



U. S. Nuclear Regulatory Commission  
Attn.: Document Control Desk  
Washington, D.C. 20555-0001

Re: Turkey Point Unit 3 and Unit 4  
Docket Nos. 50-250 and 50-251  
Florida Power and Light Company's, Turkey Point Units 3 and 4, Sixth Six-Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049)

References:

1. U.S. Nuclear Regulatory Commission, Order Number EA-12-049, Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events, dated March 12, 2012, ADAMS Accession No. ML12056A045.
2. FPL Letter, L-2013-061, Florida Power and Light Company's Overall Integrated Plan in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049), dated February 26, 2013, ADAMS Accession No. ML13072A038.
3. FPL Letter, L-2013-249, Florida Power and Light Company's, Turkey Point Units 3 and 4, First Six-Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049), dated August 21, 2013, ADAMS Accession No. ML13248A311.
4. NRC Letter, Turkey Point Units 3 and 4 – Interim Staff Evaluation Relating to Overall Integrated Plan in Response to Order EA-12-049 (Mitigation Strategies) (TAC Nos. MF0982 and MF0983), dated February 6, 2014, ADAMS Accession No. ML14002A151.
5. FPL Letter, L-2014-041, Florida Power and Light Company's, Turkey Point Units 3 and 4, Second Six-Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049), dated February 26, 2014, ADAMS Accession No. ML14073A454.
6. FPL Letter, L-2014-243, Florida Power and Light Company's, Turkey Point Units 3 and 4, Third Six-Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049), dated August 27, 2014, ADAMS Accession No. ML14253A162.
7. FPL Letter, L-2015-017, Florida Power and Light Company's, Turkey Point Units 3 and 4, Fourth Six-Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049), dated February 26, 2015, ADAMS Accession No. ML15076A195.

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8. FPL Letter, L-2015-193, Florida Power and Light Company's, Turkey Point Units 3 and 4, Fifth Six-Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049), dated August 11, 2015, ADAMS Accession No. ML15233A417.

On March 12, 2012, the Nuclear Regulatory Commission (NRC) issued Reference 1, an immediately effective Order to all licensees including Florida Power and Light Company's (FPL) Turkey Point Units 3 and 4. In Reference 2, FPL submitted an Overall Integrated Plan for the implementation of this Order. The Order required Licensees to provide periodic status reports for the Overall Integrated Plan.

FPL submitted the first six-month update to the Overall Integrated Plan on August 21, 2013 (Reference 3). On February 6, 2014, the NRC Staff provided the interim staff evaluation and audit report including open and confirmatory items (Reference 4). On February 26, 2014, FPL submitted the second six-month update to the Overall Integrated Plan (Reference 5). On August 27, 2014, FPL submitted the third six-month update (Reference 6), on February 26, 2015 the fourth six-month update (Reference 7) and on August 11, 2015 the fifth six-month update (Reference 8) to the Overall Integrated Plan.

The purpose of this letter is to provide the sixth six-month status report pursuant to Section IV, Condition C.2, of Reference 1, which delineates progress made in implementing the requirements of Reference 1. The enclosure to this letter provides an update since the fifth six-month status report of milestone accomplishments, confirmatory items and open items, including any changes to the compliance method, schedule, or need for relief and the basis, if any.

Should you have any questions regarding this submittal, please contact Mr. Mitch Guth, Turkey Point Licensing Manager, at 305-246-6698.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on February 23, 2016.

This letter contains no new regulatory commitments and no revisions to existing regulatory commitments.

Sincerely,



Thomas Summers  
Site Vice President  
Turkey Point Nuclear Plant

Enclosure

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

**L-2016-016**

**Enclosure**

**Florida Power and Light Company's**

**Turkey Point Units 3 and 4**

**Sixth Six-Month Status Report for the Implementation of Order EA-12-049**

**Order Modifying Licenses with Regard to Requirements for Mitigation**

**Strategies for Beyond-Design-Basis External Events**

## **1 Introduction**

Florida Power and Light Company's (FPL) Turkey Point developed an Overall Integrated Plan (OIP) (Reference 2 in Section 8), documenting the diverse and flexible strategies (FLEX), in response to Reference 1. This enclosure provides an update of milestone accomplishments since submittal of the OIP including any changes to the compliance method, schedule, or need for relief/relaxation and the basis, if any.

## **2 Milestone Accomplishments**

Since the last six month update, the phase 2 staffing analysis, training, and FLEX strategies Final Time Constraint Validation and Final Walkthrough Verification activities have been completed. In addition, the audit of Orders EA-12-049 and EA-12-051 was completed by the NRC and the audit report was provided to FPL.

For Unit 3, all outage related modifications were implemented during the Unit 3 2015 fall refueling outage including installation of the Flowserve low leakage reactor coolant pump (RCP) seal packages, with abeyance seal. All electrical and mechanical connections for portable equipment have been completed. The only on-line modification remaining is completion of the F-1 makeup well that is common for both units and is scheduled to be completed in March 2016.

For Unit 4, all of the design modification packages are complete. The implementation of the on-line mechanical tie-ins is complete. The installation of the Flowserve low leakage seal packages with abeyance seal and the electrical tie-ins are scheduled during the upcoming Unit 4 2016 spring refueling outage.

## **3 Milestone Schedule Status**

The following table provides an update to Attachment 3 of the OIP. It provides the activity status of each item, and whether the expected completion date has changed. The dates are firm at this stage of the project, but subject to minor changes as the projects are completed. All remaining actions will support Turkey Point's ability to meet the final compliance date for NRC Order EA-12-049 implementation that is scheduled for Unit 4 startup following the upcoming Unit 4 2016 spring refueling outage.

New Milestones:

- There are no new milestones.

Revised Milestones:

- Delivery of procurement phase 3 equipment is revised to March 2016 to allow for the delivery of some minor items such as hand tools.
- Unit 4 implementation was revised to April 2016 to coincide with scheduled unit startup following the spring outage.

| <b>Milestone</b>  | <b>Target Completion Date</b> | <b>Activity Status</b> | <b>Revised Target Completion Date</b> |
|---|-------------------------------|------------------------|---------------------------------------|
| Submit 60 Day Status Report   | Oct 2012                      | Complete               | N/A                                   |
| Submit Overall Integrated Plan  | Feb 2013                      | Complete               | N/A                                   |
| Submit 6 Month Updates:   |                               |                        |                                       |
| Update 1  | Aug 2013                      | Complete               | N/A                                   |
| Update 2  | Feb 2014                      | Complete               | N/A                                   |
| Update 3  | Aug 2014                      | Complete               | N/A                                   |
| Update 4  | Feb 2015                      | Complete               | N/A                                   |
| Update 5  | Aug 2015                      | Complete               | N/A                                   |
| Update 6  | Feb 2016                      | Complete               | N/A                                   |
| Update 7  | Aug 2016                      | N/A                    | N/A                                   |
| Walk-through or Demonstrations:   |                               |                        |                                       |
| Complete Analyses Supporting FLEX Strategies  | Apr-2015                      | Complete               | N/A                                   |
| Complete Final Time Constraint Validations  | May-2015                      | Complete               | N/A                                   |
| Complete Staffing Analysis (Phase 2)  | Sept-2015                     | Complete               | N/A                                   |
| Complete Final Walkthrough Validation   | Augu-2015                     | Complete               | N/A                                   |
| Modifications:  |                               |                        |                                       |
| Issue Modification Packages for Unit 3  | Mar-2015                      | Complete               | N/A                                   |
| Unit 3 Implementation Complete  | Nov-2015                      | Complete               | N/A                                   |
| Issue Modification Packages for Unit 4  | Jun-2015                      | Complete               | N/A                                   |
| Unit 4 Implementation Complete  | May-2016                      | Started                | April 2016                            |
| Storage:  |                               |                        |                                       |
| FLEX Storage Building Completed   | May-2015                      | Complete               | N/A                                   |
| FLEX Equipment:   |                               |                        |                                       |
| Order Equipment (procurement phase 1)*  | Jun-2014                      | Complete               | N/A                                   |
| Receive Equipment (procurement phase 1)*  | Feb-2015                      | Complete               | N/A                                   |
| Order Equipment (procurement phases 2/3)*   | Mar-2015                      | Complete               | N/A                                   |
| Receive Equipment (procurement phase 2)*  | June-2015                     | Complete               | N/A                                   |
| Receive Equipment (procurement phase 3)*  | Sept-2015                     | Started                | March 2016                            |
| Develop Strategies (Site Response Plan) with the National Safer Response Center (NSRC) throughout | Jul-2015                      | Complete               | N/A                                   |

| Milestone   | Target Completion Date | Activity Status | Revised Target Completion Date |
|---|------------------------|-----------------|--------------------------------|
| Procedures:   |                        |                 |                                |
| Issue Operations Procedure Changes including FSGs **    | Nov-2015               | Complete        | N/A                            |
| Create Maintenance Procedures                           | Nov-2015               | Complete        | N/A                            |
| Training:   |                        |                 |                                |
| Operations Procedure Changes Training Material Complete | January 2016           | Complete        | N/A                            |
| Develop Training Plan                                   | Apr-2015               | Complete        | N/A                            |
| Training Complete                                       | January 2016           | Complete        | N/A                            |

\*Note phase refers to the procurement sequence of equipment to be ordered, not the FLEX Phases as described in NEI 12-06.

\*\*Procedures will be distributed prior to Unit 4 start-up.

## 4 Changes to Compliance Method

### 4.1 Changes to Modifications

No changes to the physical modifications were made from the last update.

### 4.2 Changes to Strategies

- 4.2.1** Strategies for makeup to the RCS were modified. In addition to use of the charging pumps for inventory control, an alternate flowpath to the RCS through the RCP seals has been included in the FLEX Support Guidelines (FSGs). Hydraulic calculations were performed to ensure that the required flow can be injected through this path and that the RCP seal components are not adversely affected.
- 4.2.2** In addition, provisions are now included in the FSGs to utilize a high pressure pump from SAFER to back up the charging pumps. The pump would take suction from either an RWST or the suction piping to one of the charging pumps that are fed from the boric acid storage tanks. Injection points downstream of the charging pumps then allow for a flowpath through either the normal charging path or through the RCP seals.
- 4.2.3** The FSGs were also revised to include a provision to directly connect the portable 480 V diesel generators to the load centers, bypassing the new connection boxes on the group elevation of the Turbine Building. This was installed as a backup in case the connection boxes become damaged or otherwise inaccessible.

### 4.3 Clarification to Strategies

No clarifications to the strategies are applicable to this six month update.

## **5 Need for Relief/Relaxation and Basis for the Relief/Relaxation**

FPL has received an order relaxation for compliance on Unit 3 to coincide with the compliance date for Unit 4. Physical modifications will still be completed as previously planned. This relaxation for compliance with Order EA-12-049 requirements had been requested due to the significant unit interdependency of shared plant systems and the fact that low leakage RCP seals have not yet been installed on Unit 4. There is no impact on meeting the final compliance date for both units.

## **6 Pending Actions from Overall Integrated Plan and NRC Interim Staff Evaluation Open Items**

The following tables provide a summary of the open items documented in the Overall Integrated Plan, the draft Safety Evaluation (SE), and items from the On-Site audit report (Reference 13). The status of each item is provided. All items are considered resolved as of this update.

| No. | Overall Integrated Plan Open Item (Pending Actions)  | Target Completion Date | Status  |
|-----|--|------------------------|---|
| 1   | Perform a revised analysis of the containment structure once the detailed performance parameters for the shutdown seals are obtained and using more realistic heat input parameters.   | April 2015             | Being tracked as<br>NRC<br>Confirmatory<br>Item 3.2.1.6.A<br><br>Complete |
| 2   | A hydraulic analysis will be performed to determine the minimum requirements of the portable FLEX pumps and connection point sizes. The outputs of this analysis will include a minimum flow and discharge pressure for each pump. | April 2015             | Being tracked as<br>NRC<br>Confirmatory<br>Item 3.2.1.9.B<br><br>Complete |
| 3   | A hydraulic analysis will be performed to support the ability to heat up from Mode 5 to a condition where the AFW pumps are removing decay heat via the SGs.   | April 2015             | Complete  |
| 4   | Heat loads will be removed via the SFP Cooling heat exchangers, RHR heat exchangers, and Containment Coolers. Analysis will be required to determine the minimum requirements for UHS NSRC pump.                                   | January 2015           | Complete  |
| 5   | Analysis will be required to determine fuel requirements of FLEX equipment. This analysis will determine requirements and capabilities of onsite FLEX portable pumps and diesel generators for Phase 2.                            | April 2015             | Being tracked as<br>NRC<br>Confirmatory<br>Item 3.2.4.9.A<br><br>Complete |
| 6   | A determination of the "drop off" location from the NSRC is pending. Once selected, the path to the site will be reviewed.   | May 2015               | Being tracked as<br>NRC<br>Confirmatory<br>Item 3.1.1.4.A<br><br>Complete |
| 7   | An analysis will be performed to establish the timeline for SI or RWST injection for Modes 5 & 6   | May /2015              | Complete  |
| 8   | Complete a final assessment of haul paths and staging areas to confirm access including review for soil liquefaction   | April 2015             | Complete  |
| 9   | Generic WCAP guidance recommends that a site-specific evaluation be performed once the seal design is completed to validate that the cooldown and depressurization time is supported.  | April 2015             | Being tracked as<br>NRC<br>Confirmatory<br>Item 3.2.1.B<br><br>Complete   |



| NRC Interim Staff Evaluation Open Item   | Status  |
|--|---|
| 3.2.1.8.A- Core Sub-Criticality - Confirm that Turkey Point will apply the generic resolution for boron mixing under natural circulation conditions potentially involving two-phase flow, in accordance with the PWROG position paper, dated August 15, 2013, and subject to the conditions provided in the NRC endorsement letter dated January 8, 2014. Alternatively, justify the boric acid mixing assumptions that will ensure adequate shutdown margin exists through all 3 phases of an ELAP event. | Closed per the status provided in the 2 <sup>nd</sup> six-month update (Reference 8).<br>The status provided confirms Turkey Point will apply PWROG position paper on boron mixing, including the NRC additional considerations.<br><br>Therefore the alternative approach of justifying the boric acid mixing assumptions is no longer applicable. |
| 3.2.1.9. A- The Turkey Point RCS inventory coping strategy involves an approach that relies on repowering one of three installed charging pumps in each unit from multiple power connection points using one of the two 100% capacity, portable 480 VAC FLEX diesel generators. Verify that these installed pumps will be capable of performing their mitigating strategies function following an undefined ELAP event, in contrast to using a portable FLEX pump.   | Based on NRC comments received regarding Attachment 6 of the 2 <sup>nd</sup> six-month update, Turkey Point has verified and documented compliance in a white paper titled "Turkey Point FLEX Open Item Paper" that is available through the NRC streamlined process of the audit review.   |
| 3.2.4.7.A- The licensee relies on separation and redundancy of the RWSTs to show that at least one will survive a high wind event with wind-driven missiles. Verify that the RWSTs are sufficiently robust and that sufficient separation exists between the tanks to support the determination that at least one tank will be available as a water source following a high wind event, as credited in the Turkey Point mitigating strategies.   | Based on NRC comments received regarding Attachment 7 of the 2 <sup>nd</sup> six-month update, Turkey Point has documented compliance in a white paper titled "Turkey Point FLEX Open Item Paper" that is available through the NRC streamlined process of the audit review.  |

## 7 Potential Draft Safety Evaluation Impacts

None

## 8 Interim Staff Evaluation Confirmatory Items

### **Confirmatory Item 3.1.1.3.A:**

Confirm that the large internal flooding sources that are not seismically robust will not impact the implementation of the mitigating strategies during an ELAP event.

### **Response:**

Complete – The components required to implement the mitigating strategies during an ELAP event have been identified. The component locations and the travel paths associated with the mitigating strategies have also been identified. A detailed analysis has been performed to determine that there are no adverse effects from an internal flooding event. There are no non-seismic tanks or piping in the auxiliary building upper elevations (where equipment relied upon for the strategies are located). Flooding from any failures of tanks or piping on the secondary side of the power block or yard areas would not occur based on the open design of the structures and adjacent terrain. There is no impact on the FLEX strategy for external flooding events given the flat open terrain surrounding the plant and the short duration of the flooding that would be present for such events.

NRC question 5 indicated that Turkey Point did not consider considerations 2 and 3 of NEI 12-06 section 5.3.3. FPL's response to question 5 provided the response that mitigation of large non-seismically robust hazards does not require AC power, and mitigation of ground water does not require AC power. Portable diesel driven pumps would be prestaged in advance of a hurricane for cases where water would be retained within the flood barrier system from heavy precipitation.

**Confirmatory Item 3.1.1.4.A:**

Off-Site Resources -Confirm the location of the local staging area for the NSRC equipment, and that access routes to the site, the method of transportation, and the drop off area have been properly evaluated for all applicable hazards.

**Response:**

Complete - A final NSRC report has been issued which approved the staging areas, transportation methods and proper evaluations were performed to ensure the routes are available for all expected hazards.

**Confirmatory Item 3.2.1.A:**

Confirm recalculation of the boration requirements for the Phase 2 RCS cooldown to provide additional margin and flexibility for the boration activity.

**Response:**

Complete – Calculations have been completed to determine that additional boration is required at 13 hours to achieve a  $K_{eff}$  below 0.00 at 396°F (RCS temperature resulting from SG pressure at 220 psig). Injection of accumulators will start but the calculation does not credit boron injection from the accumulators. RETRAN-3D best estimate ELAP analysis has concluded that Turkey Point remains in natural circulation beyond 36 hours. Therefore the RCS will be in natural circulation at 13 hours when boration will commence with charging pump operation. Separately, calculations show that boration is not required to remain subcritical until cool down below 400°F at T+ 15 hours.

**Confirmatory Item 3.2.1.B:**

Confirm the analysis used to validate the RCS cooldown and depressurization timeline once the RCP low-leakage seal design is completed.

**Response:**

Complete – The capability to initiate an early cooldown depends on the status of the CSTs and restoring Steam Dump to Atmosphere (SDTA) valve capability. Providing a CST makeup water source and enabling SDTA capability is expected to take 12 hours. Starting a cooldown after 12 hours is acceptable based on limited RCS losses of the low leakage RCP seals and an RCS temperature that would stabilize at 556°F, which is the saturation temperature for the Main Steam Safety Valve with the lowest pressure setpoint.

The engineering modification package for the RCP low leakage seal and a RETRAN analysis were completed which enveloped the effects of a delay of 12 hours for initiation of the RCS cooldown. Until the cooldown commences, there is some predicted degradation of the RCP seal O-rings.

Procedurally the RCP seal leak off flowpath will be isolated within 30 minutes by closure of the control bleed off (CBO) valve. The CBO valve will remain closed by virtue of an accumulator that would store sufficient air volume to keep the valve closed for at least 25 hours, in the case of an at power trip which assumes a cooldown starts at 12 hours.

Without cooling down from an RCS temperature of 556°F, leakage through the postulated failed seal O-ring would be on the order of 1.65 gpm per RCP and would be expected to start at about 7.8 hours. RETRAN-3D was used to identify the onset of reflux cooling. The RETRAN analysis uses a much higher leak rate of 5.25 gpm per RCP and shows that the onset of reflux cooling would not occur until T+ 36 hours.

**Confirmatory Item 3.2.1.1.A:**

Reliance on the NOTRUMP code for the ELAP analysis of Westinghouse plants is limited to the flow conditions before reflux condensation initiates. This includes specifying an acceptable definition for reflux condensation cooling. Confirm that Turkey Point has properly applied these conditions for the ELAP analysis.

**Response:**

Complete - RETRAN has been selected as the code and methodology for performing the RCS cooldown analysis during reflux conditions. The RETRAN methodology has been accepted for ELAP modeling and no further information is required by NRC Staff.

**Confirmatory Item 3.2.1.1.B:**

Confirm recalculation of the SG pressure setpoint to prevent injection of nitrogen from the accumulators using the guidance in the PWROG position paper.

**Response:**

Complete - This calculation has been finalized and the lowest steam generator pressure value (220 psig) to isolate accumulators has been incorporated into the applicable EOP and FSG procedures.

**Confirmatory Item 3.2.1.1.C:**

Confirm site-specific evaluation for controlling containment pressure using MAAP to determine when containment venting must be initiated.

**Response:**

Complete - The Modular Accident Analysis Program (MAAP) analyses looked at two conditions; the first is for Mode 1 through 5 with steam generators available for heat removal. The second analysis reviewed Modes 5 and 6 with steam generators not available. In the first case, with steam generators available, containment pressure will reach a maximum increase of 4.3 psi within the evaluated 120 hour timeframe. This is within the design pressure rating of the containment building. The method to cool and vent containment will rely on phase 3 equipment that will enable the use of the emergency containment coolers to reduce containment temperature, use of the RHR system to reduce RCS temperature and bleed off containment pressure through the instrument air bleed path, when instrument air becomes available. For times when steam generators are not available, the outage risk procedure will direct opening both doors of a personnel hatch or the equipment hatch to prevent a pressure increase.

**Confirmatory Item 3.2.1.2.A:**

Confirm that the RCP seal leakage rate of one gpm/seal for the Flowserve safe shutdown/low leakage seals used in the ELAP analysis is adequately justified, including the computer code/methodology and assumptions used, and the supporting test data applied, when the site specific evaluation is performed.

**Response:**

Complete - FLOWERVE submitted a white paper on this item to the NRC which has been accepted by the NRC. FLOWERVE prepared a formal submittal to the NRC on the outstanding issues raised during an onsite audit during August 2015. The NRC has completed the review of the use of the FLOWERVE low leakage seal and has concluded that the use of the FLOWERVE N-Seal design is acceptable for use in beyond-design-basis ELAP evaluations for demonstrating compliance with Order EA-12-049. See audit item 3.

**Confirmatory Item 3.2.1.5.A:**

Confirm that the instrumentation used to measure the listed parameters and the associated setpoints, credited in the ELAP analysis for automatic actuations and indications required for the operator to take appropriate actions, is reliable and accurate in the containment harsh conditions resulting from an ELAP event.

**Response:**

Complete - As noted in the third six-month update, (Reference 9), containment wide range pressure transmitters do not have full EQ requirements and do not require EQ qualification. These transmitters are located outside of containment in a mild environment and will read containment pressures up to 180 psig. Our calculations determined that containment pressure will not exceed 19 psia. The location of the transmitters will not exceed 105 degrees F.

Clarification Note: In Attachment 6, Figure 1 of the OIP, it was stated that the Safety Injection Accumulators have wide range level transmitters. However, it is determined that the level transmitters are scaled for a narrow range for providing a more precise monitoring for Technical Specification compliance. These transmitters are not EQ qualified and are not used in any of the mitigation strategies. MAAP analysis was used to determine containment environmental conditions during an ELAP event. The MAAP analysis concluded that containment environmental conditions created by an ELAP event are enveloped by our EQ analysis.

**Confirmatory Item 3.2.1.6.A:**

Confirm that the revised Modular Accident Analysis Program containment analysis supports the revised strategy for maintaining containment (reliance on containment venting instead of containment spray), and also confirm that the Sequence of Events timeline is properly revised and any impacts of the changes are appropriately addressed.

**Response:**

Complete - In Modes 1 through 4 and Mode 5 with steam generators available, the MAAP concluded that containment pressure will reach a maximum of 19 psia and a temperature of 192°F. These values are well within the containment design pressure of 69.7 psia and a design temperature of 283°F.

In Modes 5 and 6 with steam generators not available, core decay heat is released to containment during feed and bleed actions. The MAAP analysis concluded that containment pressure will not increase if both doors of a containment air lock or the equipment hatch are opened or remain open, prior to RCS boiling. Control of the containment penetration airlocks will be controlled by plant procedures.

There is no impact on our sequence of events timeline. No additional action is required for events that would occur when steam generators are available and during outage conditions when steam generators are not available, there are additional personnel on site to properly secure the personnel hatch doors or the equipment hatch in the open position.

**Confirmatory Item 3.2.1.9.B:**

Confirm completion of the licensee's final engineering designs and supporting analyses for portable equipment that directly performs a FLEX mitigation strategy.

**Response:**

Complete - Design engineering packages have been completed for portable equipment that directly performs a FLEX mitigation strategy. These engineering packages included calculations that specify the minimum flow values, minimum and maximum hose lengths and discharge pressures for the pumps.

**Confirmatory Item 3.2.3.A:**

Confirm that FLEX MAAP containment analyses will be revised and results included in the 6 month update report.

**Response:**

Complete - Results have been provided in the ePortal and reviewed during the audit. MAAP containment analyses have been revised and the results show that containment pressure for conditions when steam generators are available for RCS heat removal in Modes 1 through 5 will reach a maximum of 19 psia within the evaluated 120 hours. Containment temperature will reach 192°F in this same period.

For conditions where steam generators are not available in Modes 5 and 6, containment pressure does not exceed atmospheric pressure by opening both inner and outer doors of a personnel hatch or the equipment hatch prior to RCS boiling. For refueling outage conditions, these hatches are opened upon reaching Mode 5 and before the RCS is depressurized. Before exiting Mode 5 on a unit startup, steam generators are normally available prior to closing the hatches. If not available, one of the hatches would be reopened for containment ventilation.

**Confirmatory Item 3.2.4.1.A:**

Confirm that the charging pumps have adequate cooling following an ELAP event (i.e., through intermittent operation, or by providing cooling to the fluid drive heat exchanger).

**Response:**

Complete - Charging pump cooling has been determined to be sufficient by providing deep well water to the fluid drive heat exchanger. This activity has been completed.

**Confirmatory Item 3.2.4.4.A:**

The NRC staff has reviewed the licensee communications assessment (ADAMS Accession Nos. ML 12300A425 and ML 13064A359) and has determined that the assessment is reasonable (ADAMS Accession No. ML13149A382). Confirm that upgrades to the site's communications systems have been completed.

**Response:**

Complete - All design changes to provide upgrades to the communications system have been implemented. The completion commitment date for full implementation of June 1, 2015 was satisfied.

**Confirmatory Item 3.2.4.9.A:**

Confirm completion of the refueling plan for portable FLEX equipment and sizing of the refueling trailer.

**Response:**

Complete - The refueling plan for the phase 1 and 2 strategies has been completed. The plan's strategy calls for the use of an onsite diesel fuel oil refueling trailer to transfer fuel from the Unit 4 Diesel Oil Storage Tank to those components that require diesel fuel oil to operate. There is sufficient refueling trailer capacity (1000 gallons) and the interval to load the refueling trailer and refuel all FLEX devices is within the fuel consumption rates for the specific equipment. There are multiple tow vehicles available to transport the refueling trailer around to the diesel driven FLEX equipment and still support other activities that require a tow vehicle. For phase 3 equipment, contracts are in place to provide diesel fuel to the station on a priority basis during an emergency.

**Confirmatory Item 3.4.A:**

Confirm that NEI 12-06, Section 12.2 guidelines 2 through 10 regarding offsite resources have been adequately addressed.

**Response:**

Complete - FPL has conducted an onsite meeting with the NSRC representatives in December 2014. Evaluation of the proposed drop site and the submittal of the Site Response Plan has been coordinated and completed with the SAFER team. The plan includes the maintenance testing, calibration, storage and control of phase 3 equipment. The surveillance testing and maintenance of the offsite equipment follows the NEI guidance for out of service time and contingency actions will align with station requirements for out of service equipment.

Connection points for the phase 3 equipment have been incorporated into the design of the permanent plant connection points, and the phase 2 equipment connection points and methods are the same as what would be delivered by the NSRC for phase 3. The connection of the 4 kV portable diesel generators for phase 3 will require some disassembly at one of the plant 4kV bus cubicles. This is covered by the FLEX support guidelines.

Contractual arrangements have been made for the maintenance and testing of the offsite phase 3 equipment. Station configuration and design control procedures have been revised to reserve and maintain the phase 3 connection points and spatial clearances.

**NRC On-site Audit Items**

**NRC Audit Item ISE OI 3.2.1.9.A, RCS Injection:**

The staff reviewed Turkey Point's RCS inventory coping strategy, which involves an alternate approach to NEI 12-06. The Audit report states "During the onsite audit, the licensee indicated that Turkey Point's strategy solely relies on repowering one of three installed charging pumps. The staff questioned if diversity is present in the licensee's RCS strategy, since it relies on charging pumps only and no portable pumps supplying RCS makeup among the equipment available in Phase 2, nor among the equipment being requested from the National SAFER Response Centers (NSRCs) for Phase 3. After the conclusion of the onsite audit, the licensee indicated that they are revising their strategy to have the capability to inject into the RCS using a NSRC high pressure pump and are in the process of completing a hydraulic analysis of the pump. The staff requested that the licensee make available details of the revised strategy (connection points, flow path, etc.) and the hydraulic analysis."

**Response:**

FPL provided the requested information including the revised procedures and analyses. These documents were posted in the ePortal. This item was subsequently closed.

**NRC Audit Item ISE CI 3.2.1.B, ELAP Modeling:**

Turkey Point is one of a small number of sites using RETRAN-3D to model an ELAP event. During the On-site Audit exit meeting, the staff indicated that they have no additional questions regarding FPL's use of RETRAN-3D. However, the staff is tracking this item to ensure sufficient time to complete the review of the adequacy of the RETRAN-3D code modeling.

**Response:**

Upon additional review by the NRC, this item was subsequently closed.

**NRC Audit Item ISE CI 3.2.1.2.A, AQ 52-c, RCP Seals:**

Due to a number of plants using Flowserve low leakage seals, Flowserve submitted a white paper on the generic use of the seals that plants can reference. The staff is currently reviewing the Generic use of the Flowserve low leakage seals.

**Response:**

The staff has endorsed the generic use of the seals provided that certain conditions are met (Reference 14). FPL provided a white paper that was posted on the ePortal. This item is still under review.

## 9 References

1. NRC Order Number EA-12-049, "Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," dated March 12, 2012, ADAMS Accession No. ML12056A045
2. FPL Letter, L-2013-061, Florida Power and Light Company's Overall Integrated Plan in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049)," dated February 26, 2013, ADAMS Accession No. ML13072A038
3. FPL Letter, L-2013-249, Florida Power and Light Company's, Turkey Point Units 3 and 4, First Six-Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049) , dated August 21, 2013, ADAMS Accession No. ML13248A311
4. Westinghouse Letter, LTR-FSE-13-46, Rev. 0, Westinghouse Response to NRC Generic Request for Additional Information (RAI) on Boron Mixing in Support of the Pressurized Water Reactor Owners Group (PWROG), Dated August 15, 2013, Proprietary ADAMS Accession No ML13235A135
5. NRC Letter from Jack Davis, Director, Mitigating Strategies Directorate Office of Nuclear Reactor Regulation to Mr. Jack Stringfellow, Pressurized Water Reactors Owners Group, dated January 8, 2014, ADAMS Accession No. ML13276A183
6. NRC Letter, Turkey Point, Units 3 And 4 -Interim Staff Evaluation Relating To Overall Integrated Plan In Response To Order Ea-12-049 (Mitigation Strategies) (TAC NOS. MF0982 AND MF0983), dated February 6. 2014, ADAMS Accession No. ML14002A160
7. FPL Letter, L-2013-087, Response to NRC Request for Information Pursuant to 10 CFR 50.54(f) Regarding the Flood Hazard Reevaluation of Recommendation 2.1, dated March 11, 2013, ADAMS Accession No. ML13095A196
8. FPL Letter, L-2014-041, Florida Power and Light Company's, Turkey Point Units 3 and 4, Second Six-Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049), dated February 26, 2014, ADAMS Accession No. ML14073A454.
9. FPL Letter, L-2014-243, Florida Power and Light Company's, Turkey Point Units 3 and 4, Third Six-Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049), dated August 27, 2014, ADAMS Accession No. ML14253A162.
10. FPL Letter L-2015-010, Florida Power and Light Company's Turkey Point Units 3 and 4, Supplemental Information Regarding L-2014-199 "Response to NRC 10 CFR 50.54(f) Request for Information Regarding Near-Term Task Force Recommendation 9.3, Emergency Preparedness" Commitment Revisions.
11. FPL Letter, L-2015-017, Florida Power and Light Company's, Turkey Point Units 3 and 4, Fourth Six-Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049), dated February 26, 2015. (ML15076A195)



12. FPL Letter, L-2015-193, Florida Power and Light Company's, Turkey Point Units 3 and 4, Fifth Six-Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049), dated August 11, 2015, ADAMS Accession No. ML15233A417
13. NRC Letter, Turkey Point Generating, Units 3 and 4 - Report for the Onsite Audit Regarding Implementation of Mitigating Strategies and Reliable Spent Fuel Pool Instrumentation Related to Orders EA-12-049 and EA-12-051 (TAC Nos. MF0982, MF0983, MF0988, and MF0989), ADAMS Accession No. ML15307A314
14. NRC Letter from Jack Davis, Director Japan Lessons-Learned Division, Office of Nuclear Reactor Regulation to Mr. Jack Stringfellow, Chairman PWR Owner's Group, dated 11/12/2015. ADAMS Accession No. ML15310A094

## **10 Attachments**

None.