



10 CFR 2.390
L-2014-231
July 21, 2014

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
Renewed Facility Operating License Nos. DPR-31 and DPR-41

Subject: Request for Enforcement Discretion Regarding Technical Specification 3/4.7.4, Ultimate Heat Sink

Florida Power & Light Company (FPL) requests that the NRC grant discretion from enforcing the shutdown requirements of Technical Specification 3/4.7.4, Ultimate Heat Sink. This request was discussed with the NRC staff in a telephone conference call. Enforcement discretion was granted verbally by the NRC following the conference call. This letter and enclosure fulfills the requirement to submit the written enforcement discretion request.

This request concerns an avoidance of a dual unit shutdown of Turkey Point Units 3 and 4. The issue necessitating this notice of enforcement discretion (NOED) request is the elevated temperature of the water in the cooling canal system, the ultimate heat sink (UHS). The details of this request are fully explained in the enclosure to this letter.

FPL has taken proactive measures to restore the UHS water to a normal condition. As shown in the enclosed justification, FPL maintains that granting of enforcement discretion in this case is in the best interest of nuclear safety.

The enclosure to this letter provides the information required by NRC Inspection Manual Chapter 0410, "Notices of Enforcement Discretion."

FPL has reviewed NRC Inspection Manual Chapter 0410 and has concluded that Section 06.02b is satisfied. Enforcement discretion is required to avoid an unnecessary plant transient, as a result of complying with the requirements of the above TS. Enforcement discretion would minimize potential safety consequences and operational risks.

This NOED request was reviewed and approved by the Turkey Point Plant Nuclear Safety Committee on July 20, 2014. It was subsequently verbally granted by the NRC on July 20, 2014 at

A001
NRR

1800 hours.

Attachment 3 contains sensitive information that is being treated as Critical Energy Infrastructure Information as defined by the Federal Energy Regulatory Commission at 18 CFR 388.113. As a result, confidential treatment is appropriate under 10 CFR 2.390(d)(1).

If you have any questions or require additional information, please contact Mr. Robert Tomonto at 305-246-7327.

Very truly yours,



Michael Kiley
Vice President
Turkey Point Nuclear Plant

Enclosure: Request for Enforcement Discretion Regarding Technical Specification 3/4.7.4, Ultimate Heat Sink

cc: USNRC Regional Administrator, Region II
USNRC Project Manager, Turkey Point Nuclear Plant
USNRC Senior Resident Inspector, Turkey Point Nuclear Plant

Turkey Point Nuclear Station

Request for Enforcement Discretion

Technical Specification 3/4.7.4, Ultimate Heat Sink

- a. **Specifically address what type of NOED is being requested (regular or natural event), which of the NOED criteria for appropriate plant conditions specified in subsection 03.03 of this guidance is satisfied, and how the licensee satisfied those criteria. (also reference subsection 06.02 of this IMC)**

A natural event Notice of Enforcement Discretion (NOED) is being requested to avoid an unnecessary transient as a result of compliance with the Technical Specifications (TS). Compliance with TS would involve an unnecessary shutdown of both Turkey Point nuclear units during a period of high system load demand without a corresponding health and safety benefit. The operation of Turkey Point Units 3 and 4 during the summer months is essential for grid voltage stability.

The requested enforcement discretion has been evaluated against the criteria specified in Section 03.03 of NRC Inspection Manual Chapter 0410. We have determined that the requested actions meet the NOED criteria for an operating plant. This determination is based on the avoidance of an unnecessary shutdown without a corresponding health and safety benefit.

- b. **Provide a description of the TS or other license conditions that will be violated, and, if applicable, state that adhering to the license would cause an unnecessary transient. This description shall include the time remaining before the TS or license condition will be violated. When a regular NOED is requested, the licensee must show that granting the NOED request would avoid an unnecessary transient.**

Florida Power & Light Company (FPL) is requesting enforcement discretion for TS 3.7.4, "Ultimate Heat Sink," for Turkey Point Units 3 and 4. The TS 3.7.4 action statement requires that with the ultimate heat sink (UHS) average supply water temperature greater than 100°F, the units be placed in Hot Standby within 12 hours and in Cold Shutdown within the following 30 hours. The action applies to both units simultaneously.

The limit on UHS temperature in conjunction with the Surveillance Requirements (SR) of TS 3/4.7.2, Component Cooling Water, will ensure that sufficient cooling capacity is available either: (1) to provide normal cool down of the facility, or (2) to mitigate the effects of accident conditions within acceptable limits.

The granting of a natural event NOED request would avoid an unnecessary plant transient since adequate operating margin exists to accommodate higher UHS temperatures than specified in TS 3.7.4.

- c. **Provide a description of the circumstances, including as a minimum: likely causes; the need for prompt action; the action taken to avoid the need for a NOED; and any relevant historical events. The historical events must include as a minimum, any other similar events at the plant, the last maintenance performed on the equipment or similar equipment, any outstanding amendment or TS change requests related to the NOED, and the last NOED request from the plant.**

The thermodynamic performance of the canal system is complex and influenced by many processes including:

1. Heat rejected to the canal by operating fossil and nuclear units,
2. Solar radiant heating,
3. Radiative cooling of the water body at night,
4. Conduction and convection of heat from the water body to the atmosphere,
5. Heat carried away by evaporation,
6. Heat transfer between the water body and the interior of the earth,
7. Cooling of the water body via precipitation, and
8. Cooling of the water body by ground water seepage.

In June 2014, UHS temperatures approached the TS temperature limit of 100°F. Engineering and environmental analysis have determined that the cooling canal system water is absorbing unusual amounts of solar energy due to the presence of higher than normal algae content. For example, the historical nominal algae concentration is on the order of 50,000 cells per milliliter. The current algae concentration is on the order of 1.8 million cells per milliliter. While immediate eradication of the algae is possible, the side effects on the canal ecosystem would be unacceptable. Thus, a controlled chemical treatment of the canal system has been initiated to gradually restore the normal algae content and improve heat transfer efficiency, without adversely affecting the remaining plant and wildlife in the canal system. The treatment program is designed to maintain dissolved oxygen in the canal water body at a level that will continue to provide a good environment for the inhabiting fish species.

A 5% reduction in salinity and a 1.8 million to 1.3 million change in algae concentration (cells/ml) has occurred in the past two weeks. This has the effect of improving heat transfer rejection at night and reduces solar heating during the day.

Prompt action is needed because prolonged hot weather in the area has resulted in sustained elevated UHS temperatures during the chemical treatment period. High temperatures during the daytime with little cloud cover and low precipitation have resulted in elevated canal water temperatures at the Turkey Point site. The table below illustrates the current situation.

Year	Rain Fall (inches)	Canal Level Relative to NAVD88 (feet)
2011	52	Not available.
2012	74.2	-0.47
2013	19.6	-0.65
2014	4	-0.88

The data was taken from a monitoring station in the middle of the Turkey Point cooling canal system. It shows that rain fall for 2014 has been very low, and that the canal water level is very low. The 10-day weather forecast presented in Section n. below, indicates that hot weather conditions will persist unabated. The operation of Turkey Point Units 3 and 4 during the hot summer months is essential for grid voltage stability.

FPL requested amendments to TS 3/4.7.4 on July 10, 2014 (Reference 1). On July 17, 2014, FPL requested in letter L-2014-226 that the subject amendment request be approved on an emergency basis (Reference 2).

A review of plant licensing correspondence reveals that there has not been a request for enforcement discretion submitted for Turkey Point Units 3 and 4 within the last ten years.

- d. **Provide information that shows the licensee fully understands the cause of the situation that has led to the NOED request. The licensee must understand and detail all safety and security concerns when operating outside of its TS or license conditions.**

This NOED request is a direct result of UHS temperatures exceeding the current TS limit of 100°F.

Engineering and environmental analyses have determined that cooling water heat transfer capability is diminished and the canal water temperatures are elevated primarily due to environmental factors that have caused the normally inconsequential algae population to bloom to unprecedented levels. This high algae content results in significantly higher

water temperatures, because of solar energy absorption. As indicated in Section c. above, the current algae concentration is almost forty times the normal value. Prolonged hot weather in the area with little cloud cover and low precipitation have resulted in elevated cooling canal system water temperatures at the Turkey Point site.

Adequate operating margin exists to accommodate UHS temperatures greater than the current TS limit. Analyses have been performed to confirm that the safety systems supported by the UHS would still perform their safety functions at UHS temperatures up to 104°F. The Component Cooling Water (CCW) heat exchanger monitoring program required by TS SR 4.7.2.a and 4.7.2.b(2) will ensure that heat exchanger cleanliness is maintained to support normal cool down operations and post-accident operating conditions at UHS temperature of up to the enforcement discretion requested value of 103°F.

There are no physical security concerns associated with the operating Turkey Point Units 3 and 4 at UHS temperatures in excess of 100°F.

e. **Detail the proposed course of action to resolve the situation, so enforcement discretion is no longer required.**

As part of the interim solutions, a controlled chemical treatment of the canal system over the course of several weeks is being implemented to gradually reduce the near-term algae content thereby reducing the solar energy absorption. Additionally, ground water makeup is being provided to the canal from the Turkey Point Unit 5 deep well at a rate of 5 million gallons a day. Improved canal performance is expected as the chemical treatment program progresses and the freshwater makeup to the canal system from the Unit 5 deep well continues. Additionally, UHS temperatures during hot summer months do not typically stay elevated (>98°F) for extended periods of time due to periodic cloud cover and rain.

A 5% reduction in salinity and a 1.8 million to 1.3 million change in algae concentration (cells/ml) has occurred in the past two weeks. This has the effect of improving heat transfer rejection at night and reduces solar heating during the day.

The requested Enforcement Discretion would end after either: (a) 10 days; or (b) if the UHS temperature exceeds 103°F; or (c) the UHS peak temperature drops below 96°F for 3 consecutive days and on a declining trend; or (d) implementation of the requested license amendments; or (e) if the loss of Turkey Point Units 3 and 4 will not result in a NERC Emergency Alert Level (EEA) 3 alert.

f. **Explain that the resolution itself will not result in a different, unnecessary transient.**

Based on the increased algae content and seasonal environmental conditions, the cooling canals' solar energy absorption has increased causing UHS temperatures to increase. If UHS temperatures were to exceed the current 100°F TS limit during the treatment period and ensuing summer months, a plant shutdown would have to be initiated in accordance with the action requirements of TS 3/4.7.4, increasing the possibility of a shutdown transient.

A controlled chemical treatment of the canal system over the course of several weeks is planned to gradually reduce the near-term algae content and improve heat transfer efficiency. The treatment program is designed to maintain dissolved oxygen in the canal water body at a level that will continue to provide a good environment for the inhabiting fish species.

FPL engineering and environmental personnel have determined that there is no detrimental impact to plant operations resulting from the chemicals that are being introduced. The specific chemical regime has been designed to produce the desired algae reduction without any change to Turkey Point water treatment or heat exchanger systems. Further, the introduction of fresh water to the canals is at a point out in the canal system where it will provide mixing flow and dilution prior to entering the Turkey Point intake.

Turkey Point Units 3 and 4 are currently using the installed hogging jet air ejectors to provide increased operating margin on condenser vacuum as the UHS (canal cooling system) also provides cooling to the Main Condensers and Turbine Plant cooling loads. Adequate margin is maintained above the low condenser vacuum turbine trip setpoint to accommodate a maximum 4°F increase in condenser and turbine plant cooling water temperature. In June 2014, UHS temperatures reached 99.7°F and adequate margin existed to all operating parameters without challenge. A 3°F rise in UHS temperature would not substantially impact operating margins. Therefore, the current course of action will not introduce the possibility for a different transient.

g. **Explain that the licensee did not have time to process an emergency license amendment, or that a license amendment is not needed.**

Based on increasing trends in canal water temperatures, FPL initiated several actions to reduce water temperature and to analyze the maximum temperatures that would still support plant safety analyses. A license amendment request (LAR) was submitted by FPL to increase the maximum allowed UHS temperature. Prolonged hot weather in the area caused UHS temperature to continue to rise such that Reference 2 was submitted on July 17, 2014 requesting review of the LAR on an emergency basis.

The UHS temperatures exceeded the TS temperature limit of 100°F on July 20, 2014 at 1454 hours requiring an entry into the action requirements of Technical Specification 3/4.7.4. The referenced LAR review is in progress but now UHS temperature is at a point that a NOED is needed to prevent the unnecessary shutdown of both Turkey Point nuclear units.

- h. Describe the condition and operational status of the plant, including safety-related equipment out of service or otherwise inoperable, and nonsafety-related equipment that is degraded or out of service that may have risk significance and that may increase the probability of a plant transient or may complicate the recovery from a transient or may be used to mitigate the condition.**

Turkey Point Units 3 and 4 are currently operating in Mode 1 (Power Operations) with Unit 3 at approximately 100% reactor power and Unit 4 at approximately 95% reactor power. On-line risk is green. Currently, there is no safety-related equipment out of service or otherwise inoperable, and no nonsafety-related equipment that is degraded or out of service that may have risk significance.

- i. Request a specific time period for the NOED, including a justification for the duration of the noncompliance. The licensee shall include information that shows its proposed course of action has a high likelihood of being completed within the proposed NOED period. The licensee must show the requested time for the NOED is directly related to the time to resolve the situation.**

The requested enforcement discretion would end either: (a) after 10 days; or (b) if the UHS temperature exceeds 103°F; or (c) the UHS peak temperature drops below 96°F for 3 consecutive days and on a declining trend; or (d) implementation of the requested license amendments; or (e) if the loss of Turkey Point Units 3 and 4 will not result in a NERC Emergency Alert Level (EEA) 3 alert.

The 10-day period in (a) above will commence upon the granting of enforcement discretion. Repetitive NOEDs is not a desirable state over the next few days. FPL attempts to reduce algae and salinity have been effective and we expect them to continue to be effective. The 10-day period is supported by our PRA discussion in Section I. below. We will continue to work with the NRC staff on the emergency license amendment request.

FPL letter L-2014-216 dated July 10, 2014 submitted LAR No. 231, which requested the NRC to amend TS 3/4.7.4 to allow operation with an UHS temperature of 104°F. The LAR documented multiple analyses performed that demonstrate the continued operability of Turkey Point Units 3 and 4 at cooling canal temperatures as high as 104°F. The

primary analysis utilized the CCW heat exchanger performance monitoring program required by TS 3/4.7.2 (TS SR 4.7.2.a and 4.7.2.b(2)). That program ensures that at all temperatures the CCW heat exchangers are capable of removing more heat than the limiting safety analysis. At 100°F the CCW heat exchanger performance monitoring program ensures the heat exchangers remove more heat than is assumed in the safety analysis by requiring a cleaner heat exchanger than assumed in the safety analysis. Continued compliance with these requirements at a UHS temperature of 104°F ensures the heat exchangers will remove more heat than is required by the safety analysis with at least 2.5% margin while maintaining the same CCW temperatures as are assumed in the safety analysis. Additional analysis concluded other effects such as ICW pump net positive suction head continue to contain sufficient margin.

Instrument uncertainty analysis was performed on the temperature indication that is utilized to compare to the UHS temperature and found a total channel uncertainty of 0.86°F. Therefore, this NOED request for a limit of 103°F allowing for instrument uncertainty to remain below the analytical limit ensures the safety analyses limits are maintained.

Currently, all resources and transmission facilities are available in the Miami-Dade area and the grid system is in normal operation. All off-site requirements to Turkey Point, including maintenance of required grid voltages at the Turkey Point switchyard, can be reliably served. Additionally, all load in the Miami-Dade area can be served reliably. Turkey Point Nuclear Units 3 and 4 on line are critical to this reliable operation.

With conditions (a) or (b) above exceeded, or with condition (e) met, both Turkey Point nuclear units will be in at least HOT STANDBY within 12 hours and in COLD SHUTDOWN within the following 30 hours.

Enforcement discretion was verbally granted by the NRC on July 20, 2014 at 1800 hours.

- j. **Detail and explain compensatory actions the plant has both taken and will take to reduce the risk associated with the specified configuration. All compensatory actions must be completed before the NOED CT begins. Compensatory measures used to reduce plant vulnerabilities shall focus on both event mitigation and initiating event likelihood. The objectives are to achieve the following:**

Turkey Point has performed and will continue to perform the following actions to reduce the risk of the configuration:

- Normal operation utilizes an in service spare CCW heat exchanger. Accident analysis credits two CCW heat exchangers in operation. A third heat exchanger will

- be kept in service and only removed from service for critical maintenance activities or as part of planned compensatory measures during night time hours. This will minimize the duration of the spare heat exchanger being out of service.
- While the NOED is in effect, Turkey Point will increase management oversight to resolve any issues in a timely manner.
 - Performance of surveillance requirements will be minimized to the extent possible without creating a situation of a missed surveillance, and elective maintenance activities that are classified as high risk due to generation threat will be minimized. Those activities classified as high risk performed during the NOED duration will be performed consistent with activities identified as high risk to minimize likelihood of an initiating event. PRA risk for both Units 3 and 4 will be maintained GREEN during planned maintenance activities.
 - The monthly CCW heat exchanger performance test required by TS SR 4.7.2.b(2) has been increased to weekly and will be performed at least twice weekly during the period of enforcement discretion.
 - The CCW heat exchanger cleaning frequency has been increased from one per unit bi-weekly to one per unit weekly. The time that the specified CCW heat exchanger will be out of service will be minimized.
 - TS SR 4.7.2.a requires a comparison of actual temperature to required temperature once every 12 hours. Station procedures perform this surveillance once per shift (nominally 8 hours). This will be increased to once every hour during the period of enforcement discretion when the actual temperature is greater than 99°F and will revert to once per shift when the actual temperature is less than 98°F.
 - Verification of UHS temperature will be performed at least once per hour when UHS temperature exceeds 100°F.
 - Perform Just in Time Training via tabletop discussion of the following procedures:
 - 3/4-ONOP-019, Restoration of ICW
 - 3/4-ONOP-030, Align Service Water to Charging Pumps
 - Currently, the grid is stable as a result of continued operation of Turkey Point Units 3 and 4 to support grid voltage. No challenges to grid stability are currently forecasted as a result of severe weather or other events. Switchyard work that would impact grid

reliability will be restricted during the NOED period. Grid conditions will be verified at least once every 24 hours.

- All on-site Emergency Diesel Generators (EDGs) are operable with no planned maintenance. Weekly surveillances are scheduled for the EDG to meet the TS.

- k. **Discuss the status and potential challenges to offsite and onsite power sources, including any current or planned maintenance in the distribution system and any current or planned maintenance to the emergency diesel generators. The licensee must identify any specific transmission line configurations that must be maintained to ensure the availability of the grid for safe operation of the plant.**

Currently, the grid is stable as a result of continued operation of Turkey Point Units 3 and 4 to support grid voltage. No challenges to grid stability are currently forecasted as a result of severe weather or other events. Refer to the weather forecast below in Section n.

All on-site EDGs are operable with no planned maintenance. Weekly surveillances are scheduled for the EDG to meet the TS.

- l. **Include the safety basis for the request and an evaluation of the safety significance and licensee should address the quantitative and qualitative aspects noted below. The numerical guidance for acceptance was established to augment qualitative arguments that continued operation of the plant during the period of enforcement discretion will not cause risk to exceed the level determined acceptable during normal work controls and, therefore, there is no net increase in radiological risk to the public. For licensee provided quantitative risk analysis, the licensee shall provide the effects on LERF. The following information should be provided to support this evaluation:**

1. **The safety basis for the request, including an evaluation of the safety significance and potential consequences of the proposed course of action.**

The Turkey Point Revision 10 PRA model, using zero test and maintenance, was used to establish the plants' baseline risk and the estimated risk increase associated with the period of enforcement discretion. Core Damage Frequency (CDF), Large Early Release Frequency (LERF), Incremental Conditional Core Damage Probability (ICCDP), and Incremental Conditional Large Early Release Probability (ICLERP) values are listed below and compared with guidance thresholds discussed above. Quantification of the plant risk for the initial plant condition has two scenarios: failure of 1 of 2 ICW trains and increased ICW initiator frequency.

2. Dominant Risk Contributors

CDF is the limiting risk metric. The dominant sequences for the most limiting scenario include a loss of ICW initiator leading to Reactor Coolant Pump (RCP) Seal LOCAs of varying sizes. After the loss of ICW (and subsequent loss of CCW), many paths to RCP Seal LOCA exist including:

- Failure to realign Service Water to supply cooling to the Charging Pumps.
- Failure of the Service Water Crosstie
- Failure of RCP Seal Injection
- Failure of temperature transmitter TT-3-143

The Top 50 cutsets for CDF are provided in Attachment 1.

3. Compensatory Risk Management Actions

The compensatory risk management actions described in Section J are not explicitly credited in the PRA evaluation. This is considered a source of conservatism.

4. Extent of condition

The UHS is shared by Turkey Point Units 1, 2, 3, and 4 for both Safety and Non-Safety heat loads. There is no secondary heat sink for the Turkey Point units. The Units 3 and 4 have separate and distinct ICW and CCW Systems and the NOED will apply to both Turkey Point nuclear units. The extent of condition is limited to the cooling canal system.

5. External Events

The impact of external events on the increase in risk associated with having the UHS degraded was not explicitly calculated due to the lack of fire and seismic PRA models for Turkey Point. As a rough approximation, the external events' contribution was assumed to be equal to the internal events' contribution.

The weather forecast for the 10-day period during which the NOED is in effect was obtained from the National Weather Service website. There is no mention of severe weather that is expected to exacerbate the situation for the duration. On the contrary, rainfall would serve to help cool the UHS.

- m. **Demonstrate that the NOED condition, along with any compensatory measures, will not result in more than a minimal increase in radiological risk, either in a quantitative assessment that risk will be within the normal work control levels (ICCDP less than or equal to $5E-7$ and/or ICLERP less than or equal to $5E-8$) or in a defensible qualitative manner.**











The results meet the criteria of NRC Inspection Manual Chapter 0410 for a 10-day period of enforcement discretion. Continued operation of the units during the period of enforcement discretion will not cause risk to exceed the level determined acceptable during normal work controls and therefore there is not a net increase in the radiological risk to the public. For the additional time period that the UHS will be at elevated temperatures, the risk metrics described by the NOED guidance of Incremental Conditional Core Damage Probability (ICCDP) less than or equal to $5.0E-07$ and Incremental Conditional Large Early Release Probability (ICLERP) less than or equal to $5.0E-08$ are not exceeded. The tables below show the increased risk for each of the scenarios considered.

CDF	ICW Train	ICW Initiators		
		x2	x10	x100
Baseline	4.93E-07	4.93E-07	4.93E-07	4.93E-07
Sensitivity	5.38E-07	5.09E-07	1.03E-06	8.77E-06
Delta CDF	4.44E-08	1.55E-08	5.34E-07	8.28E-06
Proposed NOED Duration (Days)	10	10	10	10
ICCDP (Internal Events)	1.22E-09	4.23E-10	1.46E-08	2.27E-07
ICCDP (Internal and External Events)	2.44E-09	8.46E-10	2.92E-08	4.54E-07

LERF	ICW Train	ICW Initiators		
		x2	x10	x100
Baseline	1.44E-08	1.44E-08	1.44E-08	1.44E-08
Sensitivity	1.46E-08	1.44E-08	1.60E-08	3.92E-08
Delta LERF	2.27E-10	3.60E-11	1.60E-09	2.48E-08
Proposed NOED Duration (Days)	10	10	10	10
ICCLERP (Internal Events)	6.22E-12	9.86E-13	4.38E-11	6.79E-10
ICCLERP (Internal and External Events)	1.24E-11	1.94E-12	8.76E-11	1.36E-09

n. **Discuss forecasted weather and pandemic conditions for the requested NOED period and any plant vulnerabilities related to weather or pandemic conditions.**

National Weather Service and local weather forecasts have been consulted for the 10-day period of this NOED request. There is no forecast severe weather nor is there a pandemic in progress or forecast for this period. Following is a summary of the 10 day weather forecast obtained from the Weather Channel:

			High / Low (°F)	Precip. %
Today Jul 20		Isolated T-Storms	92°/76°	30 %
Mon Jul 21		Scattered T-Storms	89°/76°	60 %
Tue Jul 22		Scattered T-Storms	88°/75°	60 %
Wed Jul 23		Scattered T-Storms	88°/76°	50 %
Thu Jul 24		Scattered T-Storms	89°/76°	40 %
Fri Jul 25		Isolated T-Storms	89°/76°	30 %
Sat Jul 26		Isolated T-Storms	89°/76°	30 %
Sun Jul 27		Scattered T-Storms	89°/75°	40 %
Mon Jul 28		Mostly Sunny	90°/75°	0 %
Tue Jul 29		Partly Cloudy	88°/76°	10 %

Last Updated Jul 20 11:08 a.m. ET

o. **Include the basis for the licensee's conclusion the noncompliance will not create undue risk to public health and safety.**

The UHS is not failed or unavailable. Analyses have determined that UHS temperatures up to 104°F can be accommodated with either no impact or an insignificant impact on the LOCA and non-LOCA results. Additionally, component assessments were performed and determined that components served by UHS would continue to perform satisfactorily

with a 4°F increase in UHS temperature. No adverse influences on risk were identified through examination of the PRA model for the plant.

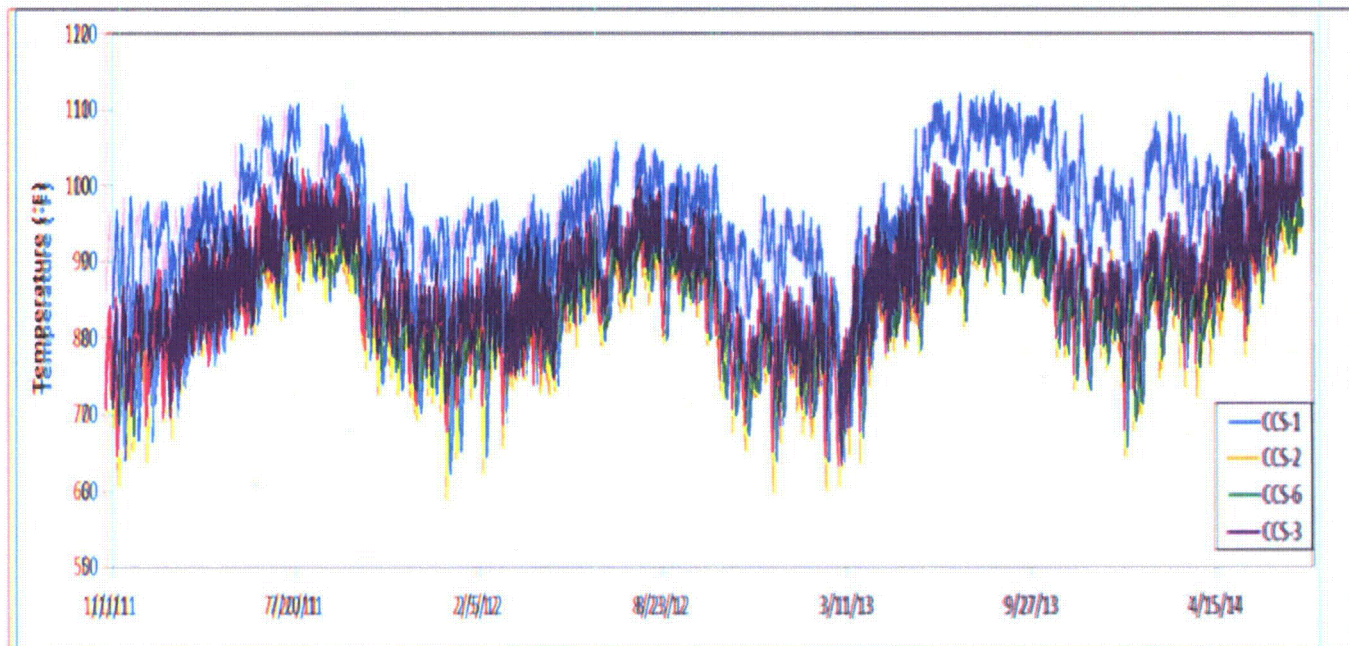
In addition, the CCW heat exchanger monitoring program will continue to be implemented and bounds the DBA containment heat loads for a given heat exchanger cleanliness despite elevated UHS temperatures. In essence, a cleaner CCW heat exchanger permits higher UHS temperatures. This heat exchanger monitoring program is required by TS SR 4.7.2.a and 4.7.2.b(2).

- p. **Include the basis for the licensee's conclusion the noncompliance will not involve adverse consequences to the environment.**

The attached graph depicts Cooling Canal System (CCS) temperatures at various locations in the system. See the map in Attachment 2 showing the sample locations. CCS-3 is the location where most of the crocodiles congregate. As shown on the graph the temperature will vary seasonally being cooler in the winter and warmer in the summer. The crocodiles utilize the CCS for courting, nesting and basking. Thus far this year, twenty five nests have hatched and almost 400 hatchlings have been tagged. Our crocodile expert is watching 3 more potential nests that should hatch out soon. An increase in the CCS water temperatures is not expected to affect the remaining 3 nests. This could be a record year for hatching.

Prior to the Extended Power Uprate being implemented, FPL along with the University of Florida (UF), began conducting capture surveys three times a year to determine growth and survival rates of the crocodiles. We also conduct spotlight surveys every other month (2011-2013). In 2014, after approval through the Fish and Wildlife Conservation Commission, we reduced those surveys to quarterly. The data indicate that the crocodiles are distributed in the canals with the most concentrated area in the South end of the canal and SW corner.

FPL and UF also capture and tag the crocodiles three times a year: 2011 – 117 captures, 2012 – 93 captures, 2013 – 102 captures and 2014 – 64 to date.



- q. **Include a statement that the facility organization that normally reviews safety issues has approved the request (Plant Onsite Review Committee, or its equivalent).**

This request was approved by the Turkey Point Plant Nuclear Safety Committee on July 20, 2014.

- r. **Make a verbal commitment that the licensee will submit the written NOED request within 2 working days and a follow-up license amendment request within 4 working days following the staff's verbal granting of the NOED. NRC's granting of a NOED means that exigent circumstances exist. However, the licensee's amendment request must describe and justify any exigent circumstances (see 10 CFR 50.91(a)(6)). If the staff agrees during the conference call that a follow-up amendment request is not required, the licensee shall state this in the written NOED request. If the licensee intends to propose a temporary amendment, the licensee's amendment request shall include justification for the temporary nature of the request.**

FPL Turkey Point will provide a written NOED request on July 21, 2014.

FPL submitted an emergency license amendment via References 1 and 2 which addressed the basis for this NOED.

s. In addition to items a thru r above, the licensee must provide the following information for a natural event NOED:

- 1. List the name, organization, and telephone number of the official in the government or independent entity who made the emergency determination, if applicable. If deemed necessary, the staff may contact the appropriate official to independently verify the information the licensee provided before making a NOED determination.**

Not applicable to this request.

- 2. Include details of the basis and nature of the emergency including, but not limited to, its effect on the following:**

(a.) on-site and off-site emergency preparedness,

On-site and off-site emergency preparedness are unaffected and remain available in their normal standby readiness posture.

(b.) plant and site ingress and egress,

Plant and site ingress and egress are not affected. The natural event concerns the environmental impacts on the UHS causing higher than normal temperature conditions.

(c.) off-site and on-site power sources,

Off-site and on-site power sources are currently not impacted. Off-site sources will be impacted if the Turkey Point nuclear units are forced to shutdown because of exceeding the UHS TS temperature limit.

(d.) plant security,

The higher than normal UHS temperature has had no effect on plant physical security.

(e.) grid stability, and

Current grid condition is stable with the Turkey Point nuclear units assisting with voltage control.

(f.) actions taken to avert or alleviate the emergency situation (e.g., coordinating with other utilities and the load dispatcher organization for buying additional power or for cycling loads, or shedding interruptible industrial or non-emergency loads).

FPL is the registered transmission system operator under the regulations of the North American Electric Reliability Corporation (NERC). Therefore, FPL is responsible for the FPL transmission system in the State of Florida which is responsible for serving almost 24000 MW of load and 4.7 million customers. Unavailability of both Turkey Point nuclear units challenges maintaining voltage requirements at the Turkey Point switchyard and the transmission and substation within ratings. In order to mitigate these voltage issues, shedding of load will be required. Attached is additional information related to these issues. Attachment 3 contains sensitive information that is being treated as Critical Energy Infrastructure Information as defined by the Federal Energy Regulatory Commission at 18 CFR 388.113. As a result, confidential treatment is appropriate under 10 CFR 2.390(d)(1).

3. Identify and discuss the potential consequences of compliance with existing license requirements (e.g., plant trip, controlled shutdown).

Compliance with TSs would involve an unnecessary shutdown of both Turkey Point nuclear units during a period of high system load demand.

4. Discuss the potential adverse effects on public health and safety from enforcing compliance with specific license requirements during the emergency.

Compliance with TSs would involve an unnecessary shutdown of both Turkey Point nuclear units during a period of high system load demand. The operation of Turkey Point Units 3 and 4 during the summer months is essential for grid voltage stability.

5. Discuss the impact of the emergency on plant safety, including any limitations of the UHS.

The request for enforcement discretion concerns the condition of the UHS. The effects on plant safety are discussed in previous sections above.

6. For a grid instability NOED, assure the NRC that all reasonable opportunities for purchasing replacement power have been exhausted, and the NOED shall not last any longer than replacement power becomes available, if applicable.

Not applicable to this request.

NOED References:

1. Florida Power & Light Company Letter L-2014-216, "License Amendment Request Number 231, Application to Revise Technical Specifications to Revise Ultimate Heat Sink Temperature Limit," dated July 10, 2014.
2. Florida Power & Light Company Letter L-2014-226, "License Amendment Request Number 231, Application to Revise Ultimate Heat Sink Temperature Limit – Request for Emergency Approval," dated July 17, 2014.

Attachment 1 - Top 50 Cutsets for CDF

#	Cutset Prob.	BE Prob	Inputs	
1	2.30E-06	1.00E+00	%ZZICWU3	LOSS OF ICW
		3.00E-03	QHFPSWCHG	Failure to align service water to cool charging pump given loss of ICW
		6.52E-02	QMM3BSAVIE	TRAIN A BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (1 YR EXPOSURE)
		5.54E-02	QMM3BSBVIL	TRAIN B BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (72 HR EXPOSURE)
		1.98E-01	ZZRCPSL182	FRACTION OF TIME RCP SEAL LOCA RESULTS IN 182 GPM/P LEAK
		7.00E-02	ZZU3PWRU4SD	UNIT 3 IN MODE 1, 2, 3, OR 4 AND UNIT 4 IN MODE 5 OR 6
2	2.30E-06	1.00E+00	%ZZICWU3	LOSS OF ICW
		3.00E-03	QHFPSWCHG	Failure to align service water to cool charging pump given loss of ICW
		5.54E-02	QMM3BSAVIL	TRAIN A BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (72 HR EXPOSURE)
		6.52E-02	QMM3BSBVIE	TRAIN B BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (1 YR EXPOSURE)
		1.98E-01	ZZRCPSL182	FRACTION OF TIME RCP SEAL LOCA RESULTS IN 182 GPM/P LEAK
		7.00E-02	ZZU3PWRU4SD	UNIT 3 IN MODE 1, 2, 3, OR 4 AND UNIT 4 IN MODE 5 OR 6
3	5.78E-07	1.00E+00	%ZZICWU3	LOSS OF ICW
		6.52E-02	QMM3BSAVIE	TRAIN A BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (1 YR EXPOSURE)
		5.54E-02	QMM3BSBVIL	TRAIN B BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (72 HR EXPOSURE)
		7.56E-04	TMM3U3SEG	FAILURE OF THE SRVICE WATER X-TIE TO U3
		1.98E-01	ZZRCPSL182	FRACTION OF TIME RCP SEAL LOCA RESULTS IN 182 GPM/P LEAK
		7.00E-02	ZZU3PWRU4SD	UNIT 3 IN MODE 1, 2, 3, OR 4 AND UNIT 4 IN MODE 5 OR 6
4	5.78E-07	1.00E+00	%ZZICWU3	LOSS OF ICW
		5.54E-02	QMM3BSAVIL	TRAIN A BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (72 HR EXPOSURE)
		6.52E-02	QMM3BSBVIE	TRAIN B BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (1 YR EXPOSURE)

		7.56E-04	TMM3U3SEG	FAILURE OF THE SRVICE WATER X-TIE TO U3 FRACTION OF TIME RCP SEAL LOCA RESULTS IN 182 GPM/P LEAK UNIT 3 IN MODE 1, 2, 3, OR 4 AND UNIT 4 IN MODE 5 OR 6
		1.98E-01	ZZRCPSL182	
		7.00E-02	ZZU3PWRU4SD	
5	3.31E-07	1.00E+00	%ZZICWU3	LOSS OF ICW Temperature Transmitter TT-3-143 Fails to Respond TRAIN A BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (1 YR EXPOSURE) TRAIN B BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (72 HR EXPOSURE) FRACTION OF TIME RCP SEAL LOCA RESULTS IN 182 GPM/P LEAK UNIT 3 IN MODE 1, 2, 3, OR 4 AND UNIT 4 IN MODE 5 OR 6
		4.32E-04	MTTD3143	
		6.52E-02	QMM3BSAVIE	
		5.54E-02	QMM3BSBVIL	
		1.98E-01	ZZRCPSL182	
		7.00E-02	ZZU3PWRU4SD	
6	3.31E-07	1.00E+00	%ZZICWU3	LOSS OF ICW Temperature Transmitter TT-3-143 Fails to Respond TRAIN A BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (72 HR EXPOSURE) TRAIN B BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (1 YR EXPOSURE) FRACTION OF TIME RCP SEAL LOCA RESULTS IN 182 GPM/P LEAK UNIT 3 IN MODE 1, 2, 3, OR 4 AND UNIT 4 IN MODE 5 OR 6
		4.32E-04	MTTD3143	
		5.54E-02	QMM3BSAVIL	
		6.52E-02	QMM3BSBVIE	
		1.98E-01	ZZRCPSL182	
		7.00E-02	ZZU3PWRU4SD	
7	1.70E-07	1.00E+00	%ZZICWU3	LOSS OF ICW Failure to isolate letdown given loss of letdown cooling TRAIN A BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (1 YR EXPOSURE) TRAIN B BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (72 HR EXPOSURE) FRACTION OF TIME RCP SEAL LOCA RESULTS IN 182 GPM/P LEAK UNIT 3 IN MODE 1, 2, 3, OR 4 AND UNIT 4 IN MODE 5 OR 6
		2.22E-04	MHFPISOLTDWN	
		6.52E-02	QMM3BSAVIE	
		5.54E-02	QMM3BSBVIL	
		1.98E-01	ZZRCPSL182	
		7.00E-02	ZZU3PWRU4SD	
8	1.70E-07	1.00E+00	%ZZICWU3	LOSS OF ICW Failure to isolate letdown given loss of letdown
		2.22E-04	MHFPISOLTDWN	

				cooling
		5.54E-02	QMM3BSAVIL	TRAIN A BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (72 HR EXPOSURE
		6.52E-02	QMM3BSBVIE	TRAIN B BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (1 YR EXPOSURE)
		1.98E-01	ZZRCPSL182	FRACTION OF TIME RCP SEAL LOCA RESULTS IN 182 GPM/P LEAK
		7.00E-02	ZZU3PWRU4SD	UNIT 3 IN MODE 1, 2, 3, OR 4 AND UNIT 4 IN MODE 5 OR 6
9	1.53E-07	1.00E+00	%ZZICWU3	LOSS OF ICW
		2.00E-04	MMM3SEALA	FAILURE OF RCP A SEAL INJECTION COMPONENTS
		6.52E-02	QMM3BSAVIE	TRAIN A BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (1 YR EXPOSURE)
		5.54E-02	QMM3BSBVIL	TRAIN B BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (72 HR EXPOSURE
		1.98E-01	ZZRCPSL182	FRACTION OF TIME RCP SEAL LOCA RESULTS IN 182 GPM/P LEAK
		7.00E-02	ZZU3PWRU4SD	UNIT 3 IN MODE 1, 2, 3, OR 4 AND UNIT 4 IN MODE 5 OR 6
10	1.53E-07	1.00E+00	%ZZICWU3	LOSS OF ICW
		2.00E-04	MMM3SEALA	FAILURE OF RCP A SEAL INJECTION COMPONENTS
		5.54E-02	QMM3BSAVIL	TRAIN A BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (72 HR EXPOSURE
		6.52E-02	QMM3BSBVIE	TRAIN B BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (1 YR EXPOSURE)
		1.98E-01	ZZRCPSL182	FRACTION OF TIME RCP SEAL LOCA RESULTS IN 182 GPM/P LEAK
		7.00E-02	ZZU3PWRU4SD	UNIT 3 IN MODE 1, 2, 3, OR 4 AND UNIT 4 IN MODE 5 OR 6
11	1.53E-07	1.00E+00	%ZZICWU3	LOSS OF ICW
		2.00E-04	MMM3SEALB	FAILURE OF RCP B SEAL INJECTION COMPONENTS
		6.52E-02	QMM3BSAVIE	TRAIN A BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (1 YR EXPOSURE)
		5.54E-02	QMM3BSBVIL	TRAIN B BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (72 HR EXPOSURE
		1.98E-01	ZZRCPSL182	FRACTION OF TIME RCP SEAL LOCA RESULTS IN 182 GPM/P LEAK
		7.00E-02	ZZU3PWRU4SD	UNIT 3 IN MODE 1, 2, 3, OR 4 AND UNIT 4 IN

MODE 5 OR 6

12	1.53E-07	1.00E+00	%ZZICWU3	LOSS OF ICW
		2.00E-04	MMM3SEALB	FAILURE OF RCP B SEAL INJECTION
		5.54E-02	QMM3BSAVIL	COMPONENTS
		6.52E-02	QMM3BSBVIE	TRAIN A BASKET STRAINER/VALVES SHUT OR
		1.98E-01	ZZRCPSL182	PLUGGED <MODULE> UNIT 3 (72 HR EXPOSURE)
		7.00E-02	ZZU3PWRU4SD	TRAIN B BASKET STRAINER/VALVES SHUT OR
				PLUGGED <MODULE> UNIT 3 (1 YR EXPOSURE)
				FRACTION OF TIME RCP SEAL LOCA RESULTS IN
				182 GPM/P LEAK
				UNIT 3 IN MODE 1, 2, 3, OR 4 AND UNIT 4 IN
				MODE 5 OR 6
13	1.53E-07	1.00E+00	%ZZICWU3	LOSS OF ICW
		2.00E-04	MMM3SEALC	FAILURE OF RCP C SEAL INJECTION
		6.52E-02	QMM3BSAVIE	COMPONENTS
		5.54E-02	QMM3BSBVIL	TRAIN A BASKET STRAINER/VALVES SHUT OR
		1.98E-01	ZZRCPSL182	PLUGGED <MODULE> UNIT 3 (1 YR EXPOSURE)
		7.00E-02	ZZU3PWRU4SD	TRAIN B BASKET STRAINER/VALVES SHUT OR
				PLUGGED <MODULE> UNIT 3 (72 HR EXPOSURE)
				FRACTION OF TIME RCP SEAL LOCA RESULTS IN
				182 GPM/P LEAK
				UNIT 3 IN MODE 1, 2, 3, OR 4 AND UNIT 4 IN
				MODE 5 OR 6
14	1.53E-07	1.00E+00	%ZZICWU3	LOSS OF ICW
		2.00E-04	MMM3SEALC	FAILURE OF RCP C SEAL INJECTION
		5.54E-02	QMM3BSAVIL	COMPONENTS
		6.52E-02	QMM3BSBVIE	TRAIN A BASKET STRAINER/VALVES SHUT OR
		1.98E-01	ZZRCPSL182	PLUGGED <MODULE> UNIT 3 (72 HR EXPOSURE)
		7.00E-02	ZZU3PWRU4SD	TRAIN B BASKET STRAINER/VALVES SHUT OR
				PLUGGED <MODULE> UNIT 3 (1 YR EXPOSURE)
				FRACTION OF TIME RCP SEAL LOCA RESULTS IN
				182 GPM/P LEAK
				UNIT 3 IN MODE 1, 2, 3, OR 4 AND UNIT 4 IN
				MODE 5 OR 6
15	1.16E-07	1.00E+00	%ZZICWU3	LOSS OF ICW
		3.00E-03	QHFPWCHG	Failure to align service water to cool charging
		6.52E-02	QMM3BSAVIE	pump given loss of ICW
		5.54E-02	QMM3BSBVIL	TRAIN A BASKET STRAINER/VALVES SHUT OR
				PLUGGED <MODULE> UNIT 3 (1 YR EXPOSURE)
				TRAIN B BASKET STRAINER/VALVES SHUT OR

		1.00E-02	ZZRCPSL76	PLUGGED <MODULE> UNIT 3 (72 HR EXPOSURE FRACTION OF TIME RCP SEAL LOCA RESULTS IN 76 GPM/P LEAK UNIT 3 IN MODE 1, 2, 3, OR 4 AND UNIT 4 IN MODE 5 OR 6
		7.00E-02	ZZU3PWRU4SD	
16	1.16E-07	1.00E+00	%ZZICWU3	LOSS OF ICW Failure to align service water to cool charging pump given loss of ICW TRAIN A BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (72 HR EXPOSURE TRAIN B BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (1 YR EXPOSURE) FRACTION OF TIME RCP SEAL LOCA RESULTS IN 76 GPM/P LEAK UNIT 3 IN MODE 1, 2, 3, OR 4 AND UNIT 4 IN MODE 5 OR 6
		3.00E-03	QHFPWCHG	
		5.54E-02	QMM3BSAVIL	
		6.52E-02	QMM3BSBVIE	
		1.00E-02	ZZRCPSL76	
		7.00E-02	ZZU3PWRU4SD	
17	2.93E-08	1.00E+00	%ZZICWU3	LOSS OF ICW TRAIN A BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (1 YR EXPOSURE) TRAIN B BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (72 HR EXPOSURE FAILURE OF THE SERVICE WATER X-TIE TO U3 FRACTION OF TIME RCP SEAL LOCA RESULTS IN 76 GPM/P LEAK UNIT 3 IN MODE 1, 2, 3, OR 4 AND UNIT 4 IN MODE 5 OR 6
		6.52E-02	QMM3BSAVIE	
		5.54E-02	QMM3BSBVIL	
		7.56E-04	TMM3U3SEG	
		1.00E-02	ZZRCPSL76	
		7.00E-02	ZZU3PWRU4SD	
18	2.93E-08	1.00E+00	%ZZICWU3	LOSS OF ICW TRAIN A BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (72 HR EXPOSURE TRAIN B BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (1 YR EXPOSURE) FAILURE OF THE SERVICE WATER X-TIE TO U3 FRACTION OF TIME RCP SEAL LOCA RESULTS IN 76 GPM/P LEAK UNIT 3 IN MODE 1, 2, 3, OR 4 AND UNIT 4 IN MODE 5 OR 6
		5.54E-02	QMM3BSAVIL	
		6.52E-02	QMM3BSBVIE	
		7.56E-04	TMM3U3SEG	
		1.00E-02	ZZRCPSL76	
		7.00E-02	ZZU3PWRU4SD	
19	2.91E-08	1.00E+00	%ZZICWU3	LOSS OF ICW Failure to align service water to cool charging pump given loss of ICW TRAIN A BASKET STRAINER/VALVES SHUT OR
		3.00E-03	QHFPWCHG	
		6.52E-02	QMM3BSAVIE	

				PLUGGED <MODULE> UNIT 3 (1 YR EXPOSURE) TRAIN B BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (72 HR EXPOSURE) FRACTION OF TIME RCP SEAL LOCA RESULTS IN 480 GPM/P LEAK UNIT 3 IN MODE 1, 2, 3, OR 4 AND UNIT 4 IN MODE 5 OR 6
		5.54E-02	QMM3BSBVIL	
		2.50E-03	ZZRCPSL480	
		7.00E-02	ZZU3PWRU4SD	
20	2.91E-08	1.00E+00	%ZZICWU3	LOSS OF ICW Failure to align service water to cool charging pump given loss of ICW
		3.00E-03	QHFPSWCHG	TRAIN A BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (72 HR EXPOSURE) TRAIN B BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (1 YR EXPOSURE) FRACTION OF TIME RCP SEAL LOCA RESULTS IN 480 GPM/P LEAK UNIT 3 IN MODE 1, 2, 3, OR 4 AND UNIT 4 IN MODE 5 OR 6
		5.54E-02	QMM3BSAVIL	
		6.52E-02	QMM3BSBVIE	
		2.50E-03	ZZRCPSL480	
		7.00E-02	ZZU3PWRU4SD	
21	1.67E-08	1.00E+00	%ZZICWU3	LOSS OF ICW Temperature Transmitter TT-3-143 Fails to Respond
		4.32E-04	MTTD3143	TRAIN A BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (1 YR EXPOSURE) TRAIN B BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (72 HR EXPOSURE) FRACTION OF TIME RCP SEAL LOCA RESULTS IN 76 GPM/P LEAK UNIT 3 IN MODE 1, 2, 3, OR 4 AND UNIT 4 IN MODE 5 OR 6
		6.52E-02	QMM3BSAVIE	
		5.54E-02	QMM3BSBVIL	
		1.00E-02	ZZRCPSL76	
		7.00E-02	ZZU3PWRU4SD	
22	1.67E-08	1.00E+00	%ZZICWU3	LOSS OF ICW Temperature Transmitter TT-3-143 Fails to Respond
		4.32E-04	MTTD3143	TRAIN A BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (72 HR EXPOSURE) TRAIN B BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (1 YR EXPOSURE) FRACTION OF TIME RCP SEAL LOCA RESULTS IN 76 GPM/P LEAK UNIT 3 IN MODE 1, 2, 3, OR 4 AND UNIT 4 IN MODE 5 OR 6
		5.54E-02	QMM3BSAVIL	
		6.52E-02	QMM3BSBVIE	
		1.00E-02	ZZRCPSL76	
		7.00E-02	ZZU3PWRU4SD	

23	1.65E-08	1.00E+00	%ZZICWU3	LOSS OF ICW TRAIN A BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (1 YR EXPOSURE) TRAIN B BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (72 HR EXPOSURE) FAILURE OF THE SRW COMMON SEGMENT MODULE FRACTION OF TIME RCP SEAL LOCA RESULTS IN 182 GPM/P LEAK UNIT 3 IN MODE 1, 2, 3, OR 4 AND UNIT 4 IN MODE 5 OR 6
		6.52E-02	QMM3BSAVIE	
		5.54E-02	QMM3BSBVIL	
		2.15E-05	TMM0DISVLV	
		1.98E-01	ZZRCPSL182	
		7.00E-02	ZZU3PWRU4SD	
24	1.65E-08	1.00E+00	%ZZICWU3	LOSS OF ICW TRAIN A BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (72 HR EXPOSURE) TRAIN B BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (1 YR EXPOSURE) FAILURE OF THE SRW COMMON SEGMENT MODULE FRACTION OF TIME RCP SEAL LOCA RESULTS IN 182 GPM/P LEAK UNIT 3 IN MODE 1, 2, 3, OR 4 AND UNIT 4 IN MODE 5 OR 6
		5.54E-02	QMM3BSAVIL	
		6.52E-02	QMM3BSBVIE	
		2.15E-05	TMM0DISVLV	
		1.98E-01	ZZRCPSL182	
		7.00E-02	ZZU3PWRU4SD	
25	1.63E-08	1.00E+00	%ZZCCWU3	LOSS OF CCW Fail to start CCW pump(s) after autostart fails Failure to stop RCPs given loss of CCW MODULE: CCW PUMP TRAIN A FAILURE TO RUN (1 YEAR EXPOSURE) HEP dependency factor for CHFPSTCCW,CHFPSTPRCP,MHFPISOLTDWN PRESSURE SWITCH PC-3-611 FAILS HIGH Failure to isolate letdown given loss of letdown cooling CCW PUMP 3A IS RUNNING UNIT 3 IN MODE 1, 2, 3, OR 4 AND UNIT 4 IN MODE 5 OR 6
		1.50E-03	CHFPSTCCW	
		4.00E-03	CHFPSTPRCP	
		1.66E-02	CMMPAFTRIE	
		1.13E+06	COMBINATION_1435	
		2.81E-02	CPSH3PC611	
		2.22E-04	MHFPISOLTDWN	
		3.33E-01	ZZC0001	
7.00E-02	ZZU3PWRU4SD			
26	1.63E-08	1.00E+00	%ZZCCWU3	LOSS OF CCW Fail to start CCW pump(s) after autostart fails Failure to stop RCPs given loss of CCW MODULE: CCW PUMP TRAIN B FAILURE TO RUN (1 YEAR EXPOSURE) HEP dependency factor for
		1.50E-03	CHFPSTCCW	
		4.00E-03	CHFPSTPRCP	
		1.66E-02	CMMPBFTRIE	
		1.13E+06	COMBINATION_1435	

				CHFPSTCCW,CHFPSTPRCP,MHFPISOLTDWN
		2.81E-02	CPSH3PC611	PRESSURE SWITCH PC-3-611 FAILS HIGH
		2.22E-04	MHFPISOLTDWN	Failure to isolate letdown given loss of letdown cooling
		3.33E-01	ZZC0002	CCW PUMP 3B IS RUNNING
		7.00E-02	ZZU3PWRU4SD	UNIT 3 IN MODE 1, 2, 3, OR 4 AND UNIT 4 IN MODE 5 OR 6
27	1.63E-08	1.00E+00	%ZZCCWU3	LOSS OF CCW
		1.50E-03	CHFPSTCCW	Fail to start CCW pump(s) after autostart fails
		4.00E-03	CHFPSTPRCP	Failure to stop RCPs given loss of CCW
		1.66E-02	CMMPFCFTRIE	MODULE: CCW PUMP TRAIN 3C FAILURE TO RUN (1 YEAR EXPOSURE)
		1.13E+06	COMBINATION_1435	HEP dependency factor for
		2.81E-02	CPSH3PC611	CHFPSTCCW,CHFPSTPRCP,MHFPISOLTDWN
		2.22E-04	MHFPISOLTDWN	PRESSURE SWITCH PC-3-611 FAILS HIGH
		3.33E-01	ZZC0003	Failure to isolate letdown given loss of letdown cooling
		7.00E-02	ZZU3PWRU4SD	CCW PUMP 3C IS RUNNING
				UNIT 3 IN MODE 1, 2, 3, OR 4 AND UNIT 4 IN MODE 5 OR 6
28	1.63E-08	1.00E+00	%ZZCCWU3	LOSS OF CCW
		1.50E-03	CHFPSTCCW	Fail to start CCW pump(s) after autostart fails
		4.00E-03	CHFPSTPRCP	Failure to stop RCPs given loss of CCW
		1.22E-02	CHFPSWCHG	Failure to align service water to cool charging pump given loss of CCW
		1.66E-02	CMMPAFTRIE	MODULE: CCW PUMP TRAIN A FAILURE TO RUN (1 YEAR EXPOSURE)
		2.05E+04	COMBINATION_1424	HEP dependency factor for
		2.81E-02	CPSH3PC611	CHFPSTCCW,CHFPSTPRCP,CHFPSWCHG
		3.33E-01	ZZC0001	PRESSURE SWITCH PC-3-611 FAILS HIGH
		7.00E-02	ZZU3PWRU4SD	CCW PUMP 3A IS RUNNING
				UNIT 3 IN MODE 1, 2, 3, OR 4 AND UNIT 4 IN MODE 5 OR 6
29	1.63E-08	1.00E+00	%ZZCCWU3	LOSS OF CCW
		1.50E-03	CHFPSTCCW	Fail to start CCW pump(s) after autostart fails
		4.00E-03	CHFPSTPRCP	Failure to stop RCPs given loss of CCW
		1.22E-02	CHFPSWCHG	Failure to align service water to cool charging pump given loss of CCW
		1.66E-02	CMMPBFTRIE	MODULE: CCW PUMP TRAIN B FAILURE TO RUN (1 YEAR EXPOSURE)

		2.05E+04	COMBINATION_1424	HEP dependency factor for
		2.81E-02	CPSH3PC611	CHFPSTCCW,CHFPSTPRCP,CHFPSWCHG
		3.33E-01	ZZC0002	PRESSURE SWITCH PC-3-611 FAILS HIGH
		7.00E-02	ZZU3PWRU4SD	CCW PUMP 3B IS RUNNING
				UNIT 3 IN MODE 1, 2, 3, OR 4 AND UNIT 4 IN
				MODE 5 OR 6
30	1.63E-08	1.00E+00	%ZZCCWU3	LOSS OF CCW
		1.50E-03	CHFPSTCCW	Fail to start CCW pump(s) after autostart fails
		4.00E-03	CHFPSTPRCP	Failure to stop RCPs given loss of CCW
		1.22E-02	CHFPSWCHG	Failure to align service water to cool charging
		1.66E-02	CMMPCFTRIE	pump given loss of CCW
		2.05E+04	COMBINATION_1424	MODULE: CCW PUMP TRAIN 3C FAILURE TO
		2.81E-02	CPSH3PC611	RUN (1 YEAR EXPOSURE)
		3.33E-01	ZZC0003	HEP dependency factor for
		7.00E-02	ZZU3PWRU4SD	CHFPSTCCW,CHFPSTPRCP,CHFPSWCHG
				PRESSURE SWITCH PC-3-611 FAILS HIGH
				CCW PUMP 3C IS RUNNING
				UNIT 3 IN MODE 1, 2, 3, OR 4 AND UNIT 4 IN
				MODE 5 OR 6
31	1.39E-08	5.04E-04	%ZZS1U3	SMALL-SMALL LOCA S1
		3.23E-05	GMMFCCHHSIALL	COMMON CAUSE(4/4) FAILURE OF HHSI PUMPS
		8.58E-01	ZZU3PWRU4PWR	3A, 3B, 4A, 4B TO RUN
				UNIT 3 IN MODE 1, 2, OR 3 AND UNIT 4 IN MODE
				1, 2, OR 3
32	1.37E-08	4.45E-04	%ZZS2U3	SMALL LOCA
		3.60E-05	GHFA3INJALL	FAILURE TO RESTORE MOV 843A/B FROM
		8.58E-01	ZZU3PWRU4PWR	MAINTENANCE
				UNIT 3 IN MODE 1, 2, OR 3 AND UNIT 4 IN MODE
				1, 2, OR 3
33	1.34E-08	1.17E-01	%ZZT3AU3	LOSS OF MAIN FEEDWATER - RECOVERABLE
		1.21E-06	NRDFPHYSICAL	FAILURE OF CONTROL RODS TO INSERT WITH
		1.00E+00	ZZATWS	POWER REMOVED
		1.10E-01	ZZPRCI1	ATWS FLAG
		8.58E-01	ZZU3PWRU4PWR	PLANT IN OPERATING CYCLE INTERVAL 1
				UNIT 3 IN MODE 1, 2, OR 3 AND UNIT 4 IN MODE
				1, 2, OR 3
34	1.23E-08	4.45E-04	%ZZS2U3	SMALL LOCA
		3.23E-05	GMMFCCHHSIALL	COMMON CAUSE(4/4) FAILURE OF HHSI PUMPS

		8.58E-01	ZZU3PWRU4PWR	3A, 3B, 4A, 4B TO RUN UNIT 3 IN MODE 1, 2, OR 3 AND UNIT 4 IN MODE 1, 2, OR 3
35	9.93E-09	4.45E-04	%ZZS2U3	SMALL LOCA HEP dependency factor for GHFPS2RCRC,GHFPOPPSI
		9.28E+02	COMBINATION_5219	Failure to initiate HHSI using opposite unit RWST(suction source)
		5.40E-05	GHFPOPPSI	
		5.19E-04	GHFPS2RCRC	Fail to switch over to HHCL recirc follow S2 LOCA UNIT 3 IN MODE 1, 2, OR 3 AND UNIT 4 IN MODE 1, 2, OR 3
		8.58E-01	ZZU3PWRU4PWR	
36	9.37E-09	1.00E+00	%ZZIAU3	UNIT 3 LOSS OF IA AIR DRYER 3T9 FAILS TO DELIVER FLOW (1 YR EXPOSURE)
		8.21E-02	HADF33T9I	FAILURE OF CONTROL RODS TO INSERT WITH POWER REMOVED
		1.21E-06	NRDFPHYSICAL	
		1.00E+00	ZZATWS	ATWS FLAG
		1.10E-01	ZZPRCI1	PLANT IN OPERATING CYCLE INTERVAL 1 UNIT 3 IN MODE 1, 2, OR 3 AND UNIT 4 IN MODE 1, 2, OR 3
		8.58E-01	ZZU3PWRU4PWR	
37	8.60E-09	1.00E+00	%ZZICWU3	LOSS OF ICW Failure to isolate letdown given loss of letdown cooling
		2.22E-04	MHFPISOLTDWN	
		6.52E-02	QMM3BSAVIE	TRAIN A BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (1 YR EXPOSURE)
		5.54E-02	QMM3BSBVIL	TRAIN B BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (72 HR EXPOSURE)
		1.00E-02	ZZRCPSL76	FRACTION OF TIME RCP SEAL LOCA RESULTS IN 76 GPM/P LEAK
		7.00E-02	ZZU3PWRU4SD	UNIT 3 IN MODE 1, 2, 3, OR 4 AND UNIT 4 IN MODE 5 OR 6
38	8.60E-09	1.00E+00	%ZZICWU3	LOSS OF ICW Failure to isolate letdown given loss of letdown cooling
		2.22E-04	MHFPISOLTDWN	
		5.54E-02	QMM3BSAVIL	TRAIN A BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (72 HR EXPOSURE)
		6.52E-02	QMM3BSBVIE	TRAIN B BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (1 YR EXPOSURE)
		1.00E-02	ZZRCPSL76	FRACTION OF TIME RCP SEAL LOCA RESULTS IN 76 GPM/P LEAK

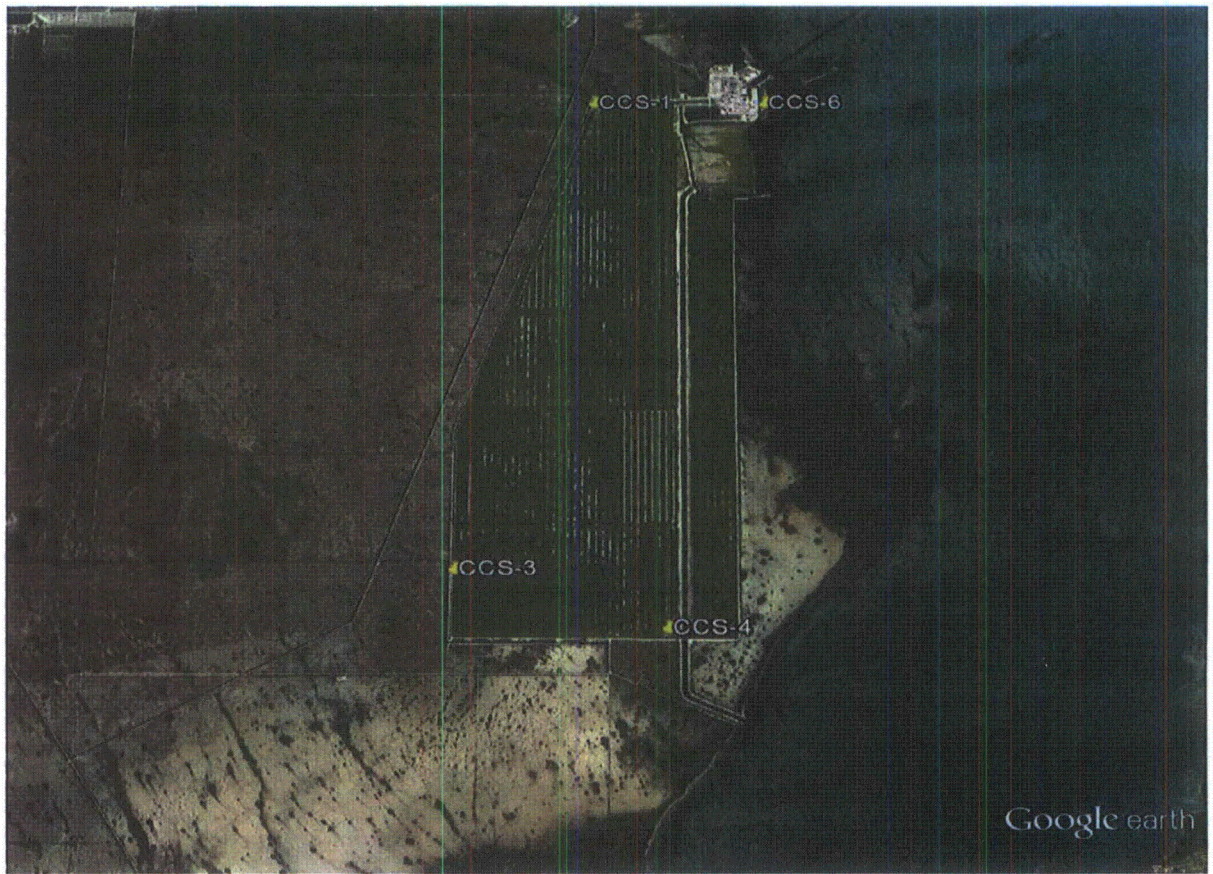
		7.00E-02	ZZU3PWRU4SD	UNIT 3 IN MODE 1, 2, 3, OR 4 AND UNIT 4 IN MODE 5 OR 6
39	8.34E-09	9.72E-09	%ZZVESRUPU3	UNIT 3 VESSEL RUPTURE
		8.58E-01	ZZU3PWRU4PWR	UNIT 3 IN MODE 1, 2, OR 3 AND UNIT 4 IN MODE 1, 2, OR 3
40	8.16E-09	1.00E+00	%ZZICWU3	LOSS OF ICW
		1.07E-05	MMM3PATHB	FAILURE OF SEAL INJECTION FILTER PATH B
		6.52E-02	QMM3BSAVIE	TRAIN A BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (1 YR EXPOSURE)
		5.54E-02	QMM3BSBVIL	TRAIN B BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (72 HR EXPOSURE)
		1.98E-01	ZZRCPSL182	FRACTION OF TIME RCP SEAL LOCA RESULTS IN 182 GPM/P LEAK
		7.00E-02	ZZU3PWRU4SD	UNIT 3 IN MODE 1, 2, 3, OR 4 AND UNIT 4 IN MODE 5 OR 6
41	8.16E-09	1.00E+00	%ZZICWU3	LOSS OF ICW
		1.07E-05	MMM3PATHB	FAILURE OF SEAL INJECTION FILTER PATH B
		5.54E-02	QMM3BSAVIL	TRAIN A BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (72 HR EXPOSURE)
		6.52E-02	QMM3BSBVIE	TRAIN B BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (1 YR EXPOSURE)
		1.98E-01	ZZRCPSL182	FRACTION OF TIME RCP SEAL LOCA RESULTS IN 182 GPM/P LEAK
		7.00E-02	ZZU3PWRU4SD	UNIT 3 IN MODE 1, 2, 3, OR 4 AND UNIT 4 IN MODE 5 OR 6
42	8.02E-09	4.45E-04	%ZZS2U3	SMALL LOCA
		2.99E+05	COMBINATION_5313	HEP dependency factor for JHFPISOPMP,MHFPREFILLS2,GHFPOPPSI
		5.40E-05	GHFPOPPSI	Failure to initiate HHSI using opposite unit RWST(suction source)
		3.99E-04	JHFPISOPMP	Fail to secure 1 of RHR pumps in injection phase (sml LOCA)
		3.26E-03	MHFPREFILLS2	Fail to makeup to RWST to sustain inject src follow S2LOCA
		8.58E-01	ZZU3PWRU4PWR	UNIT 3 IN MODE 1, 2, OR 3 AND UNIT 4 IN MODE 1, 2, OR 3
43	7.76E-09	1.00E+00	%ZZICWU3	LOSS OF ICW
		2.00E-04	MMM3SEALA	FAILURE OF RCP A SEAL INJECTION COMPONENTS

		6.52E-02	QMM3BSAVIE	TRAIN A BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (1 YR EXPOSURE)
		5.54E-02	QMM3BSBVIL	TRAIN B BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (72 HR EXPOSURE)
		1.00E-02	ZZRCPSL76	FRACTION OF TIME RCP SEAL LOCA RESULTS IN 76 GPM/P LEAK
		7.00E-02	ZZU3PWRU4SD	UNIT 3 IN MODE 1, 2, 3, OR 4 AND UNIT 4 IN MODE 5 OR 6
44	7.76E-09	1.00E+00	%ZZICWU3	LOSS OF ICW
		2.00E-04	MMM3SEALA	FAILURE OF RCP A SEAL INJECTION COMPONENTS
		5.54E-02	QMM3BSAVIL	TRAIN A BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (72 HR EXPOSURE)
		6.52E-02	QMM3BSBVIE	TRAIN B BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (1 YR EXPOSURE)
		1.00E-02	ZZRCPSL76	FRACTION OF TIME RCP SEAL LOCA RESULTS IN 76 GPM/P LEAK
		7.00E-02	ZZU3PWRU4SD	UNIT 3 IN MODE 1, 2, 3, OR 4 AND UNIT 4 IN MODE 5 OR 6
45	7.76E-09	1.00E+00	%ZZICWU3	LOSS OF ICW
		2.00E-04	MMM3SEALB	FAILURE OF RCP B SEAL INJECTION COMPONENTS
		6.52E-02	QMM3BSAVIE	TRAIN A BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (1 YR EXPOSURE)
		5.54E-02	QMM3BSBVIL	TRAIN B BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (72 HR EXPOSURE)
		1.00E-02	ZZRCPSL76	FRACTION OF TIME RCP SEAL LOCA RESULTS IN 76 GPM/P LEAK
		7.00E-02	ZZU3PWRU4SD	UNIT 3 IN MODE 1, 2, 3, OR 4 AND UNIT 4 IN MODE 5 OR 6
46	7.76E-09	1.00E+00	%ZZICWU3	LOSS OF ICW
		2.00E-04	MMM3SEALB	FAILURE OF RCP B SEAL INJECTION COMPONENTS
		5.54E-02	QMM3BSAVIL	TRAIN A BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (72 HR EXPOSURE)
		6.52E-02	QMM3BSBVIE	TRAIN B BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (1 YR EXPOSURE)
		1.00E-02	ZZRCPSL76	FRACTION OF TIME RCP SEAL LOCA RESULTS IN 76 GPM/P LEAK
		7.00E-02	ZZU3PWRU4SD	UNIT 3 IN MODE 1, 2, 3, OR 4 AND UNIT 4 IN MODE 5 OR 6

47	7.76E-09	1.00E+00	%ZZICWU3	LOSS OF ICW FAILURE OF RCP C SEAL INJECTION COMPONENTS TRAIN A BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (1 YR EXPOSURE) TRAIN B BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (72 HR EXPOSURE FRACTION OF TIME RCP SEAL LOCA RESULTS IN 76 GPM/P LEAK UNIT 3 IN MODE 1, 2, 3, OR 4 AND UNIT 4 IN MODE 5 OR 6
		2.00E-04	MMM3SEALC	
		6.52E-02	QMM3BSAVIE	
		5.54E-02	QMM3BSBVIL	
		1.00E-02	ZZRCPSL76	
		7.00E-02	ZZU3PWRU4SD	
48	7.76E-09	1.00E+00	%ZZICWU3	LOSS OF ICW FAILURE OF RCP C SEAL INJECTION COMPONENTS TRAIN A BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (72 HR EXPOSURE TRAIN B BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (1 YR EXPOSURE) FRACTION OF TIME RCP SEAL LOCA RESULTS IN 76 GPM/P LEAK UNIT 3 IN MODE 1, 2, 3, OR 4 AND UNIT 4 IN MODE 5 OR 6
		2.00E-04	MMM3SEALC	
		5.54E-02	QMM3BSAVIL	
		6.52E-02	QMM3BSBVIE	
		1.00E-02	ZZRCPSL76	
		7.00E-02	ZZU3PWRU4SD	
49	7.32E-09	1.00E+00	%ZZICWU3	LOSS OF ICW TRAIN A BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (1 YR EXPOSURE) TRAIN B BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (72 HR EXPOSURE FAILURE OF THE SRVICE WATER X-TIE TO U3 FRACTION OF TIME RCP SEAL LOCA RESULTS IN 480 GPM/P LEAK UNIT 3 IN MODE 1, 2, 3, OR 4 AND UNIT 4 IN MODE 5 OR 6
		6.52E-02	QMM3BSAVIE	
		5.54E-02	QMM3BSBVIL	
		7.56E-04	TMM3U3SEG	
		2.50E-03	ZZRCPSL480	
		7.00E-02	ZZU3PWRU4SD	
50	7.32E-09	1.00E+00	%ZZICWU3	LOSS OF ICW TRAIN A BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (72 HR EXPOSURE TRAIN B BASKET STRAINER/VALVES SHUT OR PLUGGED <MODULE> UNIT 3 (1 YR EXPOSURE) FAILURE OF THE SRVICE WATER X-TIE TO U3 FRACTION OF TIME RCP SEAL LOCA RESULTS IN 480 GPM/P LEAK
		5.54E-02	QMM3BSAVIL	
		6.52E-02	QMM3BSBVIE	
		7.56E-04	TMM3U3SEG	
		2.50E-03	ZZRCPSL480	

7.00E-02 ZZU3PWRU4SD UNIT 3 IN MODE 1, 2, 3, OR 4 AND UNIT 4 IN
MODE 5 OR 6

Attachment 2 - Turkey Point Cooling Canal Sample Locations



Google earth

