August 11, 2015
L-2015-193

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, 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)

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.

A151
NRR

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 Licensee's 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 (Reference 6), and on February 26, 2015 the fourth six-month update (Reference 7) to the Overall Integrated Plan.

The purpose of this letter is to provide the fifth 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 fourth 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 August 11, 2015.

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

Sincerely,

CDominguez (Acting)

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-2015-193

Enclosure

Florida Power and Light Company's

Turkey Point Units 3 and 4

Fifth 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), documenting the diverse and flexible strategies (FLEX), in response to Reference 1. This enclosure provides an update of milestone accomplishments since the fourth six-month status report 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 analyses supporting FLEX strategies have been completed. Specifically, the Reactor Coolant System (RCS) thermal hydraulic response (RETRAN-3D) during an extended loss of alternating current power (ELAP) and loss of normal access to the ultimate heat sink (LUHS) has been issued and the results support the core cooling mitigation and RCS inventory control strategies.

For Unit 3, detailed design of the mechanical and electrical tie-in modifications is complete. The design modification for the Unit 3 RCP seal replacement has been issued. Implementation of the on-line Unit 3 modifications has been completed. The remaining outage related Unit 3 modifications are on track for implementation during the upcoming Unit 3 2015 fall refueling outage. Installation of the Unit 3 Flowserve low leakage reactor coolant pump (RCP) seal packages, with abeyance seal is included in the 2015 fall refueling outage.

For Unit 4, all of the design modification packages are complete. The implementation of the Unit 4 electrical tie-in modifications are complete as well as the implementation of the on-line mechanical tie-ins are complete. Installation of the Flowserve low leakage seal packages with abeyance seal are included in the 2016 spring refueling outage.

The construction of the FLEX storage building was delayed from our original forecast but is now complete, and the majority of the FLEX equipment has been loaded into the building.

Additionally, the following activities have started, and some have advanced with substantial progress: Development of the phase 2 staffing analysis, FLEX procedures, training plans and FLEX strategies validation and verification activities.

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 planning dates subject to change as design and implementation details are developed. Accordingly, the target completion dates have been adjusted to address procedure development and validation, scheduler completion of the FLEX building, related milestones regarding training plans and ordering equipment. These revised milestone target completion dates do not impact Turkey Point's ability to meet the final compliance date for NRC Order EA-12-049 implementation and are expected to support the NRC audit currently scheduled for August 17, 2015.

New Milestones:

- There are no new milestones.

Revised Milestones:

- The milestone for the phase 2 staffing study was revised to September 2015
- The completion of maintenance procedures is revised to November 2015
- The completion of operator training on procedures is revised to January 2016
- Delivery of phase 3 equipment is revised to September 2015

Milestone	Target Completion Date	Activity Status	Revised Target Completion Date
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	Not Started	N/A
Update 7	Aug 2016	Not Started	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)	Jun-2015	Started	Sept 2015
Complete Final Walkthrough Validation	August-2015	Started	N/A
Modifications:			
Issue Modification Packages for Unit 3	Mar-2015	Complete	N/A
Unit 3 Implementation Complete	Nov-2015	Started	N/A
Issue Modification Packages for Unit 4	Jun-2015	Complete	N/A
Unit 4 Implementation Complete	May-2016	Started	N/A
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

Milestone	Target Completion Date	Activity Status	Revised Target Completion Date
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)*	July-2015	Started	Sept-2015
Develop Strategies (Site Response Plan) with the National Safer Response Center (NSRC) throughout	Jul-2015	Complete	N/A
Procedures:			
Issue Operations Procedure Changes including FSGs	Nov-2015	Started	N/A
Create Maintenance Procedures	Jun-2015	Started	Nov- 2015
Training:			
Operations Procedure Changes Training Material Complete	May-2015	Started	January 2016
Develop Training Plan	Apr-2015	Complete	N/A
Training Complete	Oct-2015	Started	January 2016

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

4 Changes to Compliance Method

4.1 Changes to Modifications

Modification No. 13, FLEX Portable Diesel Generator to Repower Vital 120 VAC Panels to Reduce Loading on Station Batteries.

This modification is being implemented to conserve battery capacity in severe hurricane events, where environmental conditions could potentially delay installation of 480 VAC temporary generators and their connection to the vital AC load centers.

The modification will install new receptacles on the secondary windings of vital AC Constant Voltage Transformers (CVTs) that can be used to locally power the vital AC panels. These receptacles will be the connection point for small diesel driven portable generators. The Emergency Operating Procedures (EOP) and FLEX Supporting Guidelines (FSG) procedures provide the procedural controls for the connection of the portable generators to the receptacles mounted in the CVT cabinets.

4.2 Changes to Strategies

4.2.1 Current Strategy for Time Critical Actions (OIP Section Page 5 of 101)

OIP Section: Provide a sequence of events and identify any time constraint required for success including the technical basis for the time constraint.

Time Critical Actions:

T+1 (hour) – Operating Crew Completes Deep Load Shedding (page 6 of 101)

"The operating crew completes deep load shedding once the ELAP is declared and before 1 hour has elapsed after the event. By completing the deep load shedding in 1 hour, run time on the batteries of 15.9 hours will be available providing sufficient time to install portable diesel generators (Ref 29). Procedural guidance will be provided on the time critical nature of this activity and the loads to be shed."

Change to the Strategy for Deep Load Shedding

There are two scenarios that affect the response to an ELAP event at Turkey Point. The first is an ELAP event that occurs while the units are operating at power. The second scenario is the response to a category 4 or higher hurricane.

In both cases there will be a deep load shed activity that will commence within approximately 30 minutes of the initiation of an ELAP event, and be completed within 90 minutes of the ELAP initiation. In the first event, an alternate means of powering the vital 120 VAC panels will not be initiated as the installation of temporary diesel generators to power the 480 VAC vital load centers will be completed in T+8 hours. In the second case, for severe hurricanes (category 4 or 5), there will be advance notice prior to the onset of a hurricane. Pre-staging of temporary diesel generators in sheltered locations to provide 120 VAC power to vital AC panels will be completed. This pre-staging does not include connection of temporary diesels, only placing of diesels and cables in needed locations. If an ELAP condition occurs the temporary cables will be connected and the temporary diesels will be started to carry the vital AC panel load that has been reduced through the deep load shed activity at approximately T+1.5 hours. The repowering of the vital AC panels will also be completed in the same T+1.5 hours. These generators (1 per unit) will be used to power the vital 120 VAC panels as an intermediate coping strategy for recovery from the hurricane event timeline. Use of this power source is only required until the 480 VAC portable diesel generators (PDGs) are available for deployment following the extended wind condition. Use of the temporary diesel generators is an interim activity that is considered to be an enhancement to the existing coping strategies for repowering of the vital DC loads during a hurricane event.

4.3 Clarification to Strategies

4.3.1 OIP Section: Safety Functions Support, Portable Equipment Phase 2, Identify Modifications (page: 62 of 101)

The following represents clarifications to Turkey Point's FLEX coping strategy for Maintain Core Cooling and Heat Removal Phase 2 (OIP pages 21-22) and Portable Equipment Phase 2 (OIP pages 61 – 62). The Phase 2 coping strategy following an ELAP and LUHS event continues to rely on the use of 480 VAC PDGs to power select electrical loads; including station battery chargers. Part of this strategy includes installation of receptacles (via Modification 13) for repowering the vital 120 VAC panels. As discussed in the Enclosure to Reference 1, the coping strategy for maintaining core cooling and heat removal varies depending upon whether or not the precipitating event is a hurricane. During a hurricane event

a high wind condition may exist for an extended period of time and prevent deployment of 480 VAC PDGs within the 8 hours assumed in the base (non-hurricane scenario) timeline. To facilitate coping with severe hurricane conditions (Category 4 or higher) [consistent with NEI 12-06 paragraph 3.2.1.7] separate, temporary diesel generators and cabling will be pre-staged in a location protected from the hurricane specific external conditions.

The coping strategy for a hurricane induced ELAP and LUHS event (as discussed in the Enclosure to Reference 1 and plant procedures) is:

1. shutdown the reactor and cooldown to Modes 3, 4 or 5 (specific Mode depends on the projected strength of the hurricane) at least 2 hours prior to the onset of projected hurricane force winds on site. Remain in this condition until it is safe to return to power and reliable off-site power to the site has been restored
2. fill both condensate storage tanks (CSTs) to maximum level (prior to the onset of projected hurricane force winds on site)
3. lock in the steam supply for the auxiliary feedwater (AFW) flow control valves (FCVs) (prior to the onset of projected hurricane force winds on site)
4. Stage small PDGs and cabling for powering the 120 VAC power panels for severe hurricane storms, with the intention to connect and operate, if an ELAP condition were to occur.

After landfall and high winds have subsided sufficiently to allow full plant access:

1. manually operate the AFW FCVs as necessary
2. establish CST makeup from the well
3. establish a secondary steam generator (SG) injection path
4. power the 480 V load centers with the PDG (this action was not previously noted in the Reference 1 Enclosure)
5. remove vital AC panel loads from the small diesel generators and restore the vital AC portion of the vital DC system to normal alignment

As noted above, the RCS will be cooled down to Modes 3, 4 or 5 (depending on the projected hurricane strength) a minimum of 2 hours prior to hurricane force winds reaching the plant site. Under this condition the inventory of a single CST will be sufficient to cope with an ELAP/LUHS event for approximately 24 hours, by which time AC power, CST makeup, secondary SG makeup, RCS makeup and spent fuel pool (SFP) makeup will have been established. The hurricane specific timetable has also been supported by the results of the RCS thermal hydraulic response (RETRAN-3D) developed specifically for Turkey Point.

4.3.2 Current Strategy for RCS makeup and Subcriticality using Accumulators

OIP Section: Safety Function: Maintain RCS Inventory Control PWR Portable Equipment Phase 2, Modes 1 through 5 with Steam Generators Available page 33 of 101.

In the second six-month update it was stated that the primary method for accomplishing RCS makeup in phase 2 is the use of the accumulators to make up for losses from the RCP low leakage seals and for contraction of the primary due to cooldown. Alternate strategies involve the use of Boric Acid Storage Tank (BAST) or refueling water storage tank (RWST) inventories through the installed charging and boric acid transfer pumps or onsite portable RCS FLEX pump.

This strategy is changed as a result of additional analysis. The revised analysis shows that a pressure bubble is created in the reactor head which prevents the accumulators from discharging their inventory until a cooldown is commenced. A delay is experienced in the RCS pressure reduction as a result of this bubble. The size of the bubble does not impact hot or cold leg flowpaths. Repowering the charging pump and boric acid transfer pumps will occur within 12 hours and they are the primary method to make up to the RCS since there is no accumulator inventory contribution until the steam generator pressure drops to 220 psig. When steam generator pressure drops to 170 psig, accumulators will be isolated. Calculations show that the accumulator inventory contribution is between 13 and 15%.

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. During the interim period, reactor coolant pump seals will not have been replaced on unit 4, which would complicate the cooldown requirements and event mitigation philosophy on both units. 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 OIP or the draft Safety Evaluation (SE) and the status of each item. Resolution of these items will not affect the schedule for completing implementation of the Order's requirements.

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 NRC Confirmatory Item 3.2.1.6.A 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 NRC Confirmatory Item 3.2.1.9.B 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	Started
4	Heat loads will be removed via the SFP Cooling heat exchangers, residual heat removal (RHR) heat exchangers, and Containment Coolers. Analysis will be required to determine the minimum requirements for ultimate heat sink (UHS) National SAFER Response Center (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 NRC Confirmatory Item 3.2.4.9.A 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 NRC Confirmatory Item 3.1.1.4.A Complete
7	An analysis will be performed to establish the timeline for safety injection (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 NRC Confirmatory Item 3.2.1.B 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 2nd six-month update (Reference 8). The status provided confirms Turkey Point will apply PWROG position paper on boron mixing, including the NRC additional considerations. 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 2nd 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 2nd 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

See FPL response to open items in Section 8.

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:
Multiple meetings with the NSRC team have been held. A final NSRC report has been issued which approved the staging areas, transportation methods and properly evaluated routes 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:
Completed – 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 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 combined bleed off valve (CBO). 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:
In Progress- RETRAN has been selected as the code and methodology for performing the RCS cooldown analysis during reflux conditions. The RETRAN methodology is already under NRC review for applicability to STP. The Turkey Point analysis will be consistent with the NRC acceptance of the STP methodology for the RCS cooldown analysis.

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:
Completed- This calculation has been finalized and the lowest SG 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:
Completed- Our 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 containment. 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:
In Progress-FLOWSERVE submitted a white paper on this item to the NRC which has been accepted by the NRC. Flowserve is preparing a formal submittal to the NRC on the outstanding

issues and an endorsement from the NRC is expected shortly thereafter. Turkey Point will provide an update to this in the next six-month update report after the endorsement is received.

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:
Completed - As noted in the third six- month update, (Reference 9), containment wide range pressure transmitters do not have full environmental qualification (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:
In Modes 1 through 4 and Mode 5 with steam generators available, 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 is 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:
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:
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 190°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 available prior to closing the hatches.

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:
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:
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:
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:
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.

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, ADAMS Accession No. ML15076A195.

10 Attachments

None.