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Re: In the Matter of Florida Power & Light, Co. Turkey Point Nuclear Generation Units 3-4 – Docket No. 50-250-LA and 50-251-LA

Dear Chairman of this Licensing Board and Administrative Judges,

On behalf of Atlantic Civil, Inc. ("ACI"), please accept the following excerpts from ACI's Proposed Recommended Order in State of Florida, Division of Administrative Hearings, Florida Power and Light Company Turkey Point Power Plant Units 3-5 Modification to Conditions of Certification, DOAH Case No. 15-1559EPP and general comments on the sufficiency of the EA /FONSI determination for increasing FPL's Turkey Point technical specifications ("TS") to 104 degrees for the Turkey Point Cooling Canal System ("CCS"). These comments are intended to provide the NRC with background information and address the following issue raised by Citizens Allied for Safe Energy ("CASE"):

> "The NRC's environmental assessment, in support of its finding of no significant impact related to the 2014 Turkey Point Units 3 & 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 freshwater from surrounding Aquifers to mitigate conditions within the CCS."

Atlantic Civil, Inc.'s Interest

ACI is a Florida corporation with its principal place of business in Miami, Florida. ACI owns 2,598 acres of land four miles due west of the Turkey Point Power Plant and the CCS. ACI has used its property for agriculture and limestone mining for decades and continues to do so. The Biscayne Aquifer is the sole source of fresh water for the ACI Property. ACI withdraws and uses fresh water from the Biscayne Aquifer pursuant to the South Florida Water Management District ("SFWMD") Water Use Permit Nos. 13-03608-W and 13-03796-W. Additionally, the Florida Department of Environmental Protection ("DEP") issued ACI a Life-of-the-Mine Environmental Resource Permit for mining activities. Under this permit, if any groundwater monitoring well profile, mine pit profile, or monitoring well sample shows an exceedance of salinity (measured as a specific conductivity threshold of 1.07 mS/cm (150 mg/L chloride)) ACI must immediately notify DEP. If the groundwater monitoring data shows that chloride concentrations greater than 250 mg/L are occurring within the mine pit, DEP's permit prohibits ACI from continuing to mine on its property. The current and proposed operation of the CCS to run at TS 104 will perpetuate the existing salinity increases within the CCS and cause continued saltwater intrusion towards ACI's property.

Turkey Point and the CCS

The Biscayne Aquifer is a highly permeable, wedge-shaped aquifer formation that thins as it moves landward (west). The Biscayne Aquifer is principally composed of limestone, sandstone, and sand and exhibits extremely high hydraulic conductivities exceeding 10,000 feet per day. The Biscayne Aquifer is the main source of potable water in Miami-Dade County, and is designated by the federal government as a Sole Source Aquifer under the Safe Drinking Water Act.

The CCS occupies 5,900 acres, is approximately five miles long by two miles wide, and is bounded by Biscayne Bay to the east. The CCS canals are unlined; thus, the CCS has a direct groundwater connection with the Biscayne Aquifer. The CCS provides the basic heat removal capacity for Turkey Point Units 1, 3, and 4 and also receives approximately 5 MGD of cooling tower blowdown water from Unit 5. The CCS also serves as the Ultimate Heat Sink under the Nuclear Regulatory Commission License for Nuclear Units 3 & 4, and is used by all existing units for wastewater treatment.

Large pumps force water through heat exchangers in the power plants and discharge heated saltwater into the northwest portion of the CCS. The water then circulates south through a series of feeder canals on the western side of the CCS towards a collector canal at the southern end. The water is then driven east and forced back to the northeastern corner of the CCS through return canals, where it is pumped back into the power plants and reused as cooling water. The feeder and return canals are between one and three feet deep with the exception of the westernmost return canal, which is 18 feet deep.

By design, the water stages in the CCS are not level. The northwest portion of the CCS is elevated two feet above sea level, while the southern and eastern portions of the CCS are slightly below sea level. This water level or "head difference" is the driving mechanism that forces cooling water to circulate through the CCS. Typically, it takes 48 hours for water to circulate through the system. The circulation of the water through the CCS reduces the water temperature by 10 to 15 degrees Fahrenheit.

The NPDES/IW Permit and DEP Groundwater Standards

The CCS historically operated under a combined National Pollutant Discharge Elimination System ("NPDES") permit and Industrial Wastewater ("IW") permit. DEP last issued an NPDES/IW permit to FPL for the CCS in 2005. The permit expired in 2010, but has been administratively extended since that time. The NPDES/IW permit authorizes FPL to discharge into G-III[1] groundwater through the CCS. The NPDES/IW established a Zone of Discharge[2] for the CCS, which corresponds with the area of the Biscayne Aquifer directly beneath the CCS that was reclassified from G-II to G-III in 1983. This Zone of Discharge is reflected in regulatory documents and documents provided by CASE for this proceeding as the redline drawn around the CCS and labeled FPL G-III Groundwater Designation. Alternatively, a Zone of Discharge extending no further than FPL's property line at the L-31E canal is imposed on the CCS by Rule 62-520.465(1), F.A.C.

Due to their age, the CCS canals are considered existing facilities and are exempt from secondary groundwater standards that apply in a G-II Aquifer. However, the CCS must still meet applicable primary standards outside of its Zone of Discharge. Sodium is a primary groundwater standard. Rule 62-550.828, Table 1, F.A.C. The CCS must also comply with DEP's minimum groundwater criteria established in Rule 62.520.400, F.A.C. both inside and outside of its Zone of Discharge. Under DEP's minimum criteria in Rule 62-520.400, F.A.C., the groundwater must be "free from" discharges from the CCS that impair the reasonable and beneficial uses of adjacent waters or constitute a nuisance. A violation of any groundwater standard or criterion contained in Ch. 62-520 constitutes pollution. Rule 62-520.310(1), F.A.C.

However, the NPDES/IW permit does not require a groundwater monitoring plan to determine the impacts of the discharge into groundwater, nor compliance wells at the boundary of the Zone of Discharge.

The Uprate of Units 3 and 4 and the 2009 Monitoring Plan

Construction of nuclear Units 3 and 4 predate the Act. In 2008, the State of Florida Siting Board certified the "Uprate" of Units 3 and 4, bringing them under the Act and certifying them under Site License PA03-45. Under the Uprate, Units 3 and 4 were modified to increase their combined power generation capacity by 14%, from 1,400 mgwtz to 1,608 mgwtz. Although outside the certified site boundary, the CCS is an integral component of the power plant and is an associated facility under the Site License. See § 403.503(7), F.S.[3]

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[1] DEP Rule 62-520.410(1), F.A.C. set classifications for groundwater. Generally, Class G-III groundwater is non-potable and Class G-II is potable.

[2]. The term "Zone of Discharge" is defined as "a volume underlying or surrounding the site and extending to the base of a specifically designated Aquifer or Aquifers, within which an opportunity for the treatment, mixture or dispersion of wastes into receiving groundwater is afforded." Rule 62-520.200(27), F.A.C.

[3] "Associated facilities" includes onsite and offsite facilities that directly support the operation of the electrical power plant.

In the Uprate Final Order, the Siting Board found that makeup water for the CCS comes from rain, stormwater run-off, and seepage into the CCS from Biscayne Bay. All of which replace evaporative losses. The Uprate Final Order acknowledged that prior to increasing the CCS water temperature and salinity, water in the CCS already exhibited elevated salinity levels (approximately twice that of Biscayne Bay) due to evaporation of heated water leaving the power plants. FPL repeatedly stated in its Uprate Application that no additional CCS makeup water would be needed as a result of the Uprate. The Uprate Final Order found that the increased electrical generation from Units 3 and 4 was expected to increase CCS water temperature **by 2.5 degrees** Fahrenheit. This increase in temperature within the CCS from the Uprate was predicted to increase CCS salinity by up to 3.6 parts per thousand. These changes, in part, were required to be monitored in the Conditions of Certification (Condition X) to the State License.

It is clear that salinity and seepage impacts from the CCS have been a concern for government agencies since the CCS's construction in the 1970's. By the time of the Uprate, the impact of the CCS on the Biscayne Aquifer had become a serious concern for DEP, the SFWMD, and Miami-Dade County. Salinity levels in the CCS, which fluctuated between 32 PSU and 52 PSU in the early 1990s, had steadily risen from 48 PSU to 62 PSU by the time of the Uprate. At the same time, DEP and the SFWMD documented that continuous CCS seepage into groundwater had created a plume of saline and hypersaline CCS water in the Biscayne Aquifer.

DEP, the SFWMD, and Miami-Dade County agreed to Condition X to the State License. Condition X.B.1 recognizes the existence of the CCS groundwater plume and directed the creation of a Monitoring Plan to delineate the vertical and horizontal extent of the plume. Condition X required the SFWMD and FPL to enter into an updated agreement (the Fifth Supplemental Agreement) to implement this Monitoring Plan ("2009 Monitoring Plan"). In the event that monitoring revealed that the CCS plume was causing harm to the water resources, Condition X.D directed that corrective measures be taken. The Uprate also directed that all pre-existing permits issued in conjunction with the CCS be incorporated into the Site License and that such permits and approvals are "fully enforceable by both the permitting agency and as Conditions of Certification for Units 3 & 4." This directive ultimately became Condition XI of the Conditions of Certification, entitled "Cooling Canals," and incorporated the NPDES/IW Permit.

In June of 2013 the Uprating of Units 3 & 4 was completed and both units began running at 100% power generation. Almost immediately following completion of the Uprate, the consultants hired by FPL to implement the 2009 Monitoring Plan observed increased temperatures, a loss of cooling efficiency within the CCS, and that the CCS was now operating at a new 'steady-state.' In 2014 and 2015 the CCS reached unprecedented salinity levels nearing 100 PSU, nearly three times the concentration of Biscayne Bay water. It was during this time that FPL sought the variance from the NRC to permit 104 degree intake temperatures on water returning from the CCS. In the summer of 2014 FPL also sought Emergency Orders from SFWMD to allow additional makeup water to be pumped in the CCS from the L-31E canal in order to reduce both temperature and salinities within the CCS. In permit applications since that time FPL provided documentation to SFWMD that claimed without these new sources of makeup water CCS salinities could reach nearly 200 PSU.

Documentation of the CCS Groundwater Plume

Under the 2009 Monitoring Plan, the SFWMD established tritium as a tracer to differentiate saltwater originating from the CCS from other saltwater in the Aquifer, to determine the contribution of CCS to saltwater intrusion in the aquifer. Tritium is a radioactive substance that naturally occurs in low levels in groundwater. However, the CCS exhibits very high concentrations of tritium as a byproduct of nuclear power generation. The SFWMD determined that concentrations of tritium in groundwater samples exceeding 20 piC/L positively identified saline groundwater as having originated from the CCS, essentially creating a "fingerprint" for CCS water in the Aquifer. The higher the tritium concentrations, the greater the contribution of CCS water in the Aquifer at a given sampling location. The tritium tracer identifying CCS water conservatively demonstrates that a plume approximately 25 square miles in size (containing tritium concentrations more than 10 times the 20 piC/L threshold established by SFWMD) has formed in the Biscayne Aquifer. Please see attached **Exhibit A** for a map of tritium concentrations over 10x the 20 piC/L standard within the Biscayne Aquifer as of June 2014. All data displayed on Exhibit A was collected by FPL under the 2009 Monitoring Plan.

For the purposes of these comments, the most relevant groundwater monitoring wells include: TPGW-5 (approximately three miles west of the CCS); G-21 and G-28 (each just under five miles west of the CCS along 137th Street a/k/a Tallahassee Road); and TPGW-7 (almost 5 miles west of the CCS). TPGW-7 is less than one quarter mile east of ACI's property.

In 2012, FPL reported that up to 46% of the saline groundwater (based on chloride and tritium) sampled from TPGW-5D originated from the CCS. These same calculations to determine the percentage of CCS water in each monitoring well were not provided in the Post-Uprate reports for comparison between pre-and post-Uprate conditions in the groundwater. FPL also reported hypersaline CCS water near the base of the Biscayne Aquifer at monitoring wells G-21 and G-28 and determined that, as of 2012, hypersaline CCS water had migrated at least four miles to the west in the Biscayne Aquifer since the CCS has been in operation. The CCS plume is also expanding to the northwest and is approaching public water supply well fields. CCS water containing elevated tritium levels (up to 10 times the 20 pCi/L threshold) and elevated salinity is documented just west of the Homestead Speedway, which is less than a mile from the Newton public water supply well field. In late 2013, well TPGW-7 (which has always been fresh water) began to show signs of saltwater intrusion. Salinity and total dissolved solids ("TDS") have rapidly increased in TPGW-7 as a result of saline water being pushed westward by the CCS.[4]

The Biscayne Aquifer historically has been classified as a G-II (potable) aquifer. The principal distinction between Class G-II and G-III groundwater is the amount of TDS present. Class G-II is considered potable with less than 10,000 TDS. Class G-III groundwater is non-potable and has greater than 10,000 TDS. Rule 62-520.410(1), F.A.C. Historically, the boundary between G-II and G-III in the Biscayne Aquifer was located just west of the CCS's interceptor ditch at depth. In 1983, FPL successfully petitioned the Department of Environmental Regulation ("DER") to reclassify the Biscayne Aquifer directly beneath the CCS from G-II to G-III because groundwater quality under the CCS had deteriorated. No other reclassification by petition or by

[4] In 2013 and 2014, the TDS levels measured at TPGW-7 at the deep monitoring horizon were less than 10,000 mg/L, indicating Class G-II groundwater, but sodium levels at TPGW-7 now exceed 160 mg/L, which violates DEP's primary groundwater standard for sodium TPGW-7 is no longer potable.

specific rulemaking has ever occurred regarding any portions of the Biscayne Aquifer to the west of the L-31 canal.

However, the CCS plume has spread outward for miles into the Biscayne Aquifer beyond the formally reclassified G-III boundary and beyond the Zone of Discharge set by permit and/or rule for the CCS. Monitoring well G-21, which has been fresh since 1975, turned salty in or around 2001. Since that time, groundwater at G-21 (at a depth of 58 feet) has turned from Class G-II potable water in the year 2000 to almost 10,000 mg/L TDS in 2012. By the June 2013 sampling event, G-21 contained TDS levels of 12,000 mg/L, which renders the groundwater at that location non-potable and changed the previous location of the G-II/G-III boundary. Therefore the G-II/G-III boundary is now west of G-21.

In 2009, DEP documented the sodium levels in well G-21 (at a depth of 58 feet) at 1,640 mg/L, which is more than 10 times the primary groundwater standard for sodium. By 2012, sodium levels in well G-21 had increased to 2,800 mg/L. In 2009, monitoring well G-28 (at the 58 foot depth) contained sodium levels of 6,750 mg/L or 40 times the primary groundwater standard. Sodium levels increased to 7,800 mg/L by 2012.[5] Sodium is a primary groundwater standard. The CCS is not authorized to cause a violation of primary standards outside its Zone of Discharge. Monitoring wells G-21 and G-28 are located several miles from the edge of FPL's property boundary and, therefore, are outside of the Zone of Discharge for the CCS. FPL has been causing violations of the primary standard for sodium in Class G-II potable groundwater west of the CCS and the NPDES/IW permit since as early as 2009.

Rule 62-620.300(4), F.A.C., the "general prohibitions" for groundwater, states that "no person shall discharge into waters any waste which, by itself or in combination with the wastes of other sources, reduces the quality of the receiving waters below the classification established for them." DEP has concluded that the CCS is the driving force that is causing the interface between G-II and G-III groundwater to move inland.

In 2009, before the NPDES/IW permit for the CCS expired, FPL filed a renewal application. At that time, the SFWMD advised DEP that it believed the CCS plume was a violation of FPL's NPDES/IW permit. In October 2009, the Department asked its Southeast SFWMD Office to review FPL's NPDES permit renewal application. In response to this request, Tim Powell, DEP Southeast SFWMD Wastewater Permitting Supervisor, reported multiple exceedances by FPL of DEP's groundwater standards, including sodium – a primary groundwater standard.[6] As a result, DEP is unable to re-issue FPL's NPDES/IW Permit until the CCS's groundwater impacts outside the Zone of Discharge are resolved.

DEP's Administrative Order

DEP determined that the CCS and its plume are harming groundwater of the state. Seepage from the CCS and the expanding groundwater plume continuously contaminates an ever-

[5] Other wells west of the CCS (BBCW-4, BBCW-5, FKS-4) showed sodium levels as high as 17,200 mg/L, more than 100 times the primary standard.

[6] Mr. Powell reported that data collected by the SFWMD in February and March 2009 showed that hypersaline water from the CCS caused exceedances of primary and secondary groundwater standards in the Biscayne Aquifer.

increasing area of the Biscayne Aquifer, steadily converting Class G-II potable water to Class G-III non-potable water, making less fresh water available for the environment and other legal uses.

DEP determined that the spreading CCS plume was unacceptable and must be addressed by an Administrative Order that DEP claims will address this harm both historically and going forward.[7] DEP characterized the Administrative Order as an enforcement order enforcing the terms of its Site License because DEP determined that the CCS was causing harm or potential harm to the water resources of the State in violation of Condition X. The Administrative Order was also necessary to provide reasonable assurances to enable DEP to re-issue the expired NPDES/IW Permit for the CCS, a permit which is enforceable as part of the Site License pursuant to Condition XI. However, the Administrative Order has been challenged by ACI because it does nothing to address the existing legacy pollution that already exists in the aquifer, will not reduce the salt loading into the Aquifer, and simply declares success if FPL can reduce salinity within the CCS to 34 PSU within 4 years from the Administrative Order's effective date.

The CCS is Causing Saltwater Intrusion in the Area

Despite loose claims by FPL that "other factors" are causing saltwater intrusion, ACI is the only party who prepared and ran a 3-D density-dependent groundwater solute transfer model to determine the actual cause of saltwater intrusion in south-eastern Miami-Dade. Unlike modeling analyses presented by FPL and the SFWMD, ACI's model accounted for all possible factors that could influence saltwater intrusion in the area, including the SFWMD's canal system, permitted water withdrawals, mining activities, land uses, and atmospheric conditions such as recharge and evaporation over a 60 year period. ACI's modeling demonstrated that the operation of the CCS is the cause of the westward movement of the saltwater/freshwater interface and the G-II/G-III boundary in the Biscayne Aquifer. Please see attached **Exhibit B** which provides a historical comparison of saltwater intrusion in the Biscayne Aquifer with the CCS and as if the CCS had never existed. All other influences were held equal in the two scenarios, demonstrating that saltwater intrusion in the Biscayne Aquifer is located several miles further inland due solely to the past and current operations of the CCS. It is also worth noting that this comparison was done pre-Uprate, prior to the unprecedented increases in CCS salinity. It is reasonable to assume that this comparison if re-done would be even more dramatic in the post-Uprated condition.

While other influences exist in the area, they are positive influences that serve to combat saltwater intrusion. No other sources significantly contribute to the westward, not to mention upgradient, movement of the saltwater/freshwater interface west of the CCS. Despite FPL's claim that "other factors" are at play in combination with the CCS to cause saltwater intrusion, these claims consist of nothing more than generalized speculation unsupported by any analysis, study, or data. ACI's groundwater modeling analysis is unrefuted.

Reports generated by FPL from data collected under the 2009 Monitoring Plan indicate that prior to the addition of water to the CCS the average rate of migration of the saltwater/freshwater interface in the area west of the CCS was anywhere from 525 feet to 660 feet per year. This estimation was incorporated as a finding of fact in DEP's Administrative Order. By comparison, the saltwater/freshwater interface in other parts of Miami-Dade County is relatively

[7] In DOAH Case No. 15-1744, ACI disputes the reasonableness of the success criteria in DEP's Administrative Order.

stable. Even under FPL's proposed "solution" of freshening the CCS, SFWMD modeling demonstrated that the rate of migration of the saltwater/freshwater interface does not stop moving west but rather just slows to approximately 150 feet per year. Assuming that estimation is correct, even if FPL were successful at meeting the terms of the Administrative Order, the public and legal users of the Biscayne Aquifer will still lose 855,000 gallons a day of formerly G-II potable water due to FPL's operation and management of the CCS. Please see attached **Exhibit C** for ACI's calculations of prior aquifer loss and continued aquifer loss after FPL's proposed solutions.

FPL's Water and Salt Balance Model

The 2009 Monitoring Plan required development of a water and salt budget to evaluate the CCS and to understand the different physical relationships governing the interactions of the CCS with the environment. The water and salt budget is an accounting of the changes in the mass of water and salt into and out of the CCS. All of the inputs and outputs in the water and salt budget are calculated values. Out of the five input sources into the CCS, seepage of saltwater from Biscayne Bay is the largest inflow of salt mass into the CCS. Salinity levels of the CCS water do not affect the rate of seepage inflow of saltwater into CCS from Biscayne Bay. Water levels do. As evaporation increases from increased heat, water levels drop causing more water from Biscayne Bay to seep into the CCS from the east. The water in Biscayne Bay consists of elevated levels of salinity, phosphorous and nitrogen as compared to water in the Biscayne Aquifer.

Evaporation is the single largest outflow of water from the CCS, averaging 40 MGD of water loss. As evaporation increases, the salt left behind in the CCS also increases. Salt cannot leave the CCS through evaporation. The only outflow of salt from the CCS is by seepage out of the CCS into the Biscayne Aquifer. The greatest rate of seepage from the CCS into the Biscayne Aquifer occurs from the northwest portion of the CCS due to the higher head or water levels in the canals at that location.

The SFWMD hired Dr. William Nuttle as an expert consultant in 2009 to assist in the development of the water and salt budget and to answer specific questions that the SFWMD posed regarding the budget. The water and salt budget has been used by FPL in multiple permitting contexts to provide "reasonable assurances" to state agencies. Going back to 2013, Dr. Nuttle recommended more detailed calculations to fully describe the seepage loading to the Biscayne Aquifer and requested that a heat budget be developed to better understand the impact of plant operations (increased evaporation from increased heat) on the CCS. To date, no heat budget has ever been developed for the CCS, despite being the ultimate heat sink for the two nuclear units. Dr. Nuttle expressed serious reservations about using FPL's water and salt budget without an understanding of the heat budget in representing the physical dynamics within the CCS.

Effect of Power Plant Operations on the CCS

The most important consideration missing from the water and salt budget model and therefore all regulatory decision regarding operations of the CCS is the effect of power plant operations. Dr. Nuttle explained that the manner in which the power plants are operated, particularly in their post-Uprate condition, significantly impacts conditions in the CCS, but is not evaluated or directly accounted for in any iteration of FPL's water and salt budget. In 2015, the SFWMD asked Dr. Nuttle to investigate the effects of power plant operations on conditions in the

CCS. Dr. Nuttle provided a report to the SFWMD in 2015, advising that there was a strong relationship between the level of power generation at the power plants and the amount of evaporation and seepage, and consequently, salinity in the CCS.

The manner in which the power plant operates has two primary effects on the CCS. First, an increase in power generation increases heat loading into the CCS. Increased heat load increases evaporation which, in turn, both concentrates salt within the CCS and lowers CCS water levels. Lower water levels increase seepage of saltwater from Biscayne Bay into the CCS, which adds salt mass to the system and concentrates it. Second, the pumps' discharge of heated water into the CCS drives both the circulation of water through the CCS and the circulation of water between the CCS and the aquifer. Therefore, changes in pumping rates as well as temperature have a significant effect on seepage from the CCS into the aquifer.

Dr. Nuttle advised the SFWMD of a direct relationship between power plant operations (namely temperature) and evaporation and salinity in the CCS. Following the Uprate, evaporation in the CCS increased by 35% during peak power generating months. During these same periods, saltwater seepage from Biscayne Bay into the CCS doubled. *Dr. Nuttle advised the SFWMD that nearly all of the salinity increases in the CCS in recent years occurred during these high power generation periods.* ***Dr. Nuttle subsequently performed additional analysis for ACI and established a direct causal relationship between increased power generation (aka heat) at Turkey Point and increased evaporation, seepage, and salinity.*** Dr. Nuttle's reports are attached as **Exhibit D.** SFWMD and ACI reports Dr. Nuttle's analyses are unrebutted.

Impacts of the Additional Water into the CCS to Moderate Temperature/Salinity & Other Alterations to CCS Operations

It is undisputed that the addition of other makeup water will have adverse impacts to the Biscayne Aquifer. Mr. Krupa, a senior level hydrogeologist at SFWMD, testified that the CCS discharges an average daily salt mass of about 3,000,000 pounds of salt into the Biscayne Aquifer through seepage. Mr. Krupa further testified that this salt loading of the Aquifer by the CCS will continue with additions of other water sources, just accompanied by a greater volume of seepage water.

Adding 14 MGD of water a day, as is proposed in the modification to the Power Plant Siting Act license, equates to a yearly introduction of 5.1 billion gallons into the CCS. The total volume of the CCS ranges between three and six billion gallons depending upon how the plant is operating. FPL proposes to introduce enough water to fully replace all the water in the CCS on an annual basis. Introduction of 14 MGD will raise average water levels in the CCS between 0.10 and 0.25 feet. Introduction of this water will also increase the amount of seepage of CCS water into the Aquifer to 15.7 MGD on average.

The new makeup water is planned to be added in the northwest corner of the CCS – the location where water levels are already the highest and seepage from the CCS into the Aquifer is already the greatest. The estimate of 0.10 to 0.25 feet of stage increase is an average over the entire 5,900 acre CCS. It is reasonable to infer that CCS water level increases and seepage into the Aquifer resulting from the additional water will be greater at this location where the water is being added.

Additionally, FPL has taken a host of other actions that alter the approved operations of the CCS under the existing state Conditions of Certification. These other actions include dredging the canal bottoms, the addition of approximately 30 MGD of L-31E water into the canals, the addition of 30 MGD of marine water (aka saltwater) into the canals, and the construction of slurry walls up to 30 feet deep in certain areas of the CCS. Dredging of the canals actually increases the connection to the Biscayne Aquifer, thereby increasing the seepage. None of these additional actions have been cumulatively evaluated by any entity despite the known contaminant plume in the aquifer. It is reasonable to infer that all of these action will further add to the seepage and salt loading from the CCS into the Biscayne Aquifer. Additionally, as was discussed during the evidentiary hearing on this matter on January 11 and 12, 2016, the previous additions of water from the L-31E have resulted in the exact type of "flushing" of CCS constituents (salinity, phosphorous, and ammonia) into the Biscayne Aquifer that ACI anticipated and demonstrated through modeling.

Through a combination of increased CCS water levels and increased CCS seepage, CCS seepage water will sink toward the bottom of the aquifer directly beneath the CCS. However, the center of the CCS hypersaline plume currently resides in the limestone of the Aquifer beneath the CCS. The increased seepage, carrying the CCS salt mass, must go somewhere. Because the CCS seepage with added makeup water is less dense, it will rest on top of the denser CCS plume and displace it. Both SFWMD and ACI's experts agree that the increased volume of less dense CCS seepage will press downward and displace the existing CCS plume, essentially cutting the plume in half. Half of the plume will be forced to the east, and half will be forced to the west. Eventually, the CCS water will form a hydraulic barrier to the east reinforced by the increased water levels of the CCS and the increased seepage into the aquifer. Both SFWMD and ACI's experts also agree that the existing plume of CCS water to the west will no longer be able to escape to the east. The western half of the plume will be trapped to the west where it will be forced outward from the CCS into the Biscayne Aquifer.

The models presented by FPL, the SFWMD, and ACI all show, to differing degrees, that under the concept of adding additional makeup water, the CCS plume will move west, and the corresponding interface of the G-II and G-III Aquifer and the freshwater/saltwater interface will move with it. All three models show that saltwater will intrude onto the ACI property in the 10-year timeframe shown by ACI's 3-D model and the 25 year timeframe shown by SFWMD and FPL. DEP representatives stated in hearing that the movement of the G-II/G-III boundary as a result of the CCS operation harms the water resources, and agreed this could be a violation of the minimum groundwater criteria that prohibits FPL from impairing the reasonable beneficial use of adjacent waters under Rule 62-520.400, F.A.C. Every expert's analysis shows that additional Class G-II potable water will be converted to Class G-III non-potable water under the concept of adding water into the CCS to combat salinity and temperature.

Evaluation of the EA

The amount of existing data and reports on the issue of the CCS and saltwater intrusion is staggering. However, the EA did not take the statutorily required "hard look" at the reasonably foreseeable saltwater intrusion issue when making the determination to increase the TS limit to 104 from 100. FPL has made several representations to the NRC regarding the "reasons" for lower water levels in the CCS such as unseasonably dry weather and algal blooms, however Dr. Nuttle's analysis and analysis by other SFWMD expert consultants determined that plant operations, **specifically increased temperature post-Uprate in the CCS**, are more direct causes of increased salinity and temperature concerns than short-term weather patterns and algal blooms.

The EA fails to evaluate the undisputed effect that increased temperature within the CCS has on increasing salinity levels within the CCS and the resulting increased seepage from the CCS upon the existing contaminant plume in the Biscayne Aquifer. The SFWMD, FPL, and DEP all concede that the addition of water to moderate temperature and salinity will be required and that result of adding water is the displacement and spread of the well-documented contaminant plume further west. All parties further concede that ACI's property will be harmed by the resulting saltwater intrusion. If the TS for the CCS are required to be held at the existing 100 degrees than FPL will have to address plant operations rather than merely blaming factors outside their control. Questions remain and have not been answered as to why after over 40 years of operation FPL now needs additional sources of make-up water to mitigate conditions within the CCS if not for the Uprate. It is ACI's contention that from the outset the CCS has had design flaws which allowed seepage to the west within the Biscayne Aquifer and these flaws have been exacerbated by the Uprate. ACI respectfully requests that the NRC recommend a full Environmental Impact Study on the relationship between plant operations and the temperature and salinity levels in CCS, and increasing saltwater intrusion from the CCS, prior to the approval of any alterations in the NRC license.

Conclusions

As discussed more thoroughly above, when FPL applied to Uprate Units 3 & 4, representations were made to DEP, SFWMD and Miami-Dade County that the temperature in the CCS would not rise above 2.5 degrees and that the resulting increase in salinity from the additional heat loading would be a maximum of 3.6 parts per thousand. Even this 2.5 degree temperature increase in the CCS was significant enough for local and state agencies to be concerned about the impact to the known contaminant plume. In reality, those temperature and salinity predictions by FPL were gross underestimations of the true impacts on both the CCS and the Biscayne Aquifer from the Uprate. During periods in 2014 and 2015 the salinity in the CCS increased by an order of magnitude more than what was projected by FPL, causing the CCS to become nearly three times the saline concentration of Biscayne Bay.

As described by Dr. Nuttle, short periods of drought alone, nor in combination with algal blooms, are capable of creating the extreme spike in salinity seen within the CCS. Rather, plant operations in the form of increased heat loading into the CCS from the Uprated units are the direct cause of increased evaporation and the resulting increases in salinity. The pumps from the power plant that circulate water through the CCS are also directly related to the level of seepage into the Biscayne Aquifer. The reasonable assurances provided for the Uprate are no longer reasonable. The CCS operated for nearly 40 years without the need for additional makeup water. Now, post-Uprate, FPL suddenly needs tens of millions of gallons of additional water a day to maintain the salinity levels at or near Biscayne Bay and a variance on their NRC license. If the heat loading from the Uprate is not the cause of the increased salinity and temperatures, then why does FPL require both an NRC variance for temperature and additional makeup water?

<u>It is ACI's position that the heat loading into the CCS from the Uprate should be more thoroughly evaluated with a heat budget in addition to the water and salt budgets and that until this is done no further changes to regulatory approvals is appropriate. Further, the Uprate itself should be re-evaluated and other cooling methods, such as conventional cooling towers, should be considered. Equally as important to the public and ACI is that FPL be required to immediately stop the further advancement of the hypersaline and saline plume and to remediate the existing contamination in the Biscayne Aquifer that has resulted from FPL's failure to manage and operate the CCS in the manner provided for under a multitude of regulatory approvals dating back to the 1970's.</u>

FPL has managed to bifurcate the issues into assorted regulatory forums, some within the context of the Site License, some outside the Site License, this NRC TS variance request, and some actions which were never reviewed by any regulatory agency at all. No one has looked at the big picture and done the cumulative impact analysis for Turkey Point's CCS, which is a completely unique system within the United States. Meanwhile, the public's drinking water supply continues to be contaminated with a host of industrial byproducts such as ammonia and tritium, as well as unnaturally high levels of salt.

The NRC's prior Finding of No Significant Impact from increasing the TS of the ultimate heat sink for two nuclear units should be reconsidered. If a 2.5 degree change caused serious changes to the system, then allowing a 4 degree variance above prior levels should reasonably expected to also have serious implications on the functioning of the CCS. The NRC must balance the interests of public drinking water contamination and threat to private property owners with potential impacts to grid reliability.

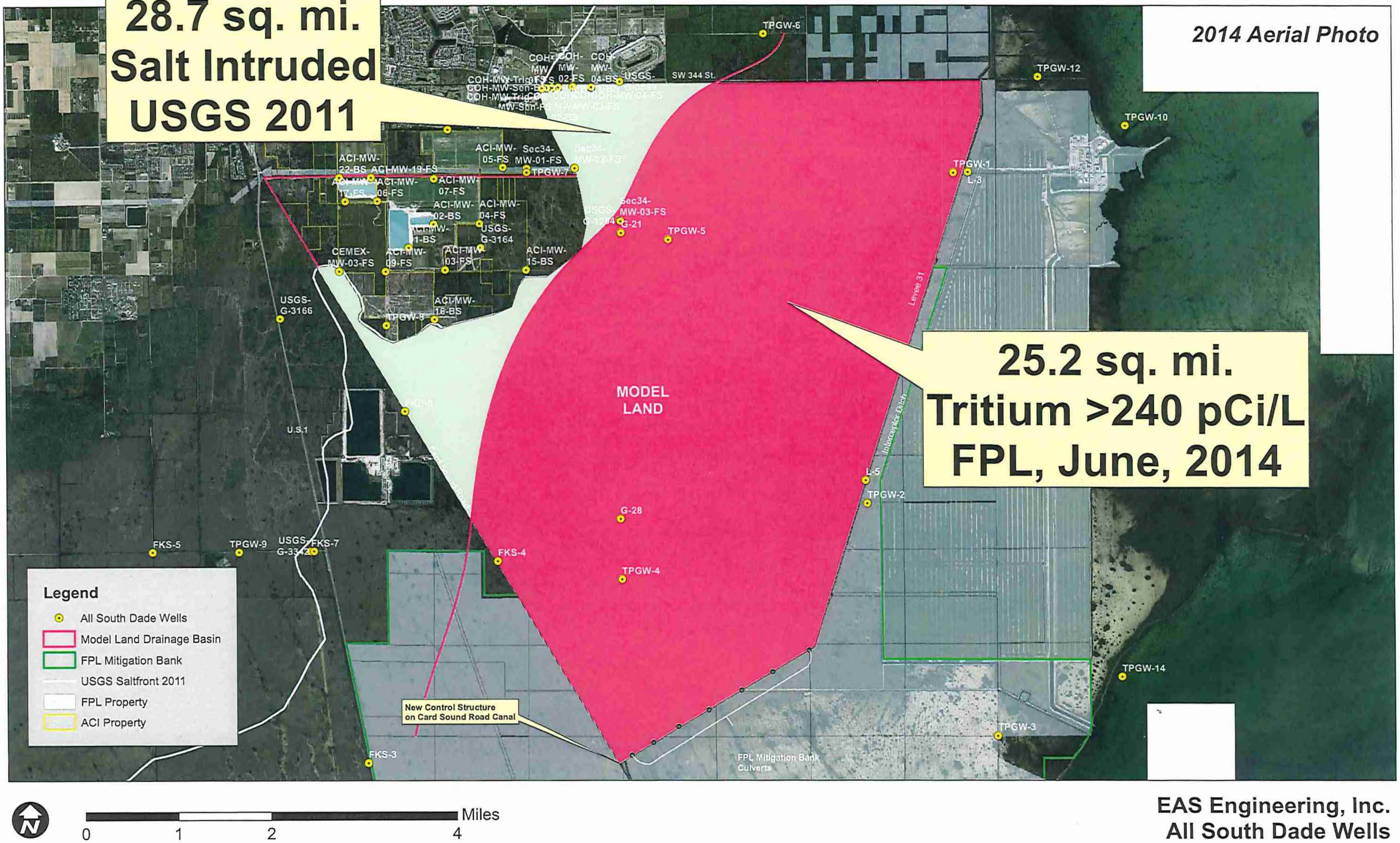
Thank you very much for your consideration and the opportunity to comment on this important issue.

Regards,

<u>/s/ Andrew J. Baumann</u>

Andrew J. Baumann
Counsel for Atlantic Civil, Inc.

Atlantic Civil, Inc.

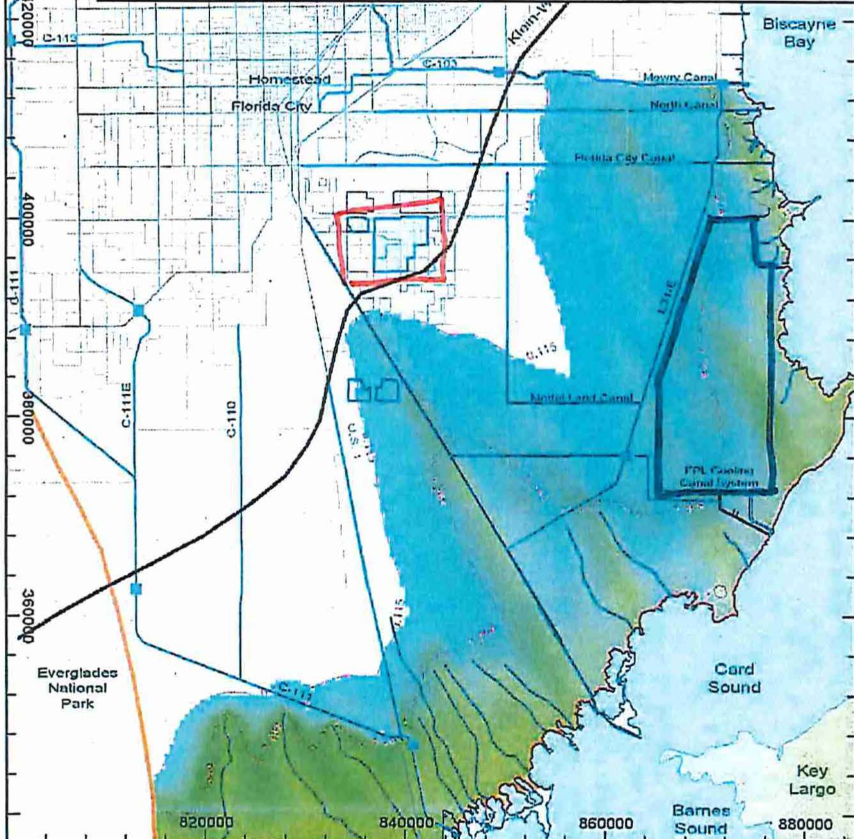


Wells 16_3.pdf

EAS Engineering, Inc.
All South Dade Wells

EXHIBIT
A

Saltfront position without and with FPL Cooling Canal System 1984



Data Legend:

Dissolved Solids Conc. in Layer 7 - end of 1984 wet season

0.115 1.000 2.000 3.000 4.000 5.000

ACI CCS

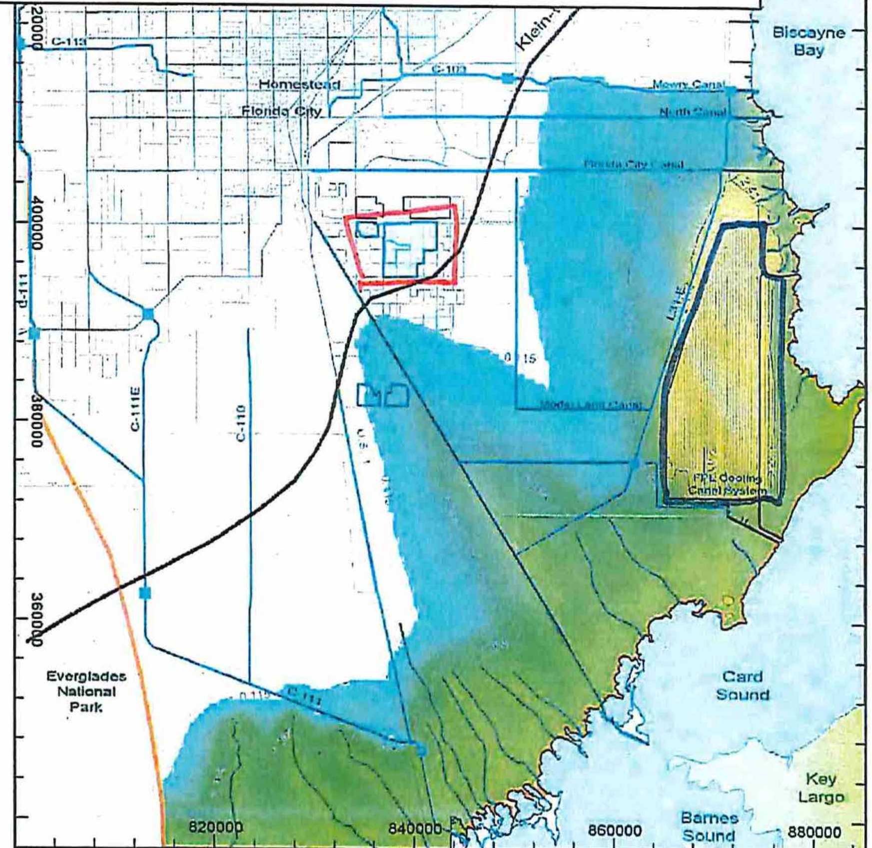
Map Scale

0 10000 20000

Atlantic Civil Inc. - SDI Property - Miami-Dade County	8/14/2011
Simulated Dissolved Solids Concentration in Layer 7 at the end of the 1984 wet season (No FPL)	

Data Sources: Topography and Digital Line Data from USGS Projection: Florida East State Plane NAD83

Earthfx EAS Engineering, Inc.



Data Legend:

Dissolved Solids Conc. in Layer 7 - end of 1984 wet season

0.115 1.000 2.000 3.000 4.000 5.000

ACI CCS

Map Scale

0 10000 20000

Atlantic Civil Inc. - SDI Property - Miami-Dade County	8/27/2011
Simulated Dissolved Solids Concentration in Layer 7 at the end of the 1984 wet season (FPL Canals)	

Data Sources: Topography and Digital Line Data from USGS Projection: Florida East State Plane NAD83

Earthfx EAS Engineering, Inc.

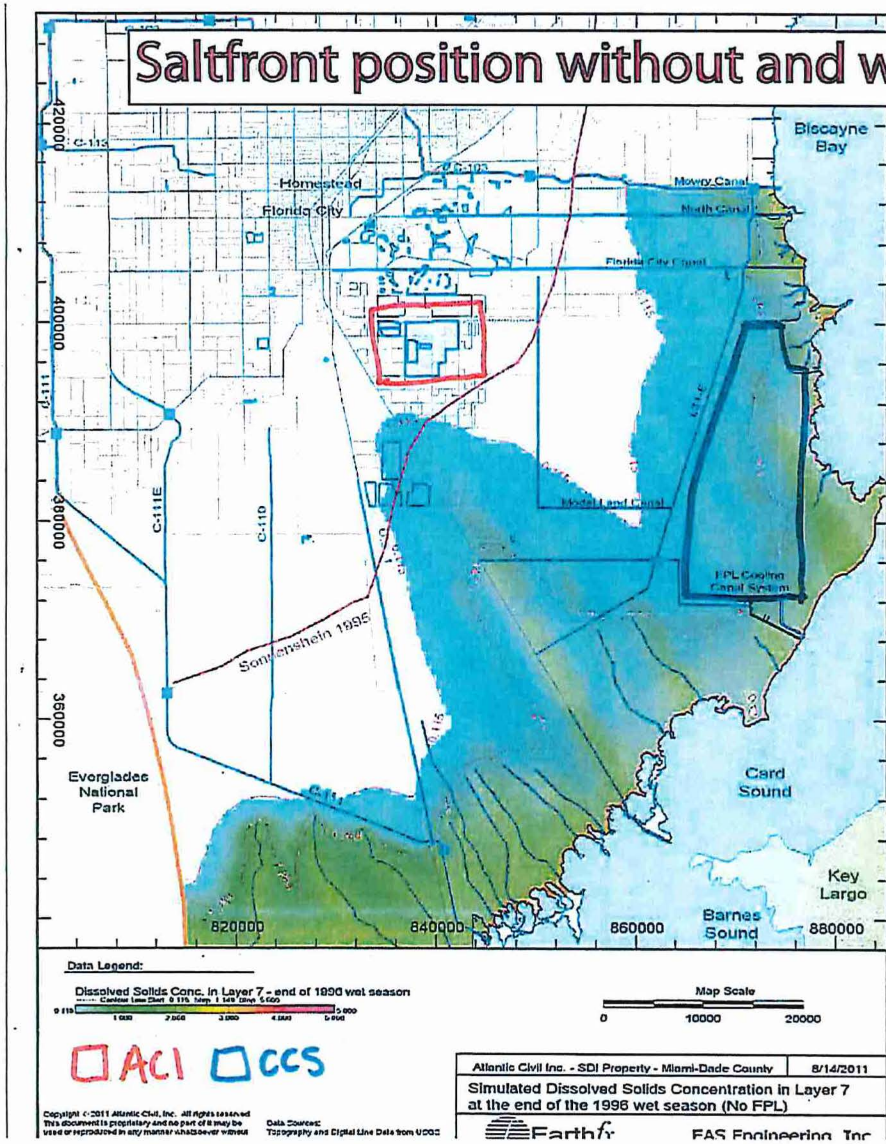
EXHIBIT

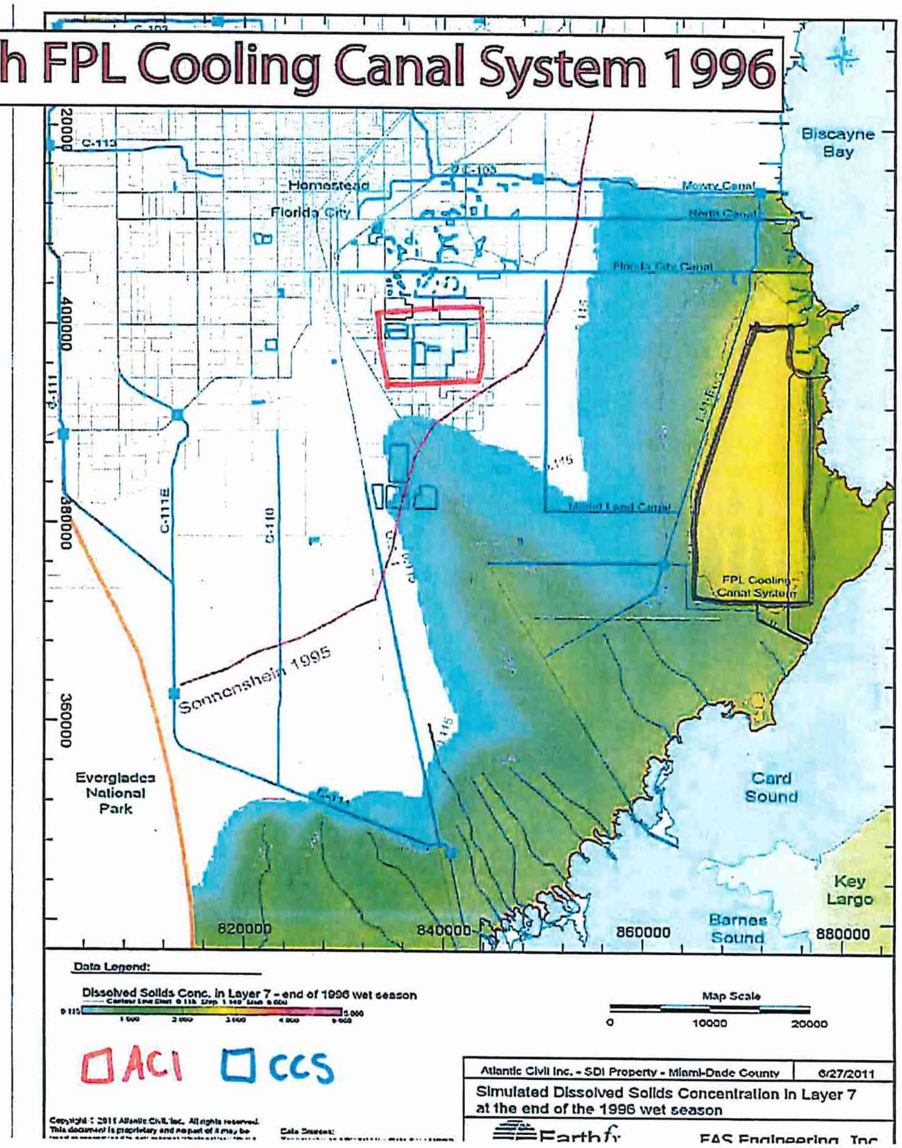
B

tabbies

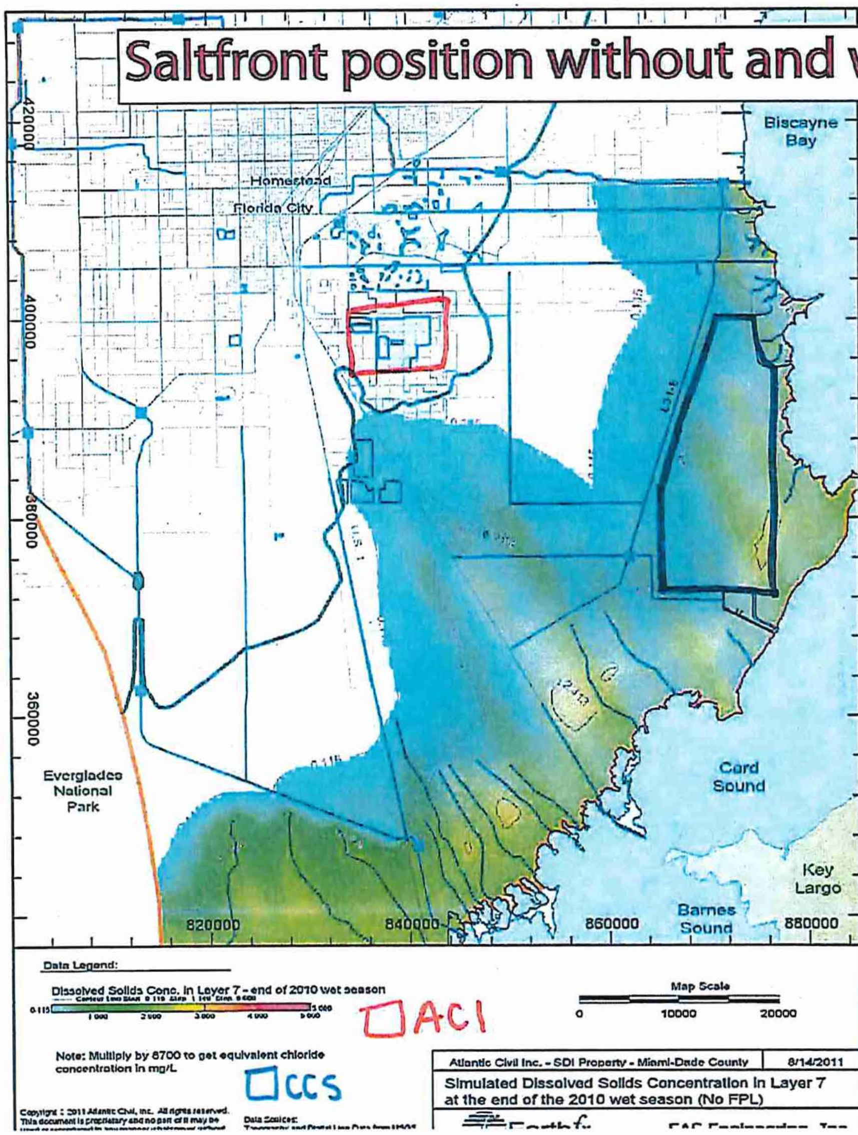
ACI-51-000001

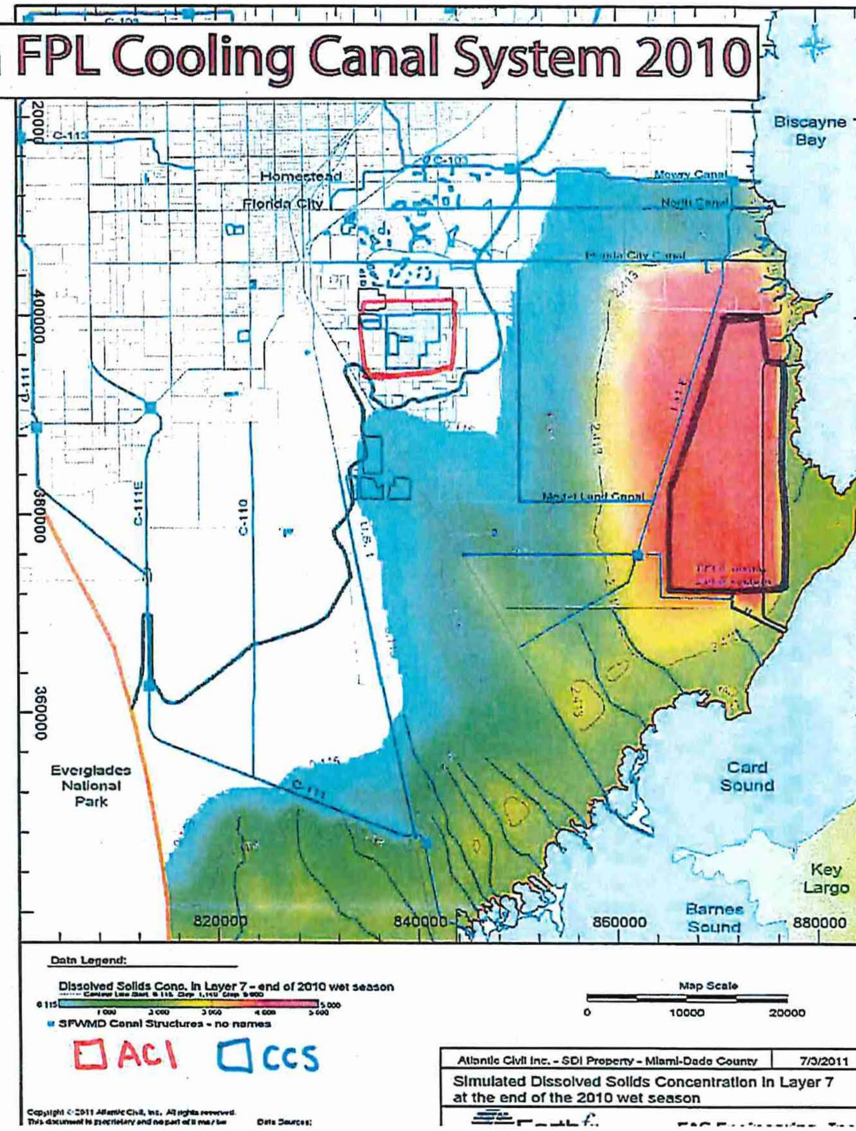
Saltfront position without and with FPL Cooling Canal System 1996





Saltfront position without and with FPL Cooling Canal System 2010





Atlantic Civil, Inc. *Filename: S:/9802/FPL-Data/Salt Front Advancement.xlsx*
11/30/2015
Salt Front Advancement Volume

Assume: The aquifer has a 3H:1V slope along its frontage
Only the lower 10 feet is involved
X-sectional area of salt wedge is 10 x 30 / 2 = 150 SF
Length of salt front from Card Sound Road to SW 344 St = 28000 LF

Conversion Factors:

CF /	43,560	= acre-feet
acre-feet x	325,900	= gallons

Flow Rate (Ft/Yr)	Flow Rate (Ft/Day)	X-sect area advance (SF/day)	Volume advance (CF/day)	Volume advance (ac-ft/day)	Volume advance (gal/day)	Volume Advance(MG/year)
100	0.27	2.73	76,362	1.75	571,313	209
150	0.41	4.08	114,280	2.62	855,004	312
200	0.55	5.43	152,024	3.49	1,137,384	415
250	0.68	6.77	189,592	4.35	1,418,455	518
300	0.82	8.11	226,984	5.21	1,698,215	620
350	0.96	9.44	264,202	6.07	1,976,664	721
400	1.10	10.76	301,245	6.92	2,253,803	823
450	1.23	12.08	338,112	7.76	2,529,632	923
500	1.37	13.39	374,805	8.60	2,804,151	1024

tabbies EXHIBIT C

Memorandum

11 November 2015

To: Lewis, Longman & Walker, P.A.

From: Dr. William Nuttle, PhD, PEng

RE: Calculations show increased power output is the cause of higher evaporation rates

My analysis of the water and salt budget data assembled by FPL indicates that increased power output by the two nuclear power plants causes evaporation from the CCS to increase, and this is the primary cause for the recent rise in salinity values. I used regression analysis to investigate claims by FPL that unusually low rainfall is the cause of the rise in salinity values. This analysis reveals a strong relationship between power output by the plants and evaporation from the CCS. By comparison, empirical relationships with rainfall were less robust statistically. Thermodynamic calculations confirm that the correlation between power output and evaporation reflects the balance between increased thermal loading to the CCS and increased dissipation of heat from the CCS primarily through evaporation. This establishes that changes in plant operations are the cause of increased evaporation and related increases in temperature and salinity in the CCS.

Overview of Water and Salt Budgets

The following summary of the water and salt budgets is based on daily fluxes reported in the spreadsheet used to perform the budget calculations for the 2014 Post-Uprate Report. I summarized these data by computing monthly averages for the water and salt fluxes, Table 1 and Figure 1.

The principal fluxes involved in the balance between inflows and outflows of water to the CCS are evaporation, rainfall, inflow from interceptor ditch pumping, seepage across the east and south boundaries, and bottom seepage in zones A and D, Figure 2. The long-term pattern in the bottom seepage is net downward flux in zone A, which is immediately downstream of the discharge from the plant circulating pumps, and net inward flux through the bottom in zone D and through the east side of the CCS from Biscayne Bay. Other water fluxes are small by comparison to these principal fluxes.

Larger water fluxes occur on shorter time and space scales. The largest water fluxes in the CCS (Table 1) are associated with days with high rainfall, seepage associated with the "underflow" phenomenon (estimated from the difference in measured canal discharge within the CCS), and daily fluctuations in the volume of surface water contained in the CCS. These fluxes can dominate the water balance over periods of days to weeks, but their effect is ephemeral.

The principal fluxes required to balance inflow and outflow of salt to the CCS are bottom seepage out through zone A and the inflows from bottom seepage in zone D, seepage induced from Biscayne Bay through the east boundary of the CCS, Figure 2, and interceptor ditch pumping, seepage across the east and south boundaries, and the accumulation of salt within the CCS

Effect of Power Plant Operations

FPL has made available detailed information about the day-to-day operation of the units of the power plant that use the CCS for cooling for the period June 2011 through May 2014.[1] This makes it possible to examine how changes in power plant operations affect elements of the water and salt budget. To do this I compiled combined daily power output from units 1, 3 and 4, and I calculated the average combined power output for each month for the period that plant operations data are available, lower panel of Figures 1 and 3.

Effect of Power Plant Operations on the Water and Salt Balances

By its effect on evaporation, power plant operations also affect other elements of the water and salt budgets. I investigated this by dividing the months in the period June 2011 through May 2014 into contiguous periods of "high" and "low" power output, using 1200 MW as the threshold power level, lower panel in Figures 1 and 3, and summarized water and salt fluxes for each set month. Average power output during the high output months was about twice that during the low output months (1581 MW compared to 881 MW), Table 2. The corresponding increase in evaporation, which amounts to an increase from an average of 3040 to 4110 acre-feet per month, agrees with at least one estimate of increase in evaporation anticipated from the planned uprate modifications.

Average evaporation increased by about 35 percent during months of high power output compared with months with low power output, Table 2. However, it is the net difference of rainfall minus evaporation that lowers water levels and drives groundwater seepage into the CCS; this difference is twice as large during months of high power output. Similarly, the seepage of Biscayne Bay water into the CCS along the east side also is doubled.

The difference in net salt flux is even greater, Table 3. Virtually all of the accumulation of salt in the CCS that accounts for the rise in salinity occurred during months with high power output. During months with low power output the net salt flux was small and directed out of the CCS, i.e. essentially zero.

Effect of Power Plant Operations on Evaporation

Regression analysis shows that monthly average evaporation from the CCS increases linearly with the monthly average of the combined power output from the power plants, Figure 5. This is expected based on principles underlying the design of the CCS: power output from a thermo-electric generation plant is directly related to the amount of heat that must be dissipated into the environment. Evaporation is one of the principal mechanisms by which the CCS dissipates heat. Other factors also affect the rate of evaporation from the CCS. Evaporation varies seasonally, in response to heating by the sun, and with changing weather conditions. In particular, evaporation is suppressed during periods of rainfall. Both effects are evident in the times series of monthly

[1] c.f. Appendix D: Plant Outages, in FPL Turkey Point Data Delivery for Units 3 & 4 Uprate Project – February 2014; and Appendix A: Plant Outages, in FPL Turkey Point Post-Uprate Monitoring Report for Units 3 & 4 Uprate Project – August 2014

evaporation and rainfall shown in the upper panel of Figures 1 and 3. These additional sources of variation contribute to the scatter around the linear relationship between evaporation and power output.

By comparison, regression analysis reveals the absence of a strong relationship between rainfall and CCS evaporation, Figure 5. Similarly, investigation of possible relationships between power output and rainfall and other elements of the water and salt budgets fails to find another relationship as strong as the one between power output and CCS evaporation, Figures 6 through 13.

Thermodynamic Calculations Confirm a Causal Relationship

The trendline in the plot shown in Figure 4 is fitted to these data, and therefore it represents the general trend in the data rather than the underlying physical processes that might be responsible for this trend. The slope of the trendline is ~2200 cubic feet per day per MW of electric power output.

To investigate the degree to which the trend of increasing evaporation might be explained by the increased heat loading to the CCS at higher power output, I calculated the additional power dissipated from the CCS by an additional 1 million cubic feet per day increase in the evaporation rate. This calculation is based simply on the latent heat of vaporization for water, which is a physical property of water. I used the value for freshwater, ignoring for purposes of simplicity the effect of salinity on the evaporation process. The result of this calculation is 740 MW heat dissipated per 1 million cubic feet per day of additional evaporation or, in terms comparable to the slope of the plot, 1300 cubic feet per day per additional MW heat dissipated by the CCS.

The MW of electric power output and the MW of heat dissipated from a thermal power plant are related to each other by principles of thermodynamics and the operating characteristics of the power plant. The nuclear power units at Turkey Point are thermal power plants. A value of 33% is reasonable for the overall thermal efficiency of the power plants; values typically range between 30% and 40%. At a thermal efficiency of 33% the MW of heat dissipated by the CCS is exactly twice the MW of electric power produced. Applying this equivalence to the latent heat calculations results in a value of ~2600 cubic feet *per day additional evaporation per additional MW of electric power output.*

This trend is the theoretical maximum additional evaporation that could occur from the CCS, based on the assumption that all of the increase in the thermal loading is dissipated through evaporation. Comparison with the slope of the trendline from the data suggests that in actuality about 85% of the additional heat loading is dissipated by evaporation. This result is consistent with increased heat loading being the main cause for the observed increased evaporation because heat dissipation from the CCS occurs through two additional mechanisms, black-body radiation and conduction. All three mechanisms act in parallel; each accounts for a portion of the total heat dissipation. In all three increased heat dissipation occurs as the result of increased water temperature, which is the result of increased thermal loading from the power plants.

Overall, the results of this analysis point to increased power output by the nuclear units and the associated increase in heat loading as the principle, direct cause for increased temperatures, increased evaporation, and increased salinity values that have occurred in the CCS in the post-uprate period. Although low rainfall may contribute to increasing salinity values, as FPL claims, low monthly rainfall is not associated with higher rates of evaporation; the R^2 is very low, Figure 1. The addition of freshwater by rainfall affects the rate of evaporation indirectly, by changing salinity, and this is a relatively small effect on evaporation. Rainfall may be associated with lower heat loading to the CCS, and thus lower water temperatures. But, this is only because the sky is cloudy when it rains, and clouds reduce heat loading by solar radiation.

Finally, the thermodynamics analysis outlined above uses basic principles taught to undergraduate students of engineering. Indeed, this analysis could easily be given as a homework or exam problem in an introductory thermodynamics course. It can be reasonably expected that any licensed professional engineer practicing in the fields of civil or mechanical engineering would be able to perform this same analysis. In particular, any engineer with responsibility for operating a thermal power plant should be able to carry out this analysis.

Table 1: Magnitudes of different water fluxes involved in the CCS water budget. Water balance fluxes that differ by a factor of 2 or more between the 2012 and 2014 reports are highlighted.

Water Flux	2014 Report ft3/day	2012 Report ft3/day	Other ft3/day	mgd	Comment
CCS surface discharge			2.4E+08	1810	Average for Sep 2010 through June 2011
Max 1-day rainfall	1.6E+08	1.7E+08		1289	
N-S difference in measured CCS discharge (underflow)			2.9E+07	218	Average for Sep 2010 through June 2011
Daily change in CCS Vol	5.4E+06	6.3E+06		47	Average absolute day-to-day change
Evaporation (average)	-5.1E+06	-4.2E+06		-31	(~3500 acre-ft per month)
Rainfall + runoff (average)	2.8E+06	3.2E+06		24	
Bottom seepage (Zone A)	-6.1E+05	-1.1E+06		-8	
Long-term seepage loading to aquifer			-1.0E+06	-7	W.K. Nuttle report to SFWMD, 5 April 2013
Side seepage (East)	1.5E+06	6.3E+05		5	
ID pumping	4.4E+05	6.1E+05		5	
Bottom seepage (Zone D)	4.0E+05	5.6E+05		4	
Blowdown (inflow to CCS)	1.9E+05	1.7E+05		1	
Side seepage (South)	3.0E+05	9.9E+04		1	
Side seepage (West)	1.2E+05	6.8E+04		1	
Bottom seepage (Zone C)	3.6E+04	4.5E+04		0	
Bottom seepage (Zone B)	1.7E+04	2.4E+04		0	
Side seepage (North)	5.0E+02	-3.6E+02		0	

CCS Volume 6.303E+08 ft3 — Average for Sep 2010 through June 2011

Table 2: Summary of water budget components reported as averages of All Data (September 2010 through May 2014) and average for periods of Low Power and High Power plant operations (see lower panel in Figures 1 and 3). Units are cubic feet per day. Positive fluxes are oriented into the control volume. Note that the data summarized in the "Low Power" and "High Power" columns together do NOT constitute all of the data.

Average Water flux cfd

	All Data	Low Power	High Power
Zone A	-6.08E+05	3.81E+04	-5.96E+05
Zone B	1.73E+04	2.46E+04	2.30E+04
Zone C	3.55E+04	2.48E+04	4.90E+04
Zone D	3.99E+05	4.97E+03	7.89E+05
net Bottom Flux	-1.51E+05	1.16E+05	2.74E+05
East	1.48E+06	7.05E+05	1.97E+06
West	1.23E+05	1.22E+05	1.18E+05
North	4.97E+02	1.60E+03	3.89E+02
South	3.01E+05	2.78E+05	3.04E+05
ID pump	4.39E+05	4.23E+05	4.17E+05
Blowdown	1.86E+05	1.97E+05	1.95E+05
Rain	2.76E+06	2.92E+06	2.80E+06
Evap	-5.10E+06	-4.42E+06	-5.97E+06
Net Flux	2.77E+04	3.22E+05	9.41E+04

Table 3: Summary of salt budget components reported as averages of the available data calculated for All Data (September 2010 through May 2014) and average for periods of Low Power and High Power plant operations (see bottom panel of Figures 1 and 3); units are pounds per day. Positive fluxes are directed into the control volume. Note that the data summarized in the "Low Power" and "High Power" columns together do NOT constitute all of the data.

Average Salt flux lb/day

	All Data	Low Power	High Power
Bottom Seepage			
Zone A	-3.04E+06	-1.18E+06	-3.18E+06
Zone B	6.08E+04	9.31E+04	7.95E+04
Zone C	6.23E+04	3.77E+04	9.80E+04
Zone D	4.68E+05	-5.81E+05	1.84E+06
Side Seepage			
East	2.67E+06	6.62E+05	4.01E+06
West	6.39E+03	6.28E+03	6.90E+03
North	-8.82E+02	1.81E+03	-1.17E+03
South	3.93E+05	4.19E+05	3.76E+05
ID pump	3.63E+05	1.81E+05	4.22E+05
Blow down	1.07E+05	1.10E+05	1.11E+05
Net Flux	1.09E+06	-2.54E+05	3.76E+06

Figure 1: Monthly average values for the volume of water in the CCS and the major seepage fluxes are compared with rainfall and evaporation and combined power output for power plants that use the CCS for cooling for the period of record. Months designated as High and Low power output for the analysis of the water and salt budgets are shown.

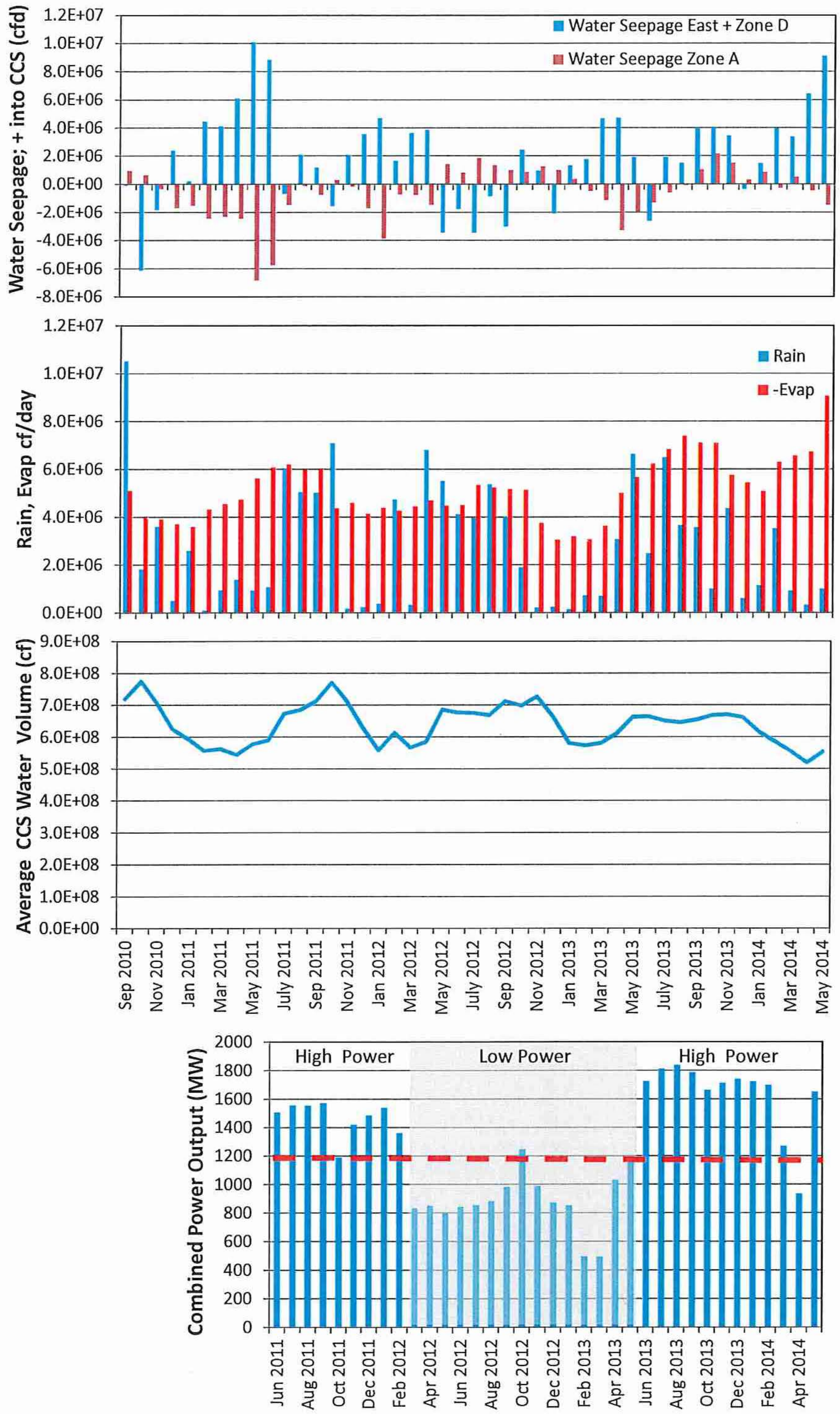


Figure 2: Location of zones used in the calculation of the bottom seepage fluxes

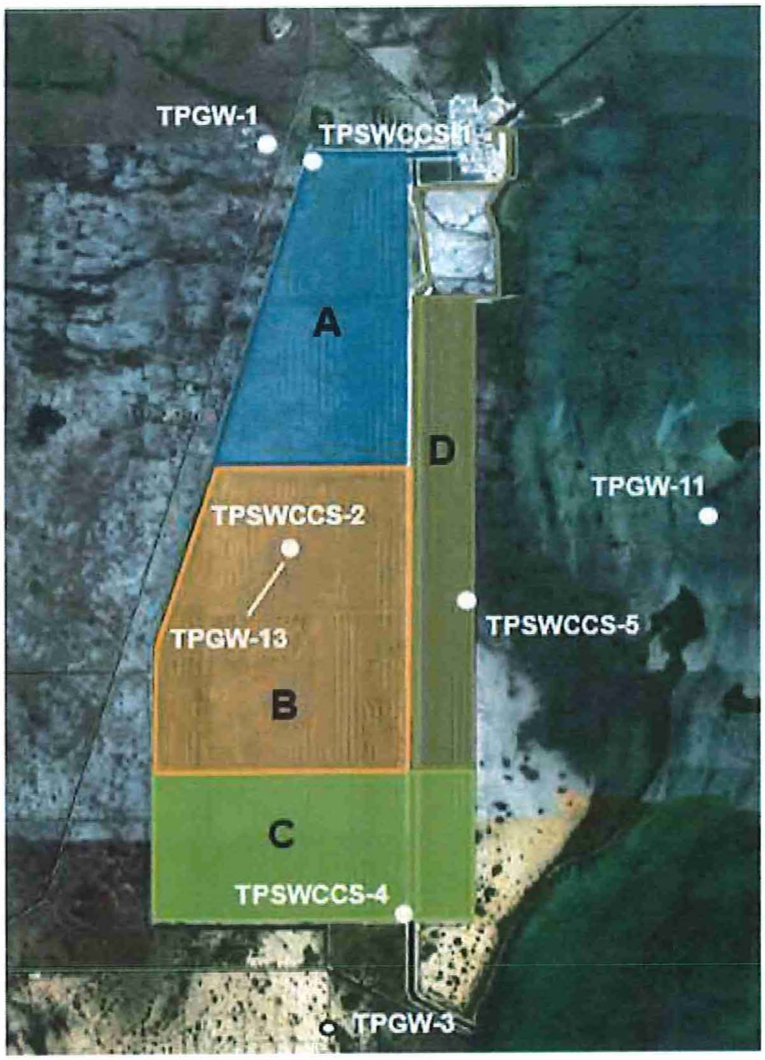


Figure 3: Monthly average values of salinity and the major seepage fluxes of salt in the CCS compared with rainfall and evaporation and combined power output for power plants that use the CCS for cooling for the period of record. Months designated as High and Low power output for the analysis of the water and salt budgets are shown.

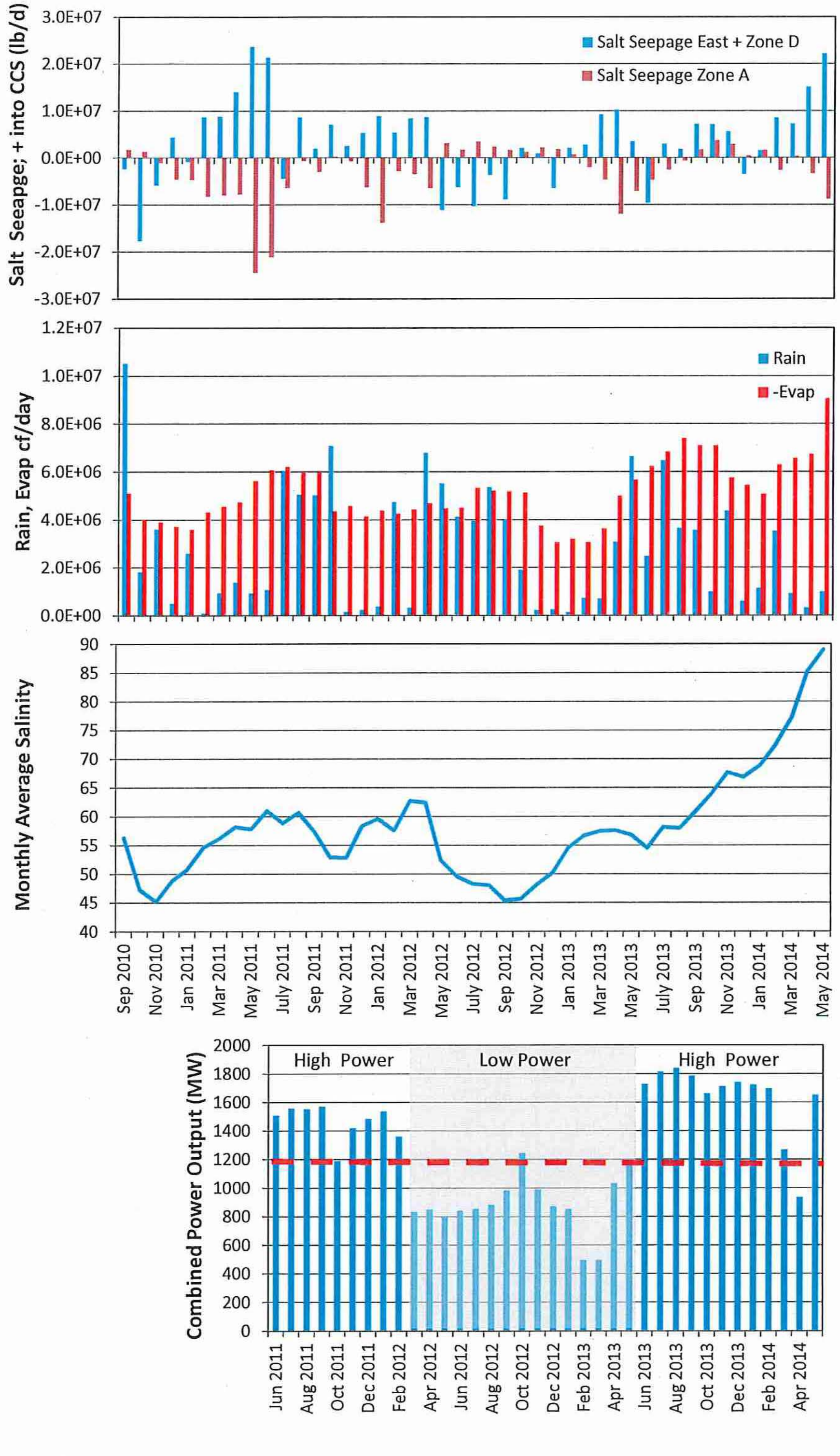


Figure 4: Monthly evaporation is related to the average combined power output from the units that rely on the CCS for cooling. The slope is statistically significant at the level of p = 8×10^{-6}.

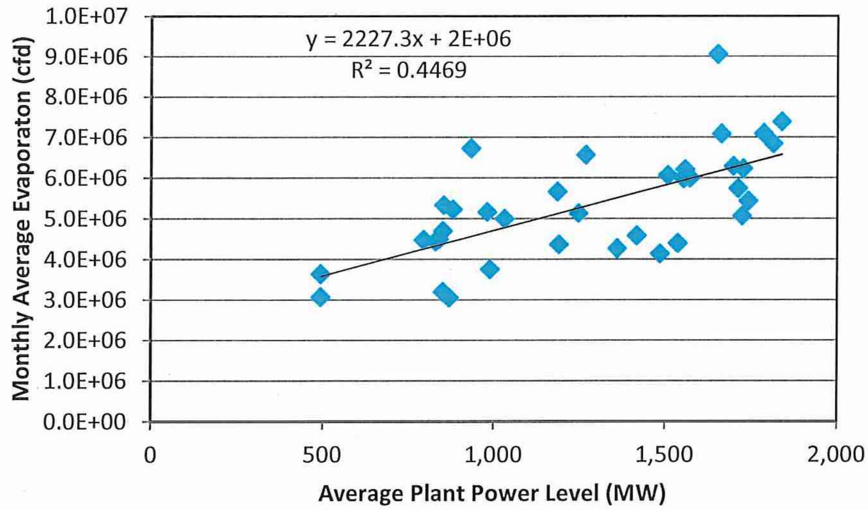


Figure 5: Monthly average rainfall is not strongly related to CCS evaporation. The value of p for this relationship is 0.269, which indicates no significant relationship.

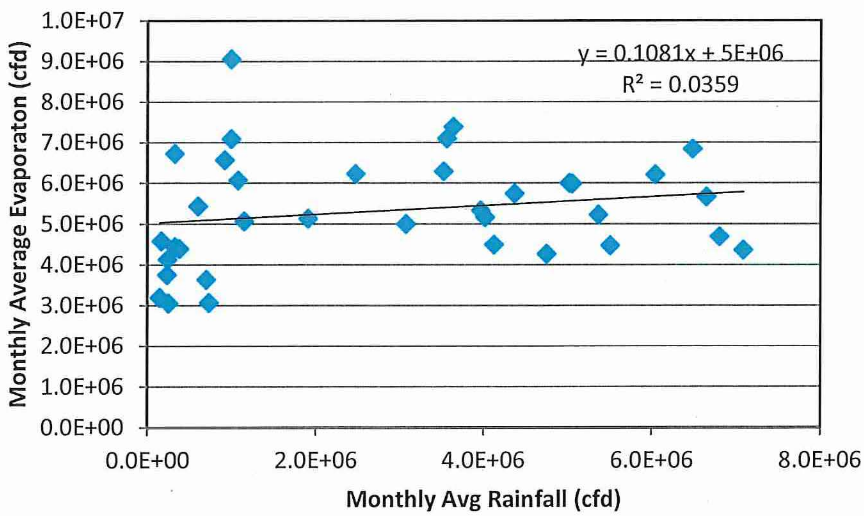


Figure 6: Monthly combined water seepage flux up through Zone D and along the East side of the CSS is not related to the average combined power output from the units that rely on the CCS for cooling. The value of p for this relationship is 0.185, which indicates no significant relationship.

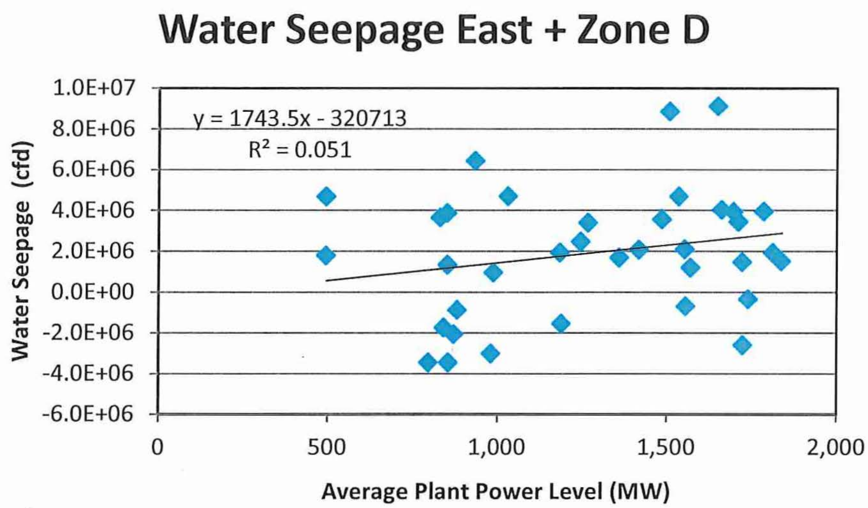


Figure 7: Monthly combined water seepage flux up through Zone D and along the East side of the CSS is moderately related to monthly rainfall. The value of p for this relationship is 0.028.

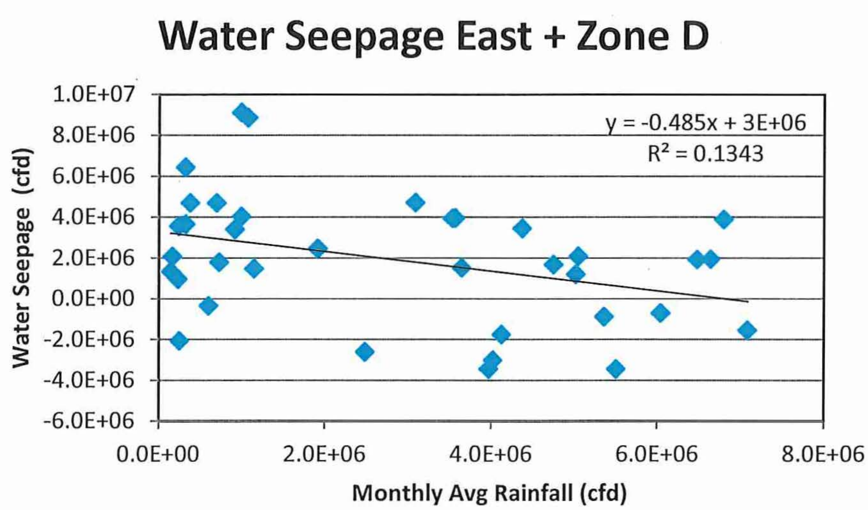


Figure 8: Monthly water seepage through the bottom of the CCS in Zone A is not related to the average combined power output from the units that rely on the CCS for cooling. The value of p for this relationship is 0.479, which indicates no significant relationship.

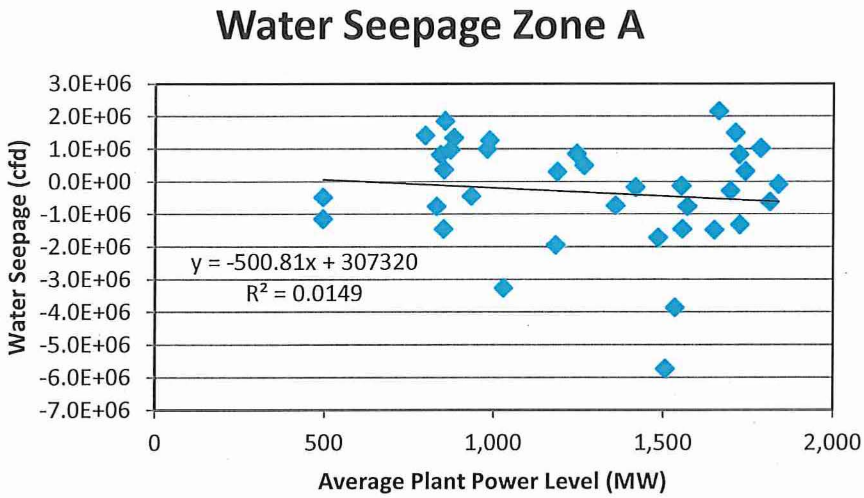


Figure 9: Monthly water seepage through the bottom of the CCS in Zone A is not related to monthly rainfall. The value of p for this relationship is 0.636, which indicates no significant relationship.

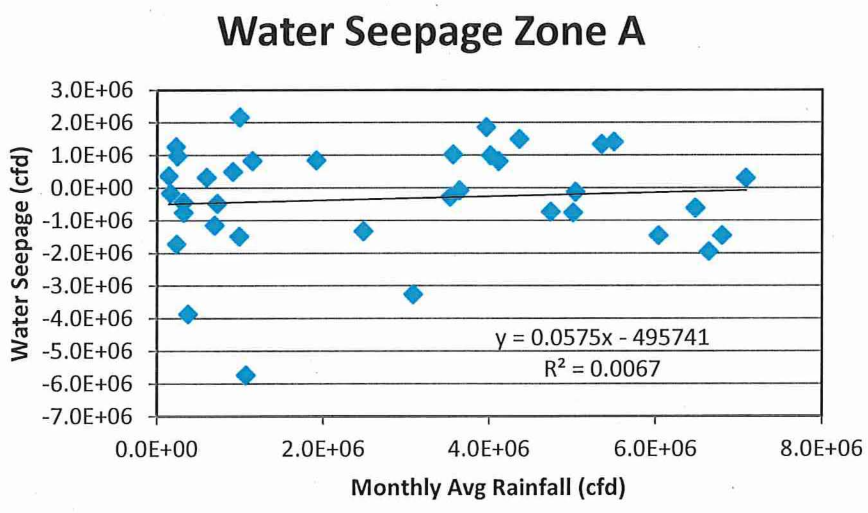


Figure 10: Monthly combined salt seepage flux up through Zone D and along the East side of the CSS is not related to the average combined power output from the units that rely on the CCS for cooling. The value of p for this relationship is 0.260, which indicates no significant relationship.

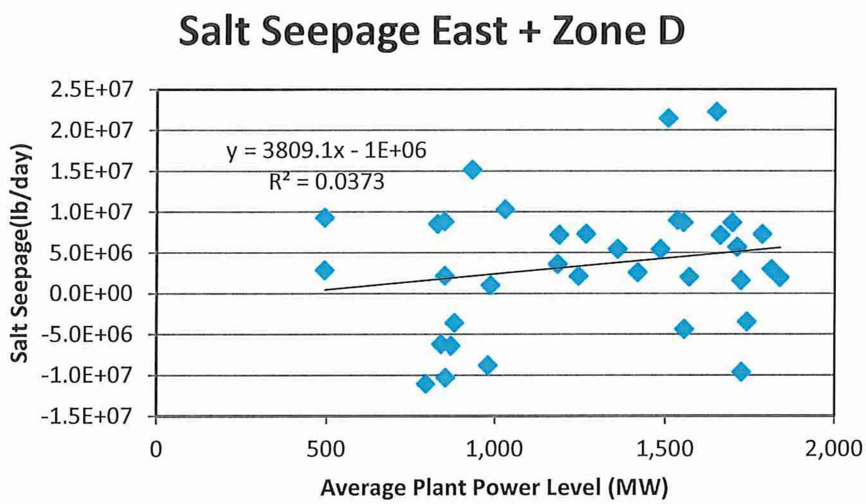


Figure 11: Monthly combined salt seepage flux up through Zone D and along the East side of the CSS is not related to monthly rainfall. The value of p for this relationship is 0.157, which indicates no significant relationship.

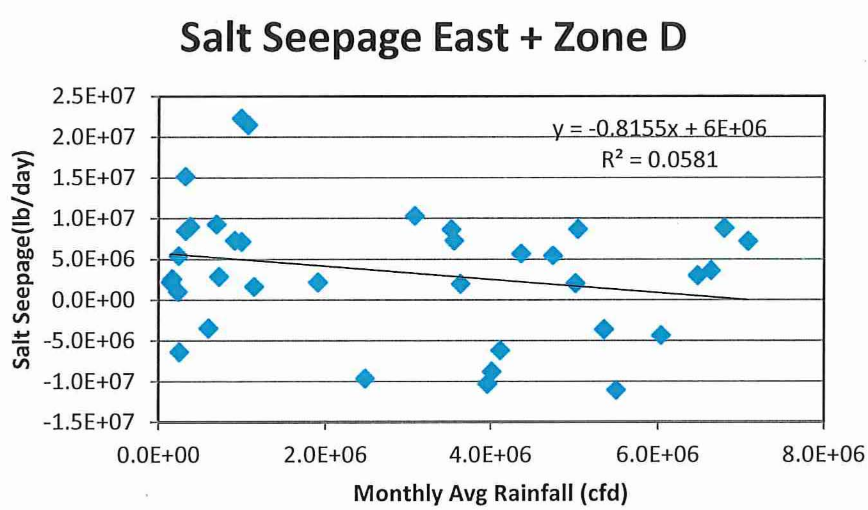


Figure 12: Monthly salt seepage through the bottom of the CCS in Zone A is not related to the average combined power output from the units that rely on the CCS for cooling. The value of p for this relationship is 0.470, which indicates no significant relationship.

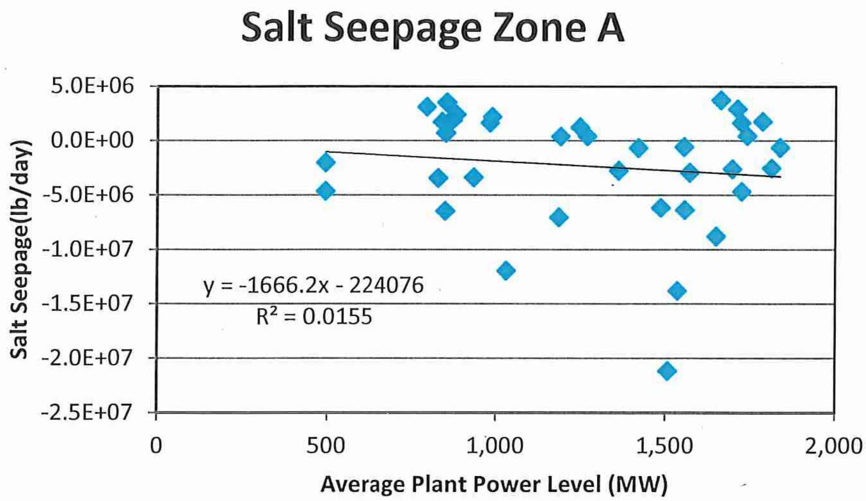
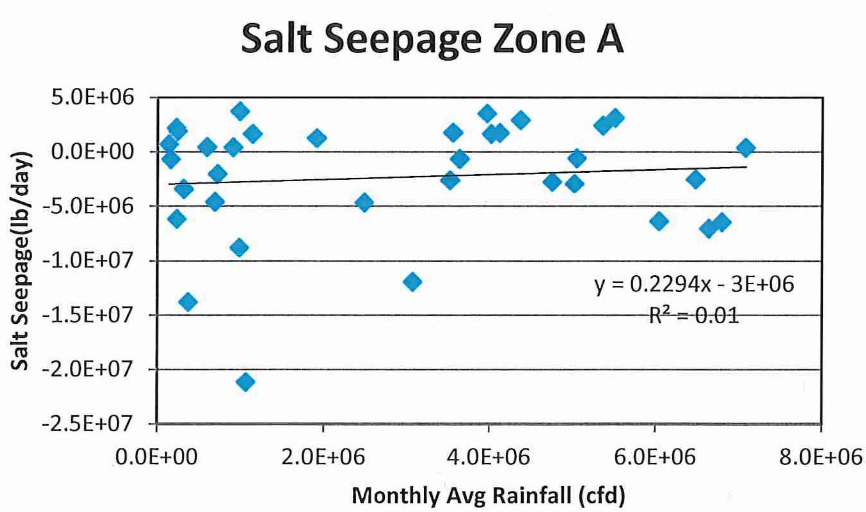


Figure 13: Monthly salt seepage through the bottom of the CCS in Zone A is not related to monthly rainfall. The value of p for this relationship is 0.562, which indicates no significant relationship.



From:	Marilyn Lozada
To:	Docket, Hearing; Scro, Jennifer; Pepperl, Nicole
Cc:	"stevetjr@atlanticcivil.net"; Andrew Baumann; Rachael Santana; Stephen Walker
Subject:	[External_Sender] In the Matter of Florida Power & Light, Co. Turkey Point Nuclear Generation
Date:	Friday, January 15, 2016 4:57:42 PM
Attachments:	Limited Written Statement by Atlantic Civil - Docket No. 50-250-LA and 50-251-LA (00607437xBA9D6).pdf

Good afternoon,

Please find attached Limited Written Statement by Atlantic Civil for your consideration in the evidentiary hearing on Turkey Point.

Marilyn Ayala-Lozada
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