Entergy

Entergy Nuclear Northeast
Indian Point Energy Center
450 Broadway, GSB
P.O. Box 249
Buchanan, NY 10511-0249
Tel 914 254 6700

Lawrence Coyle
Site Vice President

NL-15-025

February 27, 2015

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
11555 Rockville Pike, OWFN-2 FL
Rockville, MD 20852-2738

SUBJECT: Indian Point Energy Center's Fourth Six-Month Status Report for the Implementation of Order EA-12-049 Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (TAC Nos. MF0744 and MF0745)
Indian Point Unit Numbers 2 and 3
Docket Nos. 50-247 and 50-286
License Nos. DPR-26 and DPR-64

REFERENCES:

1. NRC Order Number EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events, dated March 12, 2012
2. NRC Interim Staff Guidance JLD-ISG-2012-01, Compliance with Order EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events, Revision 0, dated August 29, 2012
3. NEI 12-06, Diverse and Flexible Coping Strategies (FLEX) Implementation Guide, Revision 0, dated August 2012
4. Entergy letter to NRC (NL-12-144), Initial 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 October 29, 2012
5. Entergy letter to NRC (NL-13-042), 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 28, 2013
6. Entergy letter to NRC (NL-13-110), Indian Point Energy Center's First Six-Month Status Report for the Implementation of Order EA-12-049 Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (TAC Nos. MF0744 and MF0745), dated August 27, 2013

A151
NRR

(ML13247A032)

7 Entergy letter to NRC (NL-14-031), Indian Point Energy Center's Second Six-Month Status Report for the Implementation of Order EA-12-049 Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (TAC Nos. MF0744 and MF0745), dated February 27, 2014 (ML14070A365)

8 Entergy letter to NRC (NL-14-110), Indian Point Energy Center's Third Six-Month Status Report for the Implementation of Order EA-12-049 Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (TAC Nos. MF0744 and MF0745), dated August 27, 2014 (ML 14251A227)

Dear Sir or Madam:

On March 12, 2012, the Nuclear Regulatory Commission ("NRC" or "Commission") issued an order (Reference 1) to Entergy. Reference 1 was immediately effective and directs Entergy to develop, implement, and maintain guidance and strategies to maintain or restore core cooling, containment, and spent fuel pool cooling capabilities in the event of a beyond-design-basis external event.

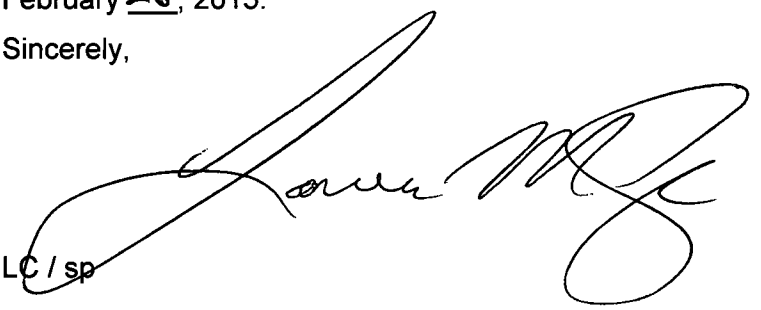
Reference 1 required submission of an initial status report 60 days following issuance of the final interim staff guidance (Reference 2) and an overall integrated plan pursuant to Section IV, Condition C. Reference 2 endorses industry guidance document NEI 12-06, Revision 0 (Reference 3) with clarifications and exceptions identified in Reference 2. Reference 4 provided the Entergy initial status report regarding mitigation strategies. Reference 5 provided the Entergy overall integrated plan.

Reference 1 requires submission of a status report at six-month intervals following submittal of the overall integrated plan. Reference 3 provides direction regarding the content of the status reports. Reference 6 provided the first six-month status report. Reference 7 provided the second six-month status report. Reference 8 provided the third six-month status report. The purpose of this letter is to provide the fourth six-month status report pursuant to Section IV, Condition C.2, of Reference 1, that delineates progress made in implementing the requirements of Reference 1. The attached report provides an update of milestone accomplishments since the last status report, including any changes to the compliance method, schedule, or need for relief and the basis, if any.

This letter contains no new regulatory commitments. Should you have any questions regarding this submittal, please contact Mr. Robert Walpole, Manager, Regulatory Assurance at (914) 254-6710.

I declare under penalty of perjury that the foregoing is true and correct; executed on February 26, 2015.

Sincerely,



LC / sp

Attachment: Indian Point Energy Center's Fourth Six-Month Status Report for the Implementation of Order EA-12-049 Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events

cc: Mr. Douglas V. Pickett, Senior Project Manager, NRC NRR DORL
Mr. Daniel H. Dorman, Regional Administrator, NRC Region 1
Mr. John Boska, Senior Project Manager, NRC NRR DORL
NRC Resident Inspectors Office
Mr. John B. Rhodes, President and CEO, NYSERDA
Ms. Bridget Frymire, New York State
Mr. Robert J. Fretz Jr., NRC NRR OE OB
Mr. Robert L. Dennig, NRC NRR DSS SCVB
Ms. Jessica A. Kratchman NRC NSIR DPR DDEP IRIB
Mr. Eric E. Bowman, NRC NRR DPR PGCB
Ms. Eileen M. Mckenna, NRC NRO DSRA BPTS NRC NRR DSS SCVB

ATTACHMENT TO NL-15-025

INDIAN POINT ENERGY CENTER'S FOURTH SIX-MONTH STATUS REPORT FOR THE IMPLEMENTATION OF ORDER EA-12-049 MODIFYING LICENSES WITH REGARD TO REQUIREMENTS FOR MITIGATION STRATEGIES FOR BEYOND-DESIGN-BASIS EXTERNAL EVENTS

ENTERGY NUCLEAR OPERATIONS, INC.
INDIAN POINT NUCLEAR GENERATING UNIT NOS. 2 and 3
DOCKET NOS. 50-247 and 50-286

Indian Point Energy Center's Fourth 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

Entergy Nuclear Operations, Inc. (Entergy) developed an Overall Integrated Plan (Reference 1) for Indian Point Energy Center (IPEC), documenting the diverse and flexible strategies (FLEX), in response to Reference 2. This attachment provides an update of milestone accomplishments since submittal of the last status report (Reference 5), including any changes to the compliance method, schedule, or need for relief/relaxation and the basis, if any.

2 Milestone Accomplishments

The following milestone(s) have been completed since July 31, 2014, and are current as of January 31, 2015:

- Third Six-Month Status Report — August 2014
- IPEC-3 Training, Develop Training Plan – September 2014
- Perform Staffing Analysis – November 2014
- IPEC-3 On-Site FLEX Equipment, Purchase / Procure – January 2015
- IPEC-3 Procedures, Create Indian Point FSGs – January 2015
- Fourth Six-Month Status Report — Complete with submission of this document in February 2015

3 Milestone Schedule Status

The following provides an update to Attachment 2 of the Overall Integrated Plan. 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. The milestone listing includes Unit 2 and Unit 3 sections for unit specific milestones.

These new milestone target completion dates do not impact the Order implementation date.

Milestone	Target Completion Date*	Activity Status	Revised Target Completion Date
Submit Overall Integrated Implementation Plan	Feb 2013	Complete	
Submit Six Month Updates			
Update 1	Aug 2013	Complete	

Milestone	Target Completion Date*	Activity Status	Revised Target Completion Date
Update 2	Feb 2014	Complete	
Update 3	Aug 2014	Complete	
Update 4	Feb 2015	Complete	
Update 5	Aug 2015	Not Started	
Update 6	Feb 2016	Not Started	
Update 7	Aug 2016	Not Started	
Perform Staffing Analysis	Nov 2014	Complete	
Off-site FLEX Equipment			
Develop Strategies with NSRC	Oct 2015	Started	
Procedures			
PWROG issues NSSS-specific guidelines	Jan 2014	Complete Issued May 2013	
Validation / Demonstration	May 2016	Started	
Submit Completion Report IPEC Unit 3	Spring 2015	Not Started	See Section 5
Submit Completion Report IPEC Unit 2	Jun 2016	Not Started	
Unit 2 Specific Milestones			
Modifications			
Engineering and Implementation			
N-1 Walkdown (Unit 2)	Spring 2014	Completed	
Design Engineering	Dec 2014	Started	June 2015
Unit 2 Implementation Outage	Apr 2016	Not Started	
On-site FLEX Equipment			
Purchase / Procure	Dec 2015	Started	
Off-site FLEX Equipment			
Develop Strategies with NSRC	Oct 2015	Started	
Procedures			
Create Indian Point FSG	Oct 2015	Started	May 2015
Create Maintenance Procedures	Oct 2015	Not Started	
Training:			
Develop Training Plan	Aug 2015	Not Started	

Milestone	Target Completion Date*	Activity Status	Revised Target Completion Date
Implement Training	April 2016	Not Started	
Unit 3 Specific Milestones			
Modifications			
Engineering and Implementation			
N-1 Walkdown (Unit 3)	Spring 2014	Completed	
Design Engineering	Dec 2014	Completed	
Unit 3 Implementation Outage	Apr 2015	Not Started	
On-site FLEX Equipment			
Purchase / Procure	Dec 2014	Completed	Jan 2015
Procedures			
Create Indian Point FSG	Oct 2014	Completed	
Create Maintenance Procedures	Oct 2014	Started	April 2015
Training:			
Develop Training Plan	Nov 2014	Completed	
Implement Training	Apr 2015	Started	March 2015

* - Target Completion Date is the last submitted date from either the overall integrated plan or previous six-month status reports

4 Changes to Compliance Method

In the continuing design development phase of the FLEX project at IPEC, changes have been identified to the compliance strategies as described in the original OIP (Reference 1).

- Indian Point Energy Center will implement PWROG-14027 (Reference 10) time to reflux cooling mass balance methodology. The implementation of this methodology will apply site specific initial Reactor Coolant System (RCS) mass and Accumulator injected mass, and the 4-loop reference plant RCS mass at the time to enter reflux cooling. RCS makeup will be operational prior to the calculated time to reflux cooling of 11.3 hours for IP2, and 11.9 hours for IP3.
- On Page 44 of the OIP, it is stated, "Additional equipment may be required to be powered during this event such as portable lighting and ventilation fans. These are not conveniently powered via the FLEX generator." For IPEC Unit 2 the current strategy is to restore ventilation to the control room with the Phase 2 portable generator. For the battery room, the current strategy is to stage a portable blower and a duct to dilute/disperse the hydrogen within four hours of beginning battery charging operations.
- Lighting panels for high priority areas (e.g., control building, control room, some Primary Auxiliary Building, Turbine Building, and Turbine Auxiliary Boiler

Feedwater Pump room) can, in most cases, be repowered by the Phase 2 portable generator.

- Nitrogen bottles are being added to the FLEX Equipment Storage Building to ensure 72 hours of nitrogen is available for the Atmospheric Dump Valves (ADVs).
- Modifications are being implemented to ensure adequate nitrogen is available to the City Water Supply Valve (PCV-1188) to allow the alignment of the City Water Storage Tank to the suction of the Turbine Driven Auxiliary Boiler Feedwater Pump (TDABFP).
- New Seal Leakoff rates per PWROG-14015 Category 1 plants are being implemented that will change integrated leakage volumes and associated reflux cooling timelines.
- Modifications to the #1 Seal Leakoff Lines to install orifices will be implemented to enable using PWROG-14015 Category 1 leakage rates.

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

IPEC expects to comply with the order implementation date for IPEC Unit 2, however, as part of a separate submittal (Reference 8) Entergy has requested an extension for IPEC Unit 3 for no later than startup of refueling outage (3R19) in spring 2017. Entergy is currently planning to install an orifice on the seal leak off line during refueling outage 3R18 (spring 2015) that would align the leakage rates with the leakage rates for Category 1 plants as provided on Table 6 of PWROG-14015 (Reference 9). The requested relaxation will not be required if implementation of Order EA-12-049 is achieved with the successful completion of the modification. If this modification is not completed during 3R18, the relaxation would be required to allow Entergy to license and implement the approach used to bring IPEC Unit 3 into compliance during 3R19.

6 Open Items from Overall Integrated Plan and Interim Staff Evaluation

The following tables provide a summary and status of any open items documented in the Overall Integrated Plan and any open items or confirmatory items documented in the Interim Staff Evaluation (ISE). A fourth table includes the FLEX related NRC Audit Visit Open Items, which includes open items on previously issued Audit Questions and new Safety Evaluation (SE) Open Items that were not closed during the October 2014 NRC Audit Visit as documented in the NRCs Report for the Onsite Audit (Reference 7). A fifth table includes a listing of all Audit Questions and the status of each item.

Overall Integrated Plan Open Item	Status
There were no open items documented in the IPEC Overall Integrated Plan	N/A

Interim Staff Evaluation Open Items		Status
3.1.2.A	Review of the licensee's new flooding level evaluation results and its potential impact on the flooding hazard analyses previously provided in their Integrated Plan and during the audit process is identified as an Open Item. If the flooding levels are modified based on the results of this review, it may affect the evaluation of the deployment described in Section 3.1.2.2 of this evaluation.	This item was closed during the October 2014 NRC Audit Visit (associated with AQ IPEC-.006)
3.2.4.7.A	It is noted that NEI 12-06 guidance only credits water supplies that are robust with respect to seismic events, floods, and high winds, and the associated missiles. The licensee should determine if a water supply for the SGs and RCS would be available after a tornado event by analyzing the tornado characteristics for the site compared to the separation characteristics of the tanks. This is an alternate approach from the strategies identified in NEI 12-06.	This item was closed during the October 2014 NRC Audit Visit (associated with AQ IPEC-041).

Interim Staff Evaluation Confirmatory Items		Status
3.1.1.2.A	Confirm that at least one connection point for the FLEX AFW pump is accessible and is located inside a building that is seismically robust as described in Consideration 2 of NEI 12-06, Section 5.3.2.	For Unit 2 this item is addressed by updated AQ IPEC-036 response. For Unit 3, this item was closed during the October 2014 NRC Audit Visit (associated with AQ IPEC-036).
3.1.1.2.B	Confirm that the pickup trucks, forklifts or any other equipment that will be used to deploy the portable equipment for implementing FLEX strategies will be reasonably protected from the event as described in Consideration 5 of NEI 12-06, Section 5.3.2.	This item was closed during the October 2014 NRC Audit Visit.
3.1.1.2.C	Confirm provisions will be made to ensure that access to all required areas will be assured in the event of a power failure as described in Consideration 5 of NEI 12-06, Section 5.3.2.	This item is addressed by updated AQ-IPEC-023 response.
3.1.1.2.D	Confirm that the licensee has reviewed the deployment paths from the near site storage areas to the site and from the onsite storage	This item was closed during the October 2014 NRC Audit Visit

Interim Staff Evaluation Confirmatory Items		Status
	areas to the deployment location to verify that these paths are not subject to soil liquefaction concerns as described in Consideration 1 of NEI 12-06, Section 5.3.2.	(associated with AQ IPEC-002).
3.1.1.3.A	Confirm that the licensee's review of the potential impacts of large internal flooding sources that are not seismically robust and do not require ac power has been completed per consideration 2 of NEI 12-06, Section 5.3.3.	For Unit 2, this item is addressed by updated AQ IPEC-004 response. For Unit 3, this item was closed during the October 2014 NRC Audit Visit (associated with AQ IPEC-004).
3.1.1.4.A	Confirm that the intermediate staging area has been selected and implementing procedures have been developed.	This item was closed during the October 2014 NRC Audit Visit (associated with AQ IPEC-005).
3.1.2.2.A	Confirm that evaluations address: whether procedures have been established for actions to be taken upon receipt of a hurricane warning; ensuring that fuel in oil storage tanks would not be inundated or damaged by flooding; and, whether the means (e.g., trucks) for moving FLEX equipment is reasonably protected from the event.	This item was closed during the October 2014 NRC Audit Visit (associated with AQ IPEC-006).
3.2.1.A	Confirm which analysis performed in WCAP-17601-P is being applied to Indian Point. Also confirm the licensee has adequately justified the use of that analysis by identifying and evaluating the important parameters and assumptions demonstrating that they are representative of Indian Point and appropriate for simulating the ELAP transient.	This item was closed following the October 2014 NRC Audit Visit as documented in Reference 7 (associated with AQ IPEC-012).
3.2.1.1.A	Confirm that the licensee is using NOTRUMP and has taken into account its limitations. Reliance on the NOTRUMP code for the ELAP analysis of Westinghouse plants is limited to the flow conditions prior to reflux condensation initiation. This includes specifying an acceptable definition for reflux condensation cooling.	This item was closed following the October 2014 NRC Audit Visit as documented in Reference 7 (associated with AQ IPEC-012).
3.2.1.3.A	Confirm that the licensee has satisfactorily addressed the applicability of Assumption 4 on page 4-13 of WCAP-17601 which states that	This item was closed during the October 2014 NRC Audit Visit

Interim Staff Evaluation Confirmatory Items		Status
	decay heat is per ANS 5.1-1979 + 2 sigma, or equivalent. If the ANS 5.1-1979 + 2 sigma model is used in the Indian Point ELAP analysis, address the adequacy of the use of the decay heat model in terms of the plant-specific values of the following key parameters: (1) initial power level, (2) fuel enrichment, (3) fuel burnup, (4) effective full power operating days per fuel cycle, (5) number of fuel cycles, if hybrid fuels are used in the core, and (6) fuel characteristics (addressing whether they are based on the beginning of the cycle, middle of the cycle, or end of the cycle). If a different decay heat model is used, describe the specific model and address the adequacy of the model and the analytical results.	(associated with AQ IPEC-013).
3.2.1.6.A	Confirm that the licensee has finalized its strategy for controlling the RCS pressure to prevent nitrogen from escaping from the safety injection accumulators into the RCS until the isolation valves can be closed.	For Unit 2, this item is addressed by updated AQ IPEC-035 response. For Unit 3, this item was closed during the October 2014 NRC Audit Visit (associated with AQ IPEC-035).
3.2.1.8.A	The PWROG submitted to NRC a position paper, dated August 15, 2013, which provides test data regarding boric acid mixing under single-phase natural circulation conditions and outlined applicability conditions intended to ensure that boric acid addition and mixing would occur under conditions similar to those for which boric acid mixing data is available. During the audit process, the licensee informed the NRC staff of its intent to abide by the generic approach discussed above. The licensee should address the clarifications in the NRC endorsement letter dated January 8, 2014.	This item is addressed by updated AQ IPEC-050 response.
3.2.1.9.A	Confirm that the licensee has specified the required time for the operator to realign each of the above discussed pumps and confirm that the required times are consistent with the results of the ELAP analysis. Confirm that the licensee discussed the analyses that are used to determine the required flow rate and corresponding total developed head for each of	This item is addressed by updated AQ IPEC-017 response.

Interim Staff Evaluation Confirmatory Items		Status
	the portable pumps and also to justify that that the required capacities of each of the above-discussed portable pumps are adequate to maintain core cooling and sub-criticality during phases 2 and 3 of ELAP. Confirm that the licensee has included a discussion and justification of computer codes/methods and assumptions used in the analyses above.	
3.2.1.9.B	Confirm that the licensee has provided an evaluation that demonstrates flow through a 2-inch connection will be sufficient to provide adequate flow to maintain the SG level using the alternate SG FLEX pump.	For Unit 2, this item is addressed by updated AQ IPEC-036 response. For Unit 3, this item was closed during the October 2014 NRC Audit Visit (associated with AQ IPEC-036).
3.2.2.A	Confirm that the licensee has satisfactorily explained the strategy to provide a secondary connection for SFP makeup if the building is inaccessible, and explain where these valves are and if access to these valves will be available during an ELAP event.	For Unit 2, this item is addressed by updated AQ IPEC-034 response. For Unit 3, this item was closed during the October 2014 NRC Audit Visit (associated with AQ IPEC-034).
3.2.3.A	Confirm that a containment evaluation has been completed and, based on the results of this evaluation; required actions to ensure maintenance of containment integrity and required instrument function will be developed.	This item is addressed by updated AQ response spreadsheet on the ePortal. (Unit 3 Open Item from the October 2014 NRC Audit Visit.)
3.2.4.2.A	Confirm that the assessment of the predicted maximum temperatures in rooms with equipment that is required for FLEX strategies during the ELAP demonstrates that the equipment will continue to function as needed.	This item is addressed by updated AQ IPEC-020 response. (Unit 3 Open Item from the October 2014 NRC Audit Visit.)
3.2.4.2.B	Confirm that hydrogen concentration in the battery rooms during battery recharging would be maintained at an acceptable level.	For Unit 2, this item is addressed by updated AQ IPEC-047 response. For Unit 3, this item was closed during the October 2014 NRC Audit Visit (associated with AQ IPEC-047).

Interim Staff Evaluation Confirmatory Items		Status
3.2.4.3.A	Confirm that the need for heat tracing has been evaluated for the BAST and all other equipment necessary to ensure that all FLEX strategies can be implemented successfully.	This item is addressed by updated AQ IPEC-021 response. (Unit 3 Open Item from the October 2014 NRC Audit Visit.)
3.2.4.6.A	Confirm that habitability limits will be maintained and/or operator protective measures will be employed in all Phases of an ELAP to ensure operators will be capable of FLEX strategy execution under adverse temperature conditions. Examples of areas of concern are the control room, TDABFW pump room, SFP area, and charging pump room.	For Unit 2, this item is addressed by updated AQ IPEC-020 response. For Unit 3, this item was closed during the October 2014 NRC Audit Visit (associated with AQ IPEC-020).
3.2.4.7.B	Confirm that the licensee has evaluated the acceptability of the missile protection for the Unit 2 BAST.	This item was closed during the October 2014 NRC Audit Visit (associated with AQ IPEC-041).
3.2.4.9.A	Confirm that method for supplying fuel oil has been finalized. Also confirm that the fuel required for each FLEX piece of equipment has been established and that the total fuel usage has been calculated to demonstrate that sufficient fuel with margin exists on site.	For Unit 2, this item is addressed by updated AQ IPEC-025 response. For Unit 3, this item was closed during the October 2014 NRC Audit Visit (associated with AQ IPEC-025).
3.2.4.10.A	Confirm that analysis of the following aspects of the dc power requirements have been identified and evaluated: a. The dc load profile with the required loads for the mitigating strategies to maintain core cooling, containment, and spent fuel pool cooling; b. The loads that will be shed from the dc bus, the equipment location (or location where the required action needs to be taken), and the required operator actions and the time to complete each action c. The basis for the minimum dc bus voltage that is required to ensure proper operation of all required electrical equipment.	For Unit 2, this item is addressed by updated AQ IPEC-026 response. For Unit 3, this item was closed during the October 2014 NRC Audit Visit (associated with AQ IPEC-026).
3.4.A	Confirm that the 480V portable/FLEX generators are adequately sized to supply loads	For Unit 2, this item is addressed by updated

Interim Staff Evaluation Confirmatory Items		Status
	assumed for implementing Phase 2 strategies.	AQ IPEC-031 response. For Unit 3, this item was closed during the October 2014 NRC Audit Visit (associated with AQ IPEC-031).

October 2014 NRC Audit Visit FLEX Related Open Items (Reference 7)			
Audit Item Reference	**Item Description**	**Licensee Input Needed**	**Status**
ISE CI 3.2.3.A	Containment Evaluation The calculation of the conditions inside the containment building was done by the licensee with an assumption of an initial leak rate of 21 gallons per minute (gpm) seal leakage per RCP. As the RCP seal leakage model has not been accepted yet by the NRC staff, it is not possible to perform a final evaluation of this calculation.	The calculation of the conditions inside the containment building was done by the licensee with an assumption of an initial leak rate of 21 gallons per minute (gpm) seal leakage per RCP. As the RCP seal leakage model has not been accepted yet by the NRC staff, it is not possible to perform a final evaluation of this calculation.	This item is addressed on updated AQ response spreadsheet on the ePortal.
ISE CI 3.2.4.2.A	Room Temperatures The NRC staff needs additional information on the maximum predicted temperatures in rooms where FLEX equipment is operating, and the equipment temperature limits, to confirm that there is no impact on equipment operation.	The staff requested the licensee to provide electrical equipment qualification for the temperatures reached in the control room and TDAFW pump room.	This item is addressed by updated AQ IPEC-020 response on the ePortal.
ISE CI 3.2.4.3.A	Heat Tracing The NRC staff needs additional information	The NRC staff needs additional information on the ability to use	This item is addressed by updated AQ

October 2014 NRC Audit Visit FLEX Related Open Items (Reference 7)			
Audit Item Reference	**Item Description**	**Licensee Input Needed**	**Status**
	on the ability to use outdoor tanks during extreme cold conditions with no operational heat tracing.	outdoor tanks during extreme cold conditions with no operational heat tracing, especially when the use of the tank is delayed while FLEX equipment is deployed, and outdoor isolation valves must be opened.	IPEC-021 response on the ePortal.
AQ-27	Maintenance and Testing of FLEX Equipment The NRC staff has concerns that testing procedures may not have sufficient details, such as acceptance criteria and shelf-life considerations for FLEX equipment, to identify when FLEX equipment needs to be repaired or replaced. Also, the licensee plans to extend certain intervals between testing longer than stated in the EPRI templates endorsed by the NRC. The licensee will provide a report which evaluates this extension.	The NRC staff has concerns that testing procedures may not have sufficient details, such as acceptance criteria and shelf-life considerations for FLEX equipment, to identify when FLEX equipment needs to be repaired or replaced. Also, the licensee plans to extend certain intervals between testing longer than stated in the EPRI templates endorsed by the NRC. The licensee will provide a report which evaluates this extension.	This item is addressed by updated AQ IPEC-027 response on the ePortal.
AQ-28	Offsite Resources The NRC staff identified that a revision is needed to procedure FSG-100 in order for the licensee staff to reach the step to activate the offsite resource delivery. The licensee also needs to finalize the SAFER Response Plan for	The NRC staff identified that a revision is needed to procedure FSG-1 00 in order for the licensee staff to reach the step to activate the offsite resource delivery. The licensee also needs to finalize the SAFER Response Plan for Indian Point, and	This item is addressed by updated AQ IPEC-028 response on the ePortal.

October 2014 NRC Audit Visit FLEX Related Open Items (Reference 7)			
Audit Item Reference	**Item Description**	**Licensee Input Needed**	**Status**
	Indian Point, and finalize contractual arrangements for the use of the offsite staging areas.	finalize contractual arrangements for the use of the offsite staging areas.	
AQ-46	Battery Room Temperature Extremes The NRC staff needs additional information to evaluate the performance of the plant batteries considering the temperature extremes (hot and cold) that may be reached in the battery rooms.	The NRC staff requested the licensee to provide a technical basis to support the conclusion that the battery rooms would not exposed to extreme high and low temperatures during the first phase of the ELAP event.	This item is addressed by updated AQ IPEC-046 response on the ePortal.
AQ-51	Use of Non-Safety-Related Equipment The NRC staff needs information on the use of non-safety-related installed electrical equipment credited during an ELAP event and its ability to perform its safety function considering the potential external hazards.	The NRC staff requested the licensee to address non-safety related installed electrical equipment credited for mitigation strategies and whether this equipment will survive the BDBEE.	This item is addressed by updated AQ IPEC-051 response on the ePortal.
SE#2	RCP Seal Leakage and NSAL 14-1 Westinghouse nuclear safety advisory letter NSAL -14-1 indicates there may be higher leakage from the reactor coolant pump (RCP) seals during an extended loss of ac power (ELAP) than was previously analyzed. The licensee proposed to limit leakage by	Provide final resolution for this issue.	This item is addressed on updated AQ response spreadsheet on the ePortal.

October 2014 NRC Audit Visit FLEX Related Open Items (Reference 7)			
Audit Item Reference	**Item Description**	**Licensee Input Needed**	**Status**
	throttling existing valves in the #1 seal leakoff line. The NRC staff expressed concerns regarding the licensee's proposal. The licensee is working to resolve this issue, and is considering modifications to the plant. The NRC will review the final resolution.		
SE #5	Accuracy of the NOTRUMP Computer Code Westinghouse used the NOTRUMP computer code to develop certain timelines for operator actions in an ELAP event (see WCAP-17601-P for example). NRC simulations using the TRACE code indicate some differences, which may be significant enough to affect the timeline for operator actions. The Pressurized Water Reactor Owners Group (PWROG) is working with the NRC on a resolution, which may be applicable to all PWRs. The NRC staff also needs a comparison chart from the licensee to compare how the plant parameters assumed in the Westinghouse	Provide PWROG resolution on accuracy of the NOTRUMP code. Provide a comparison chart to compare how the plant parameters assumed in the Westinghouse analyses compare to Indian Point parameters.	This item is addressed on updated AQ response spreadsheet on the ePortal.

October 2014 NRC Audit Visit FLEX Related Open Items (Reference 7)			
Audit Item Reference	**Item Description**	**Licensee Input Needed**	**Status**
	analyses compare to Indian Point parameters.		
SE #7	Operation of the SG ADVs The NRC staff has concerns with the nitrogen bottles used to provide the motive force to operate the SG ADVs, needed for plant cooldown. The staff needs additional information on the capacity of the nitrogen bottles, and what other equipment uses those bottles.	The NRC staff has concerns with the nitrogen bottles used to provide the motive force to operate the SG ADVs, needed for plant cooldown. Provide additional information on the capacity of the nitrogen bottles, and what other equipment uses those bottles.	This item is addressed on updated AQ response spreadsheet on the ePortal.
SE #13	RCP Seal Leakage Rates The NRC staff needs information to demonstrate that the current RCP seal leakage rate calculation is accurate or conservative.	The NRC staff needs information to demonstrate that the current RCP seal leakage rate calculation is accurate or conservative.	This item is addressed on updated AQ response spreadsheet on the ePortal.
SE #14	Pressurization of the RCP #1 Seal Leakoff Line The NRC staff has asked the licensee to determine the expected maximum pressure in the #1 seal leakoff line during this event and to demonstrate that the components of this line will not fail in such a manner that will increase the seal leakage.	The NRC staff has asked the licensee to determine the expected maximum pressure in the #1 seal leakoff line during this event and to demonstrate that the components of this line will not fail in such a manner that will increase the seal leakage.	This item is addressed on updated AQ response spreadsheet on the ePortal.

Audit Questions	Status	Completion or Target Date
IPEC-002	This item was closed during the October 2014 NRC Audit Visit (associated with ISE Confirmatory Item 3.1.1.2.D)	Closed
IPEC-003	This item was closed during the October 2014 NRC Audit Visit.	Closed
IPEC-004	IPEC Unit 3 – This item was closed during the October 2014 NRC Audit Visit (associated with ISE Confirmatory Item 3.1.1.3.A)	Closed
	IPEC Unit 2 – Updated response available on the ePortal (associated with ISE Confirmatory Item 3.1.1.3.A)	Review ready
IPEC-005	This item was closed during the October 2014 NRC Audit Visit (associated with ISE Confirmatory Item 3.1.1.4.A)	Closed
IPEC-006	This item was closed during the October 2014 NRC Audit Visit (associated with ISE Open Item 3.1.2.A and ISE Confirmatory Item 3.1.2.2.A)	Closed
IPEC-008	This item was closed during the October 2014 NRC Audit Visit.	Closed
IPEC-009	This item was closed during the October 2014 NRC Audit Visit.	Closed
IPEC-010	Updated response available on the ePortal	Review ready
IPEC-011	Updated response available on the ePortal	Review ready
IPEC-012	This item was closed during the October 2014 NRC Audit Visit (associated with ISE Confirmatory Item 3.2.1.A and ISE Confirmatory Item 3.2.1.1.A)	Closed
IPEC-013	This item was closed during the October 2014 NRC Audit Visit (associated with ISE Confirmatory Item 3.2.1.3.A)	Closed
IPEC-014	This item was closed during the October 2014 NRC Audit Visit.	Closed Closed
IPEC-017	Updated response available on the ePortal (associated with ISE Confirmatory Item 3.2.1.9.A)	Review ready
IPEC-020	IPEC Unit 3 – Updated response available on the ePortal (associated with ISE Confirmatory Item 3.2.4.2.A) (Unit 3 Open Item from the October 2014	Review ready

Audit Questions	Status	Completion or Target Date
	NRC Audit Visit.)	
	IPEC Unit 2 Updated response available on the ePortal (associated with ISE Confirmatory Item 3.2.4.2.A)	Review ready
	IPEC Unit 3 – This item was closed during the October 2014 NRC Audit Visit (associated with ISE Confirmatory Item 3.2.4.6.A)	Closed
	IPEC Unit 2 – Updated response available on the ePortal (associated with ISE Confirmatory Item 3.2.4.6.A)	Review ready
IPEC-021	IPEC Unit 3 – Updated response available on the ePortal (associated with ISE Confirmatory Item 3.2.4.3.A) (Unit 3 Open Item from the October 2014 NRC Audit Visit.)	Review ready
	IPEC Unit 2 – Updated response available on the ePortal (associated with ISE Confirmatory Item 3.2.4.3.A)	Review ready
IPEC-022	This item was closed during the October 2014 NRC Audit Visit.	Closed
IPEC-023	Pdated available on the ePortal (associated with ISE confirmatory Item 3.1.1.2.C)	Review ready
IPEC-025	IPEC Unit 3 - This item was closed during the October 2014 NRC Audit Visit (associated with ISE Confirmatory Item 3.2.4.9.A)	Closed
	IPEC Unit 2 - Updated response available on the ePortal (associated with ISE Confirmatory Item 3.2.4.9.A)	Review ready
IPEC-026	IPEC Unit 3 - This item was closed during the October 2014 NRC Audit Visit (associated with ISE Confirmatory Item 3.2.4.10.A)	Closed
	IPEC Unit 2 - Updated response available on the ePortal (ISE Confirmatory Item 3.2.4.10.A)	Review ready
IPEC-027	Updated response available on the ePortal (Unit 3 Open Item from the October 2014 NRC Audit Visit.)	Review ready
IPEC-028	Response available on the ePortal (Unit 3 Open Item from the October 2014 NRC Audit Visit.)	Review ready
IPEC-029	IPEC Unit 3 - This item was closed during the October 2014 NRC Audit Visit.	Closed

Audit Questions	Status	Completion or Target Date
	IPEC Unit 2 - Updated response available on the ePortal	Review ready
IPEC-031	IPEC Unit 3 - This item was closed during the October 2014 NRC Audit Visit (associated with ISE Confirmatory Item 3.4.A)	Closed
	IPEC Unit 2 - Updated response available on the ePortal (associated with ISE Confirmatory Item 3.4.A)	Review ready
IPEC-032	This item was closed during the October 2014 NRC Audit Visit.	Closed
IPEC-033	IPEC Unit 3 - This item was closed during the October 2014 NRC Audit Visit.	Closed
	IPEC Unit 2 - Updated response available on the ePortal	Review ready
IPEC-034	IPEC Unit 3 - This item was closed during the October 2014 NRC Audit Visit (associated with ISE Confirmatory Item 3.2.2.A)	Closed
	IPEC Unit 2 - Updated response available on the ePortal(associated with ISE Confirmatory Item 3.2.2.A)	Review ready
IPEC-035	IPEC Unit 3 - This item was closed during the October 2014 NRC Audit Visit (associated with ISE Confirmatory Item 3.2.1.6.A)	Closed
	IPEC Unit 2 - Updated response available on the ePortal (associated with ISE Confirmatory Item 3.2.1.6.A)	Review ready
IPEC-036	IPEC Unit 3 - This item was closed during the October 2014 NRC Audit Visit (associated with ISE Confirmatory Item 3.1.1.2.A)	Closed
	IPEC Unit 2 - Updated response available on the ePortal (associated with ISE Confirmatory Item 3.1.1.2.A)	Review ready
	IPEC Unit 3 - This item was closed during the October 2014 NRC Audit Visit (associated with ISE Confirmatory Item 3.2.1.9.B)	Closed
	IPEC Unit 2 - Updated response available on the ePortal (associated with ISE Confirmatory Item 3.2.1.9.B)	Review ready
IPEC-037	This item was closed during the October 2014 NRC Audit Visit.	Closed

Audit Questions	Status	Completion or Target Date
IPEC-041	This item was closed during the October 2014 NRC Audit Visit (associated with ISE Open Item 3.2.4.7.A and ISE Confirmatory Item 3.2.4.7.B)	Closed
IPEC-042	IPEC Unit 3 - This item was closed during the October 2014 NRC Audit Visit.	Closed
	IPEC Unit 2 - Updated response available on the ePortal	Review ready
IPEC-043	IPEC Unit 3 - This item was closed during the October 2014 NRC Audit Visit.	Closed
	IPEC Unit 2 - Updated response available on the ePortal	Review ready
IPEC-045	IPEC Unit 3 – This item was closed during the October 2014 NRC Audit Visit.	Closed
	IPEC Unit 2 - Updated response available on the ePortal	Review ready
IPEC-046	IPEC Unit 3 – Updated response available on the ePortal (Unit 3 Open Item from the October 2014 NRC Audit Visit.)	Review ready
	IPEC Unit 2 - Updated response available on the ePortal	Review ready
IPEC-047	IPEC Unit 3 - This item was closed during the October 2014 NRC Audit Visit (associated with ISE Confirmatory Item 3.2.4.2.B)	Closed
	IPEC Unit 2 - Updated response available on the ePortal (associated with ISE Confirmatory Item 3.2.4.2.B)	Review ready
IPEC-048	IPEC Unit 3 - This item was closed during the October 2014 NRC Audit Visit.	Closed
	IPEC Unit 2 - Updated response available on the ePortal	Review ready
IPEC-049a	This item was closed following the October 2014 NRC Audit Visit as documented in Reference 7.	Closed
IPEC-049b	This item was closed following the October 2014 NRC Audit Visit as documented in Reference 7	Closed
IPEC-049c	This item was closed during the October 2014 NRC Audit Visit	Closed
IPEC-049d	This item was closed following the October 2014 NRC	Closed

Audit Questions	Status	Completion or Target Date
	Audit Visit as documented in Reference 7.	
IPEC-049e	This item was closed during the October 2014 NRC Audit Visit.	Closed
IPEC-049f	This item was closed during the October 2014 NRC Audit Visit.	Closed
IPEC-049g	This item was closed during the October 2014 NRC Audit Visit.	Closed
IPEC-049h	This item was closed during the October 2014 NRC Audit Visit.	Closed
IPEC-049i	This item was closed during the October 2014 NRC Audit Visit.	Closed
IPEC-050	Updated response available on the ePortal (associated with ISE Confirmatory Item 3.2.1.8.A)	Review ready
IPEC-051	Updated response available on the ePortal (Unit 3 Open Item from the October 2014 NRC Audit Visit.)	Review ready

*Closed indicates that Entergy's response is complete.

7 Potential Interim Staff Evaluation Impacts

The following items indicate a change and/or update to the items identified in this section during the 2nd Six-Month Status Report.

1. ISE/TER Section 3.2.1.6, Page 32, the TER states "RCS boration is required for shutdown margin at 23.3 hours." The current analysis indicates that time for boration (beyond that provided by SI Accumulators) is 20.4 hours for IPEC Unit 2 and 22.5 hours for IPEC Unit 3.
2. ISE/TER Section 3.2.1.9, Page 35, the TER states "This pump will provide core make-up such that a limited period of two phase natural circulation cooling occurs...." Based on the PWROG-14027 methodology, the current strategy for IPEC will prevent reflux cooling from occurring by initiating RCS makeup prior to 11.3 hours for IP2 and 11.9 hours for IP3.
3. ISE/TER Section 3.2.4.3, Page 40, the TER states "...the licensee did not adequately address heat tracing." IP-CALC-13-00058 addresses the issue of heat tracing for IPEC Unit 3. Any required heat tracing would be restored with the Phase 2 diesels. . Calculation IP-CALC-14-00043 addresses the issue of heat tracing for IPEC Unit 2. The results determined that the tanks are relatively immune to freezing. Power to heaters and tank connection heat tracing will also be restored when the Phase 2 FLEX Diesel Generator is connected to the buses if the BDBEE requires it.

8 References

The following references support the updates to the Overall Integrated Plan described in this enclosure.

1. Entergy letter to NRC (NL-13-042), 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 28, 2013
2. NRC Order Number EA-12-049, "Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," dated March 12, 2012.
3. Entergy letter to NRC (NL-13-110), Indian Point Energy Center's First Six-Month Status Report for the Implementation of Order EA-12-049 Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (TAC Nos. MF0744 and MF0745), dated August 27, 2013
4. NRC letter to Entergy, Indian Point Nuclear Generating Unit Nos. 2 and 3 – Interim Staff Evaluation Relating to Overall Integrated Plan in Response to Order EA-12-049 (Mitigation Strategies) (TAC Nos. MF0744 and MF0745), dated January 24, 2014
5. Entergy letter to NRC (NL-14-110), Indian Point Energy Center's Third Six-Month Status Report for the Implementation of Order EA-12-049 Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (TAC Nos. MF0744 and MF0745), dated August 27, 2014 (ML14251A227).
6. Indian Point Nuclear Generating Unit Nos. 2 and 3- Plan for the Onsite Audit Regarding Implementation of Mitigating Strategies AND Reliable Spent Fuel Instrumentation Related To Orders EA-12-049 and EA-12-051 (TAC NOS. MF0744, MF0745, MF07371 AND MF0738), dated September 30, 2014 (ML14269A384)
7. Indian Point Nuclear Generating Unit Nos. 2 and 3 – Report for the Onsite Audit Regarding Implementation of Mitigating Strategies and Reliable Spent Fuel Instrumentation Related to Orders EA 12-049 and EA 12-051 (TAC Nos. MF0744, MF0745, MF0737 and MF0738), dated December 9, 2014 (ML14335A642)
8. Entergy letter to NRC (NL-15-012), Entergy's Request for Relaxation from NRC Order EA-12-049, "Order Modifying licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (TAC No. MF0745) Indian Point Unit Number 3, dated January 28, 2015.
9. Westinghouse Report PWROG-14015-P, Rev. 1, No. 1 Seal Flow Rate for Westinghouse Reactor Coolant Pumps Following Loss of All AC Power, September 19, 2014.

10. Westinghouse Report PWROG-142027-PRev 2, No. 1 Seal Flow Rate for Westinghouse Reactor Coolant Pumps Following Loss of All AC Power Task 3, October, 2014.