeable aquifer, such as the Biscayne, is hydraulically connected to the ocean, inland movement of saltwater is offset by a slightly higher column of freshwater. Because freshwater is lighter than saltwater, a 41-foot column of freshwater is necessary to balance a 40-foot column of saltwater. This means that,* ***for each foot of freshwater above sea lev el, there is approximately a 40-foot column of fresh water below sea level.*** *Accordingly, lowering of freshwa ter levels by drainage canals or by intensive pumping cre ates an imbalance that causes the inland movement of saltwater."*

Can we assume that the NRC staff understood these hydrology principles when deciding that there would be no significant impact of the measures it was approving? So, when we ask, “Did the EA adequately consider the impact of what was being authorized, and look for topics such as the potential need to withdraw billions of gallons of freshwater from the Biscayne Aquifer and how this would impact saltwater intrusion, we find no mention of these topics.

Only 2.5% of the water on Earth is freshwater, and, of that, only 1.25% is accessible. So, when we speak of using the freshwater that is available, we are dealing with a finite, precious and rare substance. And the freshwater in South Florida does not come easily. Rain water provides a portion of fresh water but the majority is hard gained flowing as a sheet in the Everglades for several months and coming in several levels of aquifers from northern Florida through limestone. The Biscayne Aquifer on which the CCS sits is not an underground lake. Rather it is about 4,000 square miles of porous limestone (Oolite) ranging from about 100 to 300 feet deep. The upper Floridan Aquifer, from about 1000 to 2500 feet deep, is below that and the Bolder Zone or Lower Florida Aquifer starts at

about 3000 feet. The aquifers and separated by confining layers hundreds of feet thick. Some believe the permeabilty within the entire aquifer system is negligable; others hold that there is considerable movement of water between the aquifers. This distinction is not relevant to our discussion here except that a comprehensive analysis and understanding of this geology is required for an informed decision in an EA. An adequate EA would address these factors because the impact the approval of cooling system which would require a well system to function or require the injection of used water into the aquifer. The full consequences of such actions are still unresolved in Miami-Dade County which injects billions of gallons of sewarge water, treated and untreated in the boulder zone with no definitive understanding of the impact on the total water supply; some are expecting that we will start drawing the sewage water we are injecting into the boulder zone to start showing up in our well water. The present NRC/ FDEP division of responsibility over the reactors and the land has created the problem we are addressing here. NEPA would call this an unresolved conflict.

Before 1960, when building started at the Turkey Point Wetlands, freshwater extended two miles out to sea;

today saltwater has intruded over four miles inland (orange line, Illustration 1, (2011 South Miami-Dade Salt Intrusion, below).

In the 2014 EA, at 14,15 we read:

" Aquifer Withdrawals:

*"The CCS is situated above two aquifers: the shallower saltwater Biscayne Aquifer (CASE NOTE: it is actually freshwater,) an the deeper brackish (CASE NOTE: lightly brackish, mostly freshwater) Floridan Aquifer. A confining layer separates the two aquifers from one an other. Turkey Point, Unit 5 uses the Floridan Aquifer for cooling water.The South Florida Water Management District (SFWMD)recently granted FPL approval to withdraw a portio (approximately **5 million gallons per day [MGD]**) of the Unit 5 withdrawal allowance for use in the CCS. FPL began pumping Floridan Aquifer water into the CCS in early July FPL has also received temporary approval to withdraw **30 MGD** from the Biscayne Aquifer, though FPL has not yet used this allowance. FPL also anticipates the FDEP to issue an Administrative Order requiring FPL to in stall up to six new wells that will pump approximately 14 MGD of water from the Floridan Aquifer into the CCS. Mod eling performed by FPL consultants and the SFWMD indi cates that in approximately 2 years,(CASE NOTE: FPL increased this to four years) the withdrawals would re-*

duce the salinity of the CCS to the equivalent of Biscayne Bay (about 34 parts per thousand [ppt]). Such withdrawals could also help moderate water temperatures.

The current and anticipated future aquifer withdrawals have the potential to contribute to cumulative effects on CCS sur face water resources, CCS aquatic resources, and croco diles. Because the CCS is a manmade closed cycle cooling system, aquifer withdrawals are not likely to have a signifi cant cumulative effect on surface water resources. Aquifer withdrawals would result in beneficial impacts to CCS aquat ic resources and the crocodiles inhabiting the Turkey Point site. FPL anticipates that the withdrawals will reduce the salinity of the CCS to about 34 ppt and could also help mod erate CCS temperatures over the long term. Both of these effects would create favorable conditions for CCS aquatic biota and crocodiles, which are currently tolerating an un usually hot, hypersaline environment.

NRC staff did not take the time to calculate if the amounts of water described above would be sufficient or **how much water would actually be needed** to bring down the CCS salinity of over 90 ppt (it reached 100ppt) down to 34 ppt, the salinity of seawater. The CCS holds over 4 billion gallons of water; adding 14 or 30 MGD would

not make a dent in the reduction of salinity. To dilute that much water at one point in time with seawater of the same salinity would take require flushing the system and bringing in another 4 billion gallons of water. If you used freshwater with 0 ppt salinity, it would take 10.7 billion gallons of water **(10,680MGD in one day!!!)**. Right.

The NRC Staff was not considering how much water it would take to mitigate the salinity in the CCS and the implications of drawing that much freshwater from the Biscayne Aquifer **BUT FPL WAS**. FPL had a mitigation plan in mind and prepared. On August 27, 2014, one month after the EA was issued, FPL sent a letter to the South Florida Water Management District (Attachment xx):

> *Re: Request for Emergency Authorization*
> *Of Temporary Water Withdrawal from Excess*
> *Stormwater From L-31E Canal*
> *Florida Power & Light Company*
> *Turkey Point Plant*

The minutes from the SFWMD Governing Board September 11, 2014 meeting read:

> *18. Enter a Final Order concurring with the Executive Director's emergency authorization issued to Florida Power and*

Light for the purpose of authorizing temporary pump installa tion and water withdrawal along and from the L-31E Canal System; Miami-Dade County, Florida. (WR, Terrie Bates, ext. 6952)

Summary

On August 27, 2014, Florida Power and Light requested the District issue anEmergency Order for temporary authorization to utilize the District's right of way and to divert and use water, above that reserved in Rule 40E-10.061, F.A.C., from the L-31E Canal System to help moderate unusually high temperatures and salinity that are occurring in the Turkey Point Cool ing Canal System. Based upon information provided by FPL and technical evaluation provided by District staff and in order to protect the public health, safety, and welfare pursuant to Section 373.119(2), F.S., and associated rules, the Executive Director determined that an emergency existed and the Emergency Order was necessary. On August 28, 2014, the District's Executive Director issued SFWMD No. 2014-078-DAO-WU/ROW/ERP, an "Emergency Final Order issued to Florida Power and Light for the purpose of authorizing temporary pump installation and water withdrawal along and from the L-31E Canal System; Miami-Dade County, Flor ida."

On September 11, 2014 the SFWMD authorized the withdrawal of up to **163 MGD** (500 acre feet) from the freshwater l-31E canal in 2015 in addition to all other au-

thorizations in place; **all of Miami-Dade County uses about 400MGD.** For our purposes in this discussion the nature and ramifications of this request are not at issue; CASE is only noting the fact that FPL's allegation that the courses of action toward mitigation regarding the situation in the CCS were the ones it was recommending and that there were no problems in doing so was accepted by the NRC staff; no **alternative** course (s) of action, such as modifying the operation of the reactors, or a nuanced plan over time was seriously considered. The NRC staff accepted FPL's information without an exhaustive analysis as NEPA would require.

NEPA CONSIDERATIONS

The National Environmental Policy Act of 1969, as amended

Purpose

Sec. 2 [42 USC § 4321]. The purposes of this Act are: To declare a national policy which will encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; to enrich the understanding of the ecological systems and natural resources important to the Nation; and to establish a Council on Environmental Quality.

Sec. 102 [42 USC § 4332]. The Congress authorizes and directs that, to the fullest extent possible:

(1)**the policies, regulations, and public laws of the United States shall be interpreted and administered in accordance with the policies set forth in this Act, and (2) all agencies of the Federal Government shall —**

(A) utilize a systematic, interdisciplinary approach which will insure the integrated use of the natural and social sciences and the environmental design arts in planning and in decisionmaking which may have an impact on man's environment;

(B) identify and develop methods and procedures, in consultation with the Council on Environmental Quality established by title II of this Act, which will insure that presently unquantified environmental amenities and values may be given appropriate consideration in decisionmaking along with economic and technical considerations;

(**C) include in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on --**
(i) the environmental impact of the proposed action,
(ii) any adverse environmental effects which cannot be avoided should the proposal be implemented,
(iii) alternatives to the proposed action,
(iv) the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and

(v) any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented. Prior to making any detailed statement, the responsible Federal official shall consult with and obtain the comments of any Federal agency which has jurisdiction by law or special expertise with respect to any environmental impact involved. Copies of such statement and the comments and views of the appropriate Federal, State, and local agencies, which are authorized to develop and enforce environmental standards, shall be made available to the President, the Council on Environmental Quality and to the public as provided by section 552 of title 5, United States Code, and shall accompany the proposal through the existing agency review processes;
…
(E) study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources;

The foregoing NEPA guidelines provide the preparers of an EA with specific actions which must be included in it. The Purpose, cited above, is a clear, noble and eloquent assertion by the framers to convey the seriousness of NEPA considerations and sets high standards of thoroughness and analysis. *Calvert Cliffs'* established an agency's obligation to comply with NEPA to the fullest extent possible. The court was asked to review rules promulgated by the Atomic Energy Act on NEPA implementation

and noted that NEPA makes environmental protection a part of the mandate of every federal agency and department. Agencies are

> *"not only permitted, but compelled to take environmental values into account. Perhaps the greatest importance of NEPA is to require [all] agencies to consider environmental issues just as they consider other matters within their mandates."*

It would appear that many NEPA requirements were either not fully considered or were ignored totally in the 2014 EA. One could go down the NEPA Purpose cited above and find noncompliance at every turn but case will only define some below.

Calvert Cliffs' Coordinated Committee v. Atomic Energy Commission, 449 F.2d 1109 (D.C. Cir. 1971), cert. denied, 404 U.S. 942 (1972)

NEPA: CONSULTATION WITH OTHER AGENCIES

NEPA states:

> *"**Sec. 2 [42 USC § 4321] (1) (C) (v) …Prior to making any detailed statement, the responsible Federal official shall consult with and obtain the comments of any Federal agency which has jurisdiction by law or***

special expertise with respect to any environmental impact involved…

It appears that the NRC staff **did *not*** *specifically* consult with the U.S. Fish and Wildlife Service in **prior** to issuing the 2014 EA

The 2014 EA, at 11, 12 states:

"As a Federal agency, the NRC must comply with the ESA as part of any action it authorizes, funds, or carries out, such as the proposed action evaluated in this environ mental assessment. ***Under ESA section 7, the NRC must consult with the FWS and the National Marine Fisheries Service, as appropriate, to ensure that the proposed agency action is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of designated critical habitat …****Based on a re view of the proposed action, the NRC staff has deter mined that the American crocodile is the only Federally-listed species that has the potential to be affected by the proposed action. Pursuant to ESA section 7, NRC staff consulted with FWS staff at the South Florida Ecological Services Office in Vera Beach, Florida. The NRC staff prepared a biological assessment (ADAMS Accession No. ML 14206A806) that considers the potential for the proposed action to reduce hatchling survival, alter crocodile growth rates, and*

reduce habitat availability and concludes that the proposed action is not likely to adversely affect the American crocodile and would have no effect on the species' designated critical habitat. Based on the NRC staff's biological assessment determinations, the NRC concludes that the proposed action would have no significant impact on Federally-protected species or habitats.

In a July **25**, 2014 letter (ADAMS Accession No. ML14206A800), to the FWS the NRC requested consultation on the subject EA; the reply was received on July **29,** 2014, the day **after** the EA was signed; it was posted in the FR on July 31, 2015.

CASE COULD FIND NO EVIDENCE THAT THE NRC STAFF RECEIVED ANY BIOLOGICAL ASSESSMENT INFORMATION FROM THE FISH AND WILDLIFE SERVICE REGARDING THE 2014 EA BETWEEN JULY 10, 2014 (THE DATE OF THE FPL LETTER TO THE NRC) AND JULY 28, 2014 (THE DATE THE FONSI DECISION WAS SIGNED).

Thus, the NRC staff had only sent a memo of consultation to the FWS in Vero Beach, Florida on July 25, 2014 and had not received a reply by July 28, 2014 when it is

sued its EA and FONSI notice. As the EA citation above states the NRC staff consulted with FWS *but prepared its own assessment.* The 2014 EA was, apparently, issued without formal consultation with FWS for this action. This is not in keeping with the letter and the spirit of NEPA; NEPA say ***shall consult;*** *not should or might*. Further, no other Federal agency appears to have been consulted in the preparation of the 2014 EA. One would believe that Biscayne National Park administrators might have some thoughts on the matter; maybe Everglades National Park, the USGS, NOAA, Bureau of Lands Management? The NRC staff apparently went forward with the 2014 EA based on its own knowledge of all factors related to the CCS supplemented by FPL statements accepted as fac

NEPA: HEALTH AND WELFARE OF MAN

Sec. 2 [42 USC § 4321]. The purposes of this Act are: (to) eliminate damage to the environment and biosphere and stimulate the health and welfare of man;

While FPL's letter of August 27, 2014 to the SFWMD did not mention

> "*in order to protect the* ***public health, safety, and wel fare*** *pursuant to Section 373.119(2), F.S.," (highlighted above*

the SFWMD Board Order did as the above citation shows. FPL and the NRC staff did not see this as relevant in this action but people who live and work in the area, and who administer local policy, did. And, if that is true, it does add an additional dimension to the preparation of an EA; were public health, safety and welfare at risk? The SFWMD thought so; the NRC staff did not consider these concerns.

NEPA: CONSIDER ALTERNATIVE ACTIONS

NEPA states:
Sec. 102 [42 USC § 4332] (2):

" ***(C) include in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on --***
(iii) alternatives to the proposed action,

NEPA requires that an agency--to the fullest extent possible—consider alternatives to its actions that would reduce environmental damage. Were there **alternatives** to the action authorized in the EA? There was no evaluation or challenge to FPL's assertion that raising the allowable return temperature to 104 oF was the only viable solution.

Any consideration of modifying the operation of the reactors, FPL asserted would affect *grid reliabitly.* What happen to the problem solving paradigm here?

In FPL's letter to the NRC of July 17, 2014 raising the situation to an emergency we read:

> *"FPL requests a timely review of this application to avoid exceeding the current limit which would necessitate a dual unit shutdown which would impact **grid reliability**" (emphasis added)*

The 2014 EA states,

> *"Alternatives to the Proposed Action*
>
> *As an alternative to the proposed action, the NRC staff considered denial of the proposed license amendments (i.e., the "no-action" alternative). Denial of the application would result in no change in current environmental conditions or impacts. However, denial would result in reduced operational flexibility and could require FPL to derate or shutdown Turkey Point if the UHS average supply water temperature approaches or exceeds the 100 °F TS limit. In its application, FPL states that loss of load and voltage control resulting from such a shutdown during periods of high summer demand could result in impacts to **grid reliability."***

That's it; one short paragraph. While CASE in no way professes any technical knowledge in this regard, it does seem reasonable to go a little further in understanding what grid reliability means in this context and how it might be threatened if FPL had been asked, or told, to alter the operation of one or both units in some way to reduce the temperature of the effluent from the reactor entering the CCS(discharge) at least during times of high ambient temperature or until the cause of the problems in the CCS could be determined and resolved. During the 2012/2013 uprate each reactor was shut down for seven months; why did that not affect grid reliability? FPL, it must be assumed, imported power from elsewhere during the fourteen month uprate. If that is so, why was it necessary to declare an emergency requiring drastic measures? Couldn't one reactor have been shut down or both reduced in operating power and temperature to address the emergency? Could not they have reduced power for Units 3 & 4 and bring in power from elsewhere while they figured out what is wrong in the CCS.

CASE asked nuclear engineer Arnie Gunderson about grid reliability in this situation. He said in an email to CASE on October 4, 2015:

"They could reduce power output back to the original level before the power uprate…The grid was reliable then!"

On September 1, 2015 CASE sent an email to Mr. Tim Hoeg, NRC Senior Resident Inspector at Turkey Point asking this question:

"Do we know how and from where FPL drew power as TP 3 & 4 were off line one at a time for seven months each in 2012/2013?"

He responded on September 1, 2015:

"When reactor plants are taken down for mainte nance, power remains supplied to the electrical grid from other operating power plants that are tied into the electrical grid system. Many electrical power sources both nuclear and non-nuclear are synchronized to the electrical grid in order to maintain adequate capacity for the many consumers. The power company moni tors and operates the electrical grid load distribution system. Power companies plan their outages carefully to make sure enough power is being put on the grid to ensure the consumers receive a reliable source of electricity during high demand periods or other fore casted conditions. In addition, the power companies have the capability to also increase output from other

sources as needed to compensate for their planned outages.

Mr Tim Hoeg
Senior Resident Inspector
Region II, Division of Reactor Projects
U.S. Nuclear Regulatory Commission

Turkey Point Nuclear Station *Office: 305-245-7669*
9760 SW 344th ST. *Fax: 305-247-0224*
Homestead, FL 33035

So, Mr. Gunderson said reducing power was no problem. Mr. Hoeg said that some planning is necessary to bring in power from elsewhere. O.K. Given this information would not a possible **alternative** to the recommended action have been to authorize a short term fix while FPL planned to bring in power from elsewhere so that power could be reduced at one or both of the reactors while they figured out what the problem(s) is/are? And, the NRC staff could take the time to fully analyze the situation and consider the the impact of the various solutions at hand; an EA does not *have* to be done in 18 days. Actually, all the NRC staff mentioned as remedies were those suggested by FPL; copper sulfate and fresh water from the aquifer.

Salinity for CCS Surface Water Station TPSWCCS-1B Showing Increasing Trend

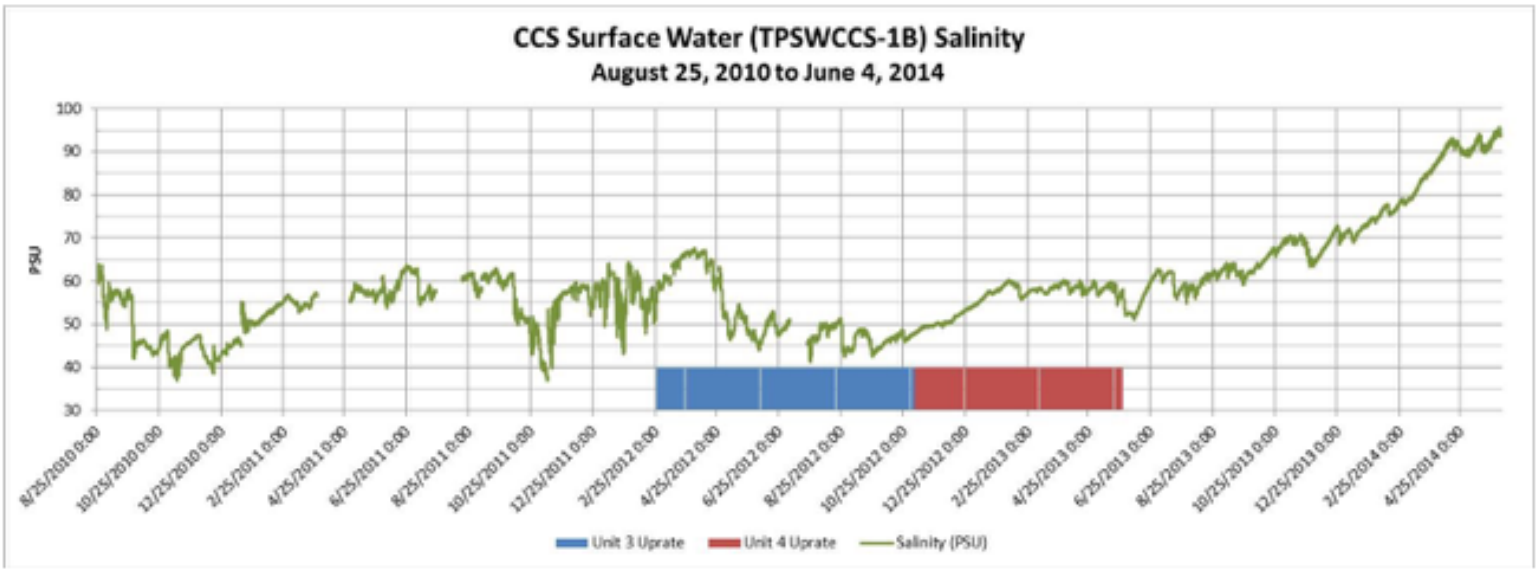

Illustration 8 - From Attachment 2 - (Slide 13)
Salinity for CSS Surface Water Station
TPSWCCS-1B Showing Increasing Trend

Regarding the possibility of shutting down one or both reactors, the Calvert Cliffs (Calvert Cliffs' Coordinated Committee v. Atomic Energy Commission, 449 F.2d *1109 (D.C. Cir. 1971), cert. denied, 404 U.S. 942 (1972))* tells us:

> *Delay in the final operation of the facility may occur but is not a sufficient reason to reduce or eliminate consideration of environmental factors under NEPA. Some delay is inherent in NEPA compliance, but it is far more consistent with the purposes of the act to delay operation at a stage when real environmental protection may come about than at a stage where corrective action may be so costly as to be impossible.*

The point is simple; modifying the operation of the reactors was not on the table. NEPA would require that it should have been at least considered further than it was.

Could there have been another source of the problems in the CCS. CASE's original Petition [9] presented several. Was FPL's assertion that lack of rain and high ambient temperature causing the problem the only explanation? Illustration 8, above, *Salinity For CCS Surface Water,* suggests that there might be some link to the uprate; the FPL data on which it is based was available to the

NRC staff. Salinity increased markedly following the uprate of Units 3 & 4 (blue and red bars). Coincidence does not mean causality but it does indicate that some research should be done. An adequate EA would have posed the question. Were there alternative causes which would the reguire alternative action? NEPA expects the questions to be asked.

(9) Citizens Allied for Safe Energy, Inc. Petition to Intervene and Request for a Hearing October 14, 2014 ML14290A510

NEPA: LONG TERM PRODUCTIVITY/RESOURCES

Sec. 102 [42 USC § 4332] (1) (C)
(iv) the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and
(v) any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.

The excessive use of freshwater and the over commitment of that limited resource is threatening several major municipal and economic interests in the area. Saltwater intrusion is befouling the freshwater aquifer four miles in

land, Biscayne National Park and Biscayne Bay Estuary to the east of the CCS. The large orange and red circle in Illustration 2 is the freshwater well field for the Florida Keys Aqueduct Authority. The Keys stretch about 120 miles from this point and the population is about 90,000. If that freshwater source is compromised, deslanization could cost $100 million per year. Rock mining and agricultural interests are also in harms way from saltwater intrustion. Fishing and tourism, the economic backbone of the area are at risk.

NEPA: UNRESOLVED CONFLICTS OVER RESOURCES

Sec. 102 [42 USC § 4332]. The Congress authorizes and directs that, to the fullest extent possible:

(1)**the policies, regulations, and public laws of the United States shall be interpreted and administered in accordance with the policies set forth in this Act, and (2) all agencies of the Federal Government shall —**

(E) study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources;

Freshwater. The Biscayne Aquifer, The Biscayne Bay Estuary. Turkey Point Wetland. Ecology vs Economy. Enviornment vs Profit. How much newsprint has been used writing about the production of energy at Turkey Point? The framers of NEPA knew that such situations would exist and admonished those charged with enforcing it had guidance and authority to address them.

"Study, develop and describe … alternatives" NEPA states above where there is competition and conflict over resources. Anyone with access to a Miami or Florida newspaper can see the ongoing battle in the state for freshwater and for the control and use of the land under which it lies and on which the area depends for recharge. Perhaps if you live a thousand miles away it might escape you. But, it you are charged with regulating Turkey Point, NEPA would require that you be fully informed about the facts on the ground. Municipal water for about 1.5 million people in south Miami-Dade County, all of the municipal water for the Florida Keys, rock mining interests four miles from the CCS, two national parks, the $7.6 billion Florida Keys fishing industry, the $2.3 billion agricultural industry to the west of the CCS, Biscayne Bay Estuary, hatchling and juvenile marine life. All of these interests are fighting

over the limited freshwater in south Florida, and to bring the CCS under control. Local concerns about frequent periods of drought in the area (Miami-Dade County residents are on permanent water rationing restrictions) and the frequently low water table, were not reflected in the EA. NEPA requires that you know such things before you authorize an action which might lead to excessive demand on a limited and precious resource like freshwater.

NEPA: MAJOR FEDERAL ACTIONS

From ML032450279 1-4 Environmental Review Guidance for Licensing Actions Associated with NMSS Programs Division of Waste Management Office of Nuclear Material Safety and Safeguards U.S. Nuclear Regulatory Commission Washington, DC 20555-0001 :

Chapter 4

An EIS must be prepared for proposed actions that:

Are major Federal actions significantly affecting the quality of the human environment (10 CFR 51.20(a)(1));

The NRC, as a matter of its discretion, has determined that an EIS should be prepared (10 CFR 51.20(a)(2)); or

Are of the type listed in 10 CFR 51.20 (b).

> An EIS provides decision makers and the public with a de tailed and objective evaluation of significant environmental impacts, both beneficial and adverse, likely to result from a proposed action and reasonable alternatives. In contrast to the brief analysis in an EA, the EIS includes a more de tailed interdisciplinary review. The EIS provides sufficient evidence and analysis of impacts to support the final NRC action in the Record of Decision (ROD; Section 4.10).

How significant to the environment is the Turkey Point Cooling Canal System? And, for that matter, the entire energy producing complex at Turkey Point. Is the administration of the Turkey Point CCS a *major federal action?* One problem in defining this is the use of the word System in its title. The CCS appears to be a defined system; it is huge, 6100 acres, and you can see all of it from aerial photographs. But, in reality, as shown above, the CCS is a confined area, but it is not a closed system and it actually impacts two systems: The Biscayne Aquifer and the Biscayne Bay Estuary which begins with Biscayne National Park. The Turkey Point CCS sits atop the Biscayne Aquifer.

The Biscayne Aquifer

USGS GROUND WATER ATLAS of the UNITED STATES Alabama, Florida, Georgia, South Carolina (Attachment 1, citations and link)

INTRODUCTION

The Biscayne aquifer underlies an area of about 4,000 square miles and is the principal source of water for all of Dade and Broward Counties and the southeastern part of Palm Beach County in southern Florida (fig. 26). During 1985, an average of about 786 million gallons per day was withdrawn from the Biscayne aquifer for all uses; pumpage at present (1990) is somewhat greater. About 70 percent of the water was withdrawn for public supply. Major population centers that depend on the Biscayne aquifer for water supply include Boca Raton, Pompano Beach, Fort Lauderdale, Hollywood, Hialeah, Miami, Miami Beach, and Homestead. The Florida Keys also are supplied primarily by water from the Biscayne aquifer that is transported from the mainland by pipeline.

Because the Biscayne aquifer is highly permeable and lies at shallow depths everywhere, it is readily susceptible to contamination. The aquifer is the only source of drinking water for about 3 million people. (CASE Note: Now 5.5 million people)

(emphasis added)

Water in the Biscayne aquifer is under unconfined, or water-table, conditions and the water table fluctuates in direct and rapid response to variations in precipita tion. The aquifer extends beneath Biscayne Bay, from whence it was named, and the Atlantic Ocean. The aquifer is highly permeable where it forms part of the floor of the bay and the ocean, and contains saltwater there. ***Some of this saltwater has migrated inland in re sponse to the lowering of inland ground-water levels*** *ad jacent to canals constructed for drainage of low-lying areas and near large well fields.* (emphasis added)

Biscayne National Park

Biscayne National Park is a U.S. National Park located in southern Florida, south of Miami. The park preserves Bis cayne Bay and its offshore barrier reefs. ***Ninety-five percent of the park is water,*** *and the shore of the bay is the location of an extensive mangrove forest. The park covers 172,971*

acres (69,999 ha) and includes Elliott Key, the park's largest island and first of the true Florida Keys, formed from fosilized coral reef. The islands farther north in the park are transitional is lands of coral and sand. The offshore portion of the park in cludes the northernmost region of the Florida Reef, one of the largest coral reefs in the world.

Biscayne National Park protects four distinct ecosystems: the shoreline mangrove swamp, the shallow waters of Biscayne Bay, the coral limestone keys and the offshore Florida Reef. The shoreline swamps of the mainland and island margins provide a nursery for larval and juvenile fish, molluscs and crustaceans. The bay waters harbor immature and adult fish, seagrass beds, sponges, soft corals, and manatees. The keys are covered with tropical vegetation including endangered cac ti and palms, and their beaches provide nesting grounds for endangered sea turtles. Offshore reefs and waters harbor more than 200 species of fish, pelagic birds, whales and hard corals. Sixteen endangered species including Schaus' swal lowtail butterflies, smalltooth sawfish, manatees, and green and hawksbill sea turtles may be observed in the park. Bis cayne also has a small population of threatened American crocodiles and a few American alligators.

The Biscayne Bay Estuary

The National Park Service website states:

Biscayne Bay is a shallow estuary (emphasis added), a place where freshwater from the land mixes with salt water from the sea and life abounds. It serves as a nursery where infant and juvenile marine life reside. Lush seagrass beds provide hiding places and food for a vast array of sea life. In fact approximately 70 percent of the area's recreationally and commercially important fishes, crustaceans, and shell fish spend a portion of their young lives in the bay's protec tive environment.

Protected from the ocean to the east by a chain of islands or keys and by the mainland to the west, the bay is one of the most productive ecosystems in the park. Fresh water flow brings nutrients from inland areas. Plants use these nutri ents, along with energy from the sun, carbon dioxide, and water to produce food through photosynthesis.

As the EA states, at 8:

"The Turkey Point site lies **on the shore of Biscayne Bay.** South of the site, Mangrove Point divides the bay from Card Sound. Biscayne Bay and Card Sound are shallow, subtropical **estuarine** waters located between the Atlantic coast mainland and a grouping of barrier islands that form the northernmost Florida Keys." (emphasis added)

In A. Haley v Kleindienst [10] the Court said

"that in deciding whether a major federal action will "significantly" affect the environment, an agency should be required to review the proposed action in light of the extent to which the action will cause adverse environmental effects in excess of those created by existing uses in the area affected by it, and the absolute quantitative adverse environmental effects of the action itself, including the cumulative harm that results.

(10) A. Hanley v. Kleindienst, 471 F.2d 823 (2d Cir. 1972), cert. denied, 412 U.S. 908 (1973) FACTS: Challenge to a General Services Administration (GSA) EA for construction of Significant impact

Viewing an aerial map (Illustration 2) of the CCS in situ, one can see how it sits cheek by jowl next to the 172,971 acre Biscayne Bay National Park The free flow of water from the highly permeable CCS into the Biscayne Aquifer (Illustration 1) includes movement into Biscayne Bay. Seeing the plumes of water from the CCS in all direction, and understanding that the water also moves at lower levels in the Aquifer in all directions, it is hard to contend successfully that the CCS is a closed system; it is actuallycase part of two vast systems, The Biscayne Aquifer and the Biscayne Bay Estuary, and contributes significantly to their chemistry and biology. As a 6100 acre installation the CCS has a major impact on the entire area; nothing which occurs there is of no moment. The NRC Staff did not seem to understand this in the preperation of the 2014 EA.

SPEED OF THE 2014 EA

On July 10, 2014, the letter from FPL to the NRC asked for approval of their application by August 30, 2014. The EA and FONSI letter was issued on July 28, 2014, eighteen days later, a full month before FPL expected a decision. And no where in the EA is there a mention of an exigent or emergency situation as stated in the July 17,

2014 letter from FPL to the NRC. Can one reasonably expect that a considered and thorough review of the many relevant issues in reaching such a conclusion could be made in such a short period of time; were all of the bases touched in this run around the diamond? Could all of the many NEPA required consultations with the several agencies involved in the administration and regulation of Turkey Point be contacted and queried? And is there a precedent for such an accelerated action?. Given the many untouched bases cited above by CASE, one must wonder. it was only in the FPL announcement on August 8, 2014 that the NRC called it an exigent situation. Maybe to give a reason for the 18 day EA.

CONCLUSIONS

There can be no doubt the 2014 EA was inadequate. CASE has presented extensive examples of the failure of the NRC staff to not only not fully consider the impact of the actions they were approving and a finding no significant impact, but to hardly to consider them at all. Completing an EA in 18 days, not waiting for a response from FWS, not consulting other agencies, not seeking input from agencies with current, first hand present and historic knowledge of Turkey Point and the CCS, reaching conclu-

sions not based on the true nature of the facts on the ground, ignoring the letter and spirit of NEPA and the ESA, the credulity of the NRC staff accepting without challenge FPL's assertion that considering any other course would threaten grid reliability. failure to consider other courses of action. The paucity of the 2014 EA challenges belief.

If the 2014 EA is determined to have been inadequate should an EIS be done? That is for the Board to decide. CASE only contends that the 2014 EA was inadequate, that NEPA was essentially ignored and that conditions in the CCS and its impact on the area are major,large and significant and are not confined to the CCS The CCS and the production of energy at Turkey Point are impacting the quality of life for 1.5 million people in south Miami-Dade County and all of the Florida Keys and and many commercial and municipal interests in the area. Local officials have seen the problems for years but have been unable to have their concerns addressed by either State or Federal authorities. Someone has to take charge.

Executed in Accord with 10 CFR § 2.304(d).

Respectfully submitted,

/S/ (Electronically) Barry J. White

Barry J. White
Authorized Representative
Citizens Allied for Safe Energy, Inc.
10001 SW 129 Terrace'
Miami, FL 33176
305-251-1960

Dated at Miami, Florida
this 9th day of October, 2015

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of	)	
	)	
FLORIDA POWER & LIGHT COMPANY	)	Docket Nos. 50-250-LA and 50-251-LA
	)	
	)	
(Turkey Point Nuclear Generating Units 3 & 4)	)	ASLBP No. 15-935-02-LA-BD01

October 9, 2015

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing CITIZENS ALLIED FOR SAFE ENERGY INITIAL STATEMENT OF POSITION, TESTIMONY, AFFIDAVITS AND EXHIBITS (For January, 2015 Evidentiary Hearing) have been served upon the following persons by electronic mail:

U.S. Nuclear Regulatory Commission
Atomic Safety and Licensing Board
Mail Stop: T-3 F23
Washington, DC 20555-0001

Michael M. Gibson, Chair
Administrative Judge
E-mail: michael.gibson@nrc.gov

Dr. Michael F. Kennedy
Administrative Judge
E-mail: michael.kennedy@nrc.gov

Dr. William W. Sager
Administrative Judge
E-mail: william.sager@nrc.gov

Matthew Zogby, Law Clerk
E-mail: matthew.zogby@nrc.gov

U.S. Nuclear Regulatory Commission
Office of Commission Appellate Adjudication
Mail Stop: O-7H4
Washington, DC 20555-0001
ocaamail@nrc.gov

U.S. Nuclear Regulatory Commission
Office of the Secretary of the Commission
Mail Stop: O-16C1
Washington, DC 20555-0001
E-mail: hearingdocket@nrc.gov

U.S. Nuclear Regulatory Commission
Office of the General Counsel
Mail Stop: O-15 D21
Washington, DC 20555-0001
Brian Harris, Esq.
David Roth, Esq.
Edward Williamson, Esq.
Christina England, Esq.
John Tibbetts, Paralegal
E-mail: brian.harris@nrc.gov
david.roth@nrc.gov
edward.williamson@nrc.gov
christina.england@nrc.gov
john.tibbetts@nrc.gov

Florida Power & Light Company
700 Universe Blvd.
Juno Beach, Florida 33408
Nextera Energy Resources
William Blair, Esq.
E-mail: william.blair@fpl.com

Florida Power & Light Company
801 Pennsylvania Ave. NW Suite 220
Washington, DC 20004
Steven C. Hamrick, Esq.
E-mail: steven.hamrick@fpl.com

Citizens Allied for Safe Energy, Inc. (CASE)*
10001 SW 129 Terrace
Miami, FL 33176
Barry J. White
E-mail: bwtamia@bellsouth.net

Executed in Accord with 10 CFR § 2.304(d).

Respectfully submitted,

/S/ (Electronically) Barry J. White
Authorized Representative
Citizens Allied for Safe Energy, Inc.
10001 SW 129 Terrace'
Miami, FL 33176
305-251-1960
bwtamia@bellsouth.net

Dated at Miami, Florida
this 9th day of October, 2015

From:	Barry White
To:	Docket, Hearing
Cc:	Steven Hamrick; William Blair; Harris, Brian; Roth(OGC), David; Tibbetts, John; England, Christina; Kennedy, Michael; Matthew Zogby; Gibson, Michael; Williamson, Edward; Sager, William; Straus, Daniel; OCAAMAIL Resource; OCAAMAIL Resource
Subject:	Re: CITIZENS ALLIED FOR SAFE ENERG INITIAL STATEMENT OF POSITION, TESTIMONY, AFFIDAVITS AND EXHIBITS (For January, 2015 Evidentiary Hearing)
Date:	Friday, October 09, 2015 9:42:08 PM
Attachments:	CASE Initial Statement of Position Oct 9 2015 TP 3 & 4 copy-2.pages.pdf COS October 9, 2015 Turkey Point 3 & 4 (50-250 and 50-251-LA)-3 2 copy 5.pages.pdf

Please enter the attached CITIZENS ALLIED FOR SAFE ENERGY INITIAL STATEMENT OF POSITION, TESTIMONY, AFFIDAVITS AND EXHIBITS (For January, 2015 Evidentiary Hearing) and COS into the NRC EIS

Thank You,

Executed in Accord with 10 CFR § 2.304(d).

Respectfully submitted,

/S/ (Electronically) Barry J. White

Barry J. White
Authorized Representative
Citizens Allied for Safe Energy, Inc.
10001 SW 129 Terrace'
Miami, FL 33176
305-251-1960

Dated at Miami, Florida
this 9th day of October, 2015

On Friday, October 9, 2015 9:39 PM, Barry White <bwtamia@bellsouth.net> wrote:

Please enter the attached CITIZENS ALLIED FOR SAFE ENERGY INITIAL STATEMENT OF POSITION, TESTIMONY, AFFIDAVITS AND EXHIBITS (For January, 2015 Evidentiary Hearing)
and COS into the NRC EIS

Thank You,

Executed in Accord with 10 CFR § 2.304(d).

Respectfully submitted,

/S/ (Electronically) Barry J. White

Barry J. White
Authorized Representative
Citizens Allied for Safe Energy, Inc.
10001 SW 129 Terrace'
Miami, FL 33176
305-251-1960

Dated at Miami, Florida
this 9th day of October, 2015