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JAFP-17-0017
February 28, 2017

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

Subject: Eighth 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)

James A. FitzPatrick Nuclear Power Plant
Docket No. 50-333
License No. DPR-059

Reference:

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 (ML12056A045)
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 (ML12229A174)
3. NEI 12-06, Diverse and Flexible Coping Strategies (FLEX) Implementation Guide, Revision 0, dated August 2012 (ML12242A378)
4. ENOI letter, JAFP-12-0124, 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 (ML12305A314)
5. ENOI letter, JAFP-13-0025, 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 (ML13063A287)
6. ENOI letter, JAFP-16-0045, Certification of Permanent Cessation of Power Operations, dated March 16, 2016 (ML16076A391).

7. ENOI letter, JAFP-16-0061, Request for Relaxation of March 12, 2012 Commission Orders Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond Design Basis External Events and Reliable Spent Fuel Pool Instrumentation (Order Number EA-12-049 and EA-12-051), dated April 14, 2016 (ML16105A379)

8. ENOI letter, JAFP-16-0096, Supporting Information for Request for Relaxation of March 12, 2012 Commission Orders Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond Design Basis External Events and Reliable Spent Fuel Pool Instrumentation (Order Number EA-12-049 and EA-12-051), dated June 16, 2016 (ML16168A452)

9. ENOI letter, JAFP-16-0147, Request for Extension to Comply with March 12, 2012 Commission Orders Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond Design Basis External Events and Reliable Spent Fuel Pool Instrumentation (Order Number EA-12-049 and EA-12-051), dated September 8, 2016 (ML16252A477)

10. Exelon and ENOI letter, Application for Order Approving Transfer of Renewed Facility Operating License and Proposed Conforming License Amendment, dated August 18, 2016 (ML16235A081)

11. NRC letter, James A. FitzPatrick Nuclear Power Plant - Acceptance of Requested Licensing Action Re: Application for Order Approving Transfer of Renewed Facility Operating License and Proposed Conforming License Amendment (CAC No. MF8293), dated October 3, 2016 (ML16266A483)

12. NRC letter, James A. FitzPatrick Nuclear Power Plant - Relaxation of the Schedule Requirements for Order EA-12-049, "Issuance of Order to Modify Licenses with Regard to Requirements for Mitigation Strategies For Beyond-Design-Basis External Events" and Order EA-12-051, "Reliable Spent Fuel Pool Instrumentation" (CAC Nos. MF1077 and MF1076), dated December 2, 2016 (ML16173A342)

Dear Sir or Madam:

On March 12, 2012, the Nuclear Regulatory Commission (“NRC” or “Commission”) issued an order [Reference 1] to James A. FitzPatrick Nuclear Power Plant (JAF). Reference 1 was immediately effective and directed JAF 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. Specific requirements are outlined in Attachment 2 of Reference 1.

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.2. 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 JAF initial status report regarding mitigation strategies. Reference 5 provided the JAF overall integrated plan.

Reference 6 notified the NRC that Entergy Nuclear Operations Inc. (ENOI) had decided to permanently cease power operations of JAF in January 2017. Due to the possible option to sell JAF in lieu of permanent cessation of power operation, Entergy submitted a request for extension of Order EA 12-049 and Order EA 12-051 full compliance dates to June 30, 2017

[References 9]. By letter dated August 18, 2016, [Reference 10] ENOI and Exelon Generating Company, LLC (Exelon) jointly submitted an application for an order and conforming license amendment transferring the JAF facility from ENOI to Exelon. Reference 11 provides the acceptance by the NRC staff to complete a detailed technical review of the application of the proposed transfer of renewed operating license of the JAF facility. Reference 12 approved a relaxation to the orders to June 30, 2017.

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. The purpose of this letter is to provide the eighth 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.

This letter contains no new regulatory commitments. If you have any questions regarding this report, please contact William Drews, Regulatory Assurance Manager, at 315-349-6562.

I declare under penalty of perjury that the foregoing is true and correct. Executed on 28th day of February, 2017.

Sincerely,

Brian R. Sullivan
Site Vice President

BRS/WCD/mh

Attachment: James A. FitzPatrick Nuclear Power Plant's (JAF) Eighth 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

cc: Director, Office of Nuclear Reactor Regulation
NRC Region I Administrator
NRC Resident Inspector
NRC Project Manager
NYSPSC
NYSERDA

JAFP-17-0017

Attachment

James A. FitzPatrick Nuclear Power Plant's (JAF) Eighth 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

(17 Pages)

James A. FitzPatrick Nuclear Power Plant's (JAF) Eighth 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

James A. FitzPatrick Nuclear Power Plant (JAF) developed an Overall Integrated Plan (Reference 1 in Section 8), 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 12), 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, 2016, and are current as of January 31, 2017.

- Seventh Six-Month Status Report – August 2016 (JAFP-16-0139)
- Perform Staffing Analysis – December 2016
- Draft Implementing Procedures – December 2016
- Develop Training Plan – December 2016
- Develop Storage Plan – January 2017

3. Milestone Schedule Status

Following is 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.

Milestone	Target Completion Date*	Activity Status	Revised Target Completion Date
60-day Status Update	October 29, 2012	Complete	
Submit Overall Integrated Plan	February 28, 2013	Complete	
Six-Month Status Report	August 2013	Complete	
Refine Strategies	December 2014	Complete	
Perform Staffing Analysis	TBD**	Complete	December 2016
Develop Strategies / Contract with RRC	TBD**	In progress	June 2017
Six-Month Status Report	February 2014	Complete	
Develop Mods	TBD**	Complete	February 2017
Draft Implementing Procedures	TBD**	Complete	December 2016
Regional Response Center Operational	July 2015	Complete	
Develop Storage Plan	TBD**	Complete	January 2017
Purchase FLEX Equipment	TBD**	In progress	May 2017
Issue Maintenance Procedures (for FLEX equipment)	TBD**	Not Started	June 2017
Six-Month Status Report	August 2014	Complete	

James A. FitzPatrick Nuclear Power Plant's (JAF) Eighth 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

Milestone	Target Completion Date*	Activity Status	Revised Target Completion Date
Develop Training Plan	TBD**	Complete	December 2016
Refueling Outage 1	Fall 2014	Complete	
Six-Month Status Report	February 2015	Complete	
Implement Training	TBD**	Not Started	June 2017
Implement Mods (non-outage)	TBD**	In progress	June 2017
Six-Month Status Report	August 2015	Complete	
Six-Month Status Report	February 2016	Complete	
Issue Implementing Procedures	TBD**	Not Started	June 2017
Six-Month Status Report	August 2016	Complete	
Six-Month Status Report	February 2017	Complete	
Implement Mods (outage)	TBD**	In progress	March 2017
Implement Training Updates	TBD**	Not Started	June 2017
Full Implementation	TBD**	Not Started	June 2017
Validation / Demonstration	TBD**	Not Started	April 2017

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

**These milestones are being reassessed and revised target completion dates will be determined and included in a future six-month update (see Section 4).

4. Changes to Compliance Method

Changes have been identified to the compliance strategy as described in the Overall Integrated Plan (Reference 1) and updates (References 3, 5, 6, 7, 10, 11 and 12). These changes will be incorporated in the Final Integrated Plan (FIP).

- Reference 7, Section 4, states that the reactor pressure vessel (RPV) will be depressurized from operating pressure to 200 to 400 psig in approximately 1 hour. Per the revised Modular Accident Analysis Program (MAAP) analysis, this RPV depressurization will take place in 2.5 hours.
- Reference 7, Section 4, states that the transition from the reactor core isolation cooling (RCIC) pump to the diesel-driven fire pump takes place at around 24 hours. The revised strategy determined that the transition from RCIC to the diesel-driven fire pump takes place at approximately 22 hours.
- Reference 7, Section 4, states that the primary strategy to provide power to required DC bus loads will use the temporary station battery charger and that a quick connect type receptacle is provided at the temporary battery charger for connection to the 200KW 600VAC FLEX diesel generator (DG). The revised strategy does not power up the temporary station battery charger but uses a modified motor control center (MCC) bucket capable of being plugged into spare cubicles in the associated Division 1 (primary strategy) or Division 2 (alternate strategy) MCC bus. Each modified MCC

bucket is outfitted with quick connects providing the capability for the 200KW 600VAC FLEX DG to directly feed the required FLEX strategy DC loads that includes the permanent station battery chargers. To satisfy the "N+1" requirement, two 200KW 600VAC FLEX DG and two modified MCC buckets are provided.

- Reference 1, page 15, identifies that a modification is required to change the power feed for certain critical instruments from the AC instrument bus to a station battery-backed source. All critical instruments required to support the JAF FLEX strategy are provided power from station batteries and no modification is required. Additionally, Reference 7 mistakenly indicated that drywell pressure should not be on the list of instruments on this same page when in fact it should have indicated that torus pressure should not be on the list. Torus pressure is not required for the JAF strategy but, drywell pressure is required.
- Reference 1, page 6, states that the station battery chargers will be re-powered at 10 hours. The revised strategy re-powers the station battery chargers at 8 hours.
- Reference 1, page 18, states that the JAF alternate strategy for powering up station battery chargers is to provide connections and permanent cables to allow the battery chargers to be directly powered up by a 90KW 600VAC DG. The JAF strategy does not require use of any 90KW 600VAC diesel generators nor any capabilities to directly power up the station battery chargers.
- Reference 1, page 19, states modifications will be made to (1) add connection points and install cabling to selected busses to facilitate connections of the 200KW 600VAC FLEX DG, (2) install new piping to be used to facilitate replenishing the condensate storage tank (CST) with a portable FLEX pump, (3) add connection points, install cables and transfer switches locally at a battery charger to provide for direct connection of 90KW 600VAC DGs and (4) install a new manually operated jib crane to facilitate the deployment of the portable FLEX pump in the Screenhouse. (1) As mentioned above, the JAF strategy requires two modified MCC buckets to facilitate connection of the 200KW 600VAC FLEX DGs and therefore the modification to install connection points and cabling is not required. (2) As noted in Reference 7, the JAF strategy does not use a portable FLEX pump to refill the CST, therefore, the piping modification is not required. (3) As noted above, the JAF strategy does not require the use of 90KW 600VAC generators, therefore, the modification to install connection points, cabling and transfer switches is not required. (4) As noted in Reference 7, the JAF strategy does not require a portable FLEX pump to refill the CST, therefore, the modification to install a manually operated jib crane is not required to facilitate deployment of the pump.
- Reference 1, page 20 "Deployment Conceptual Modification" states that (1) new FLEX piping will be installed to meet necessary seismic requirements, (2) connection points for the FLEX pump discharge will be outside the Screenhouse and designed to withstand the applicable hazards, and, (3) electrical connection points for the 200KW 600VAC FLEX DGs will be designed to withstand the applicable hazards. The JAF strategy credits the use of permanently installed diesel-driven fire pumps for meeting the needs of reactor core cooling and spent fuel pool makeup. Both diesel-driven fire pumps have been evaluated and determined to be qualified for all applicable external events including their attached piping. FLEX piping adapters and hoses are utilized to complete the flow path connections from the discharge of the diesel-driven fire pumps to the residual heat removal water system. As such no permanent piping or permanent piping

connection point modifications are required for the JAF FLEX strategy. All FLEX piping connections are made within the fully qualified and protected portions of the Screenhouse. FLEX piping adapters and hoses are stored within the Screenhouse which has been determined to be qualified for all applicable external events. As previously discussed above, no new modifications are required to facilitate electrical connection of the 200KW 600VAC FLEX DGs.

- Reference 1, page 21 states that the primary Phase 3 strategy to maintain reactor core cooling is to place the installed RHR shutdown cooling (SDC) system in service as powered up by the offsite resource National SAFER Response Center (NSRC) 4160VAC generator. As a means of clarification, the JAF strategy does not require the use of the installed RHR SDC system in Phase 3. While the capability to use RHR SDC in Phase 3 is provided by the FLEX strategy, the primary means of maintaining core cooling for JAF is by continuation of the FLEX Phase 2 strategy (use of diesel-driven fire pumps to maintain core cooling). Based on this, none of the modifications listed in Reference 1, page 23, are required to support the FLEX strategy.
- Reference 1, page 24 (and associated follow on discussions on page 25, 26, 27 and 28) states that the reliable hardened vent system (RHVS) as implemented for NRC Order-EA-12-050 is required to support the JAF FLEX strategy. NRC Order EA-12-050 was superseded by NRC Order EA-13-109. In Reference 1919, Entergy Nuclear Operations Inc. (Entergy) requested relief for implementation of Order EA-13-109 to June of 2018. In Reference 20, the NRC granted relief. The JAF FLEX strategy does not rely on the use of the RHVS installed for Order EA-13-109. The JAF strategy credits the use of a qualified vent path of the existing standby gas treatment system to satisfy containment venting. All applicable systems structures and components have been evaluated to be qualified for all applicable external events.
- Reference 1, page 30 states no Phase 1 actions are required for more than 35 hours to maintain spent fuel pool (SFP) cooling. The spent fuel pool time to boil calculation shows that the spent fuel pool does not begin to boil until approximately 32 hours after the inception of the event. Some actions that will be performed before the spent fuel pool floor becomes inaccessible include routing hoses from the floor to an accessible area, positioning a spray monitor for spray capability and establishing a spent fuel pool building vent path.
- Reference 1, page 37, states that the main control room (MCR) heatup calculation credits open damper 70FD-8 for heat escaping in the floor of the kitchen and also states that actions are required to check this damper open and to block open the entrance air lock when the MCR reaches 90°F. The MCR heatup calculation does not credit opening the damper nor the air lock for relieving heat. At 120 hours, during Phase 3, the JAF strategy credits the use of the NSRC 4160VAC generator to power up the electrical buses necessary for use of the MCR ventilation system.
- Reference 1, page 40 (and ensuing discussion on page 41), states that the SFP area/building vent path can be enhanced by re-powering a standby gas treatment system (SGTS) fan and that a modification will be performed to provide connection points to facilitate re-powering a SGTS fan directly by a portable FLEX generator. The JAF FLEX strategy does not require the use of a SGTS fan to assist in ventilating the SFP area/building.

- Reference 1, page 43, states that Phase 2 strategy will be continued for Phase 3 (propping open certain fire doors within 10 hours). Phase 3 JAF strategy for the extreme heat condition is to re-power existing exhaust and recirculation ventilation system components using the NSRC 4160VAC generator to address any long term heat up concerns at approximately 120 hours. The JAF strategy at 120 hours for the extreme cold event is to maximize warm air flow and recirculation by administratively opening and closing off doors to adjacent rooms/buildings along with ambient temperature monitoring.
- In addition to the equipment changes provided by Reference 10, Section 4, the following changes are applicable to the Table of "BWR Portable Equipment Phase 2" shown in Reference 1, page 45:
    a) Only one heavy duty pickup truck is required
    b) Air compressors are not required
    c) 90KW 600VAC DGs are not required
    d) The 200KW 600VAC FLEX DGs employ the use of one single conductor 1/0 cable per phase instead of three 250 MCM cables
    e) The JAF strategy does not require two 200 gallon fuel tanks mounted on trailers. Instead, the JAF strategy employs two DC electric-driven fuel pump skids mounted on small hand carts to facilitate transferring fuel from the on-site emergency diesel fuel oil storage tanks directly to diesel engine powered FLEX equipment
    f) The JAF strategy uses one spray monitor to deliver a minimum of 250 gpm to the spent fuel pool, instead of two 100 gpm spray nozzles.
- Reference 1, page 46, provides the list of Phase 3 FLEX equipment. In addition to this equipment, the following equipment from the NSRC is required:
    a) One submersible pump
    b) One medium flow low pressure pump
    c) One 480VAC generator
    d) One 480VAC/600VAC step up transformer
    e) One air compressor
- In addition to the changes provided in Section 4 of References 7 and 10, the sequence of events time line provided in Reference 1, Attachment 1A, is revised as follows: (1) Action 2 occurs at 30 minutes, (2) Action 4 is no longer relevant as RCIC only takes suction from the CST, (3) Action 6 is no longer relevant consistent with Action 4 no longer being relevant, (4) Action 7 is completed by 2.5 hours, (5) Action 8 is completed by 8 hours, (6) Action 9 to vent the containment is completed by 5.5 hours and the JAF strategy no longer credits the RHVS but uses an installed SGTS vent path, (7) Action 10 is accomplished at 22 hours, (8) Action 11 to makeup to the SFP occurs at 24 hours, but the action to vent the SFP area/refuel floor occurs at 5 hours, (9) Action 12 occurs at greater than 72 hours as the JAF Phase 2 FLEX strategy provides an indefinite coping capability and the decision to place SDC in service is discretionary.
- Reference 1, Figures 1, 2 and 3, have been superseded. The correct figures will be provided upon issuance of the FIP.
- Finally, the JAF FLEX storage strategy requires the use of two ASCE 7-10 buildings and the use of specific existing plant buildings (Turbine Building, Screenhouse and Reactor Building) to provide adequate protection of all the FLEX equipment, such that no one external event can reasonably fail the JAF FLEX capability (N).

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

JAF submitted a request for relaxation of Order EA-12-049 and Order EA-12-051 full compliance dates to June 30, 2017 (References 13 and 14). This request was based, in part, on Entergy's plan to permanently cease power operations at JAF on January 27, 2017, as certified in its letter to the NRC dated March 16, 2016 (Reference 9). By letter dated August 18, 2016 (Reference 1616), Entergy and Exelon Generation Company, LLC (Exelon) jointly submitted an application for an order and conforming license amendment transferring the JAF facility operating license from Entergy to Exelon, contingent upon certain closing conditions. This letter describes the circumstances leading to the license transfer request. Entergy submitted a second request for relaxation of the Order EA-12-049 and Order EA-12-051 full compliance dates, also to June 30, 2017. This request was based, in part, on a plan to operate JAF after a refueling outage which started in January 2017, contingent upon achieving the closing conditions associated with the license transfer. In light of the facts presented in Entergy's letters (References 13, 14 and 15), the NRC staff approved a relaxation of the orders to June 30, 2017 (Reference 18).

6. Open Items from Overall Integrated Plan and Interim Staff Evaluation

The following tables provide:

- **Table 1**: summary and status of any open items in the Overall Integrated Plan (Reference 1),
- **Table 2**: open items and **Table 3**: confirmatory items in the Interim Staff Evaluation (ISE) (Reference 4),
- **Table 4**: the status of Audit Question and **Table 5**: open Audit Questions for the Mitigation Strategies (FLEX) Order NRC Audit (Reference 17);

Note: Table 5 includes open items on previously issued ISE Open and Confirmatory Items and new Safety Evaluation (SE) Open Items that were not closed during the October 2016 NRC Audit Visit, and their status. During the October 2016 NRC Audit Visit, the NRC utilized a spreadsheet entitled FitzPatrick Nuclear Plant, SE Item Tracker to maintain a status of Open Items associated with development of the NRC's Safety Evaluation. The SE Tracker numbered each item with an Audit Item No. based on the category of the Open Item. The categories were:

A. ISE Open and Confirmatory Items (Audit Item OI-xxxxx or CI-xxxxx)
B. Audit Questions (Audit Item AQ. x)
C. Licensee OIP Open Items (Audit Item OIP.x)
D. SFP Instrumentation RAIs (Audit Item SFPI. x)
E. Combined SE Template Technical Review Gaps (Audit Item SE.x)

In the Status columns of the following tables, closed items are identified by the phrase "This item was closed during the October 2016 NRC Audit Visit."

Table 1: Overall Integrated Plan Open Items

Overall Integrated Plan Open Items	Status
OI-1: Beyond-design-basis external event impact on requirements in existing licensing documents will be determined based on input from the industry groups and direction from the NRC.	This item was closed during the October 2016 NRC Audit Visit (Reference 17)
OI-2: The structure, content and details of the Regional	This item was closed during

Response Center playbook will be determined.	the October 2016 NRC Audit Visit (Reference 17)

Table 2: Interim Staff Evaluation Open Items

Interim Staff Evaluation Open Items		Status
OI 3.1.1.3.A	Procedural Interface (Seismic Hazard) - Evaluate the impacts from large internal flooding sources.	This item was closed during the October 2016 NRC Audit Visit (Reference 17) (Associated with AQ.5 response).
OI 3.1.3.1.A	Protection of FLEX Equipment (High Wind Hazard) - Evaluate the separation distance and the axis of separation considering the predominant path of tornados in the geographic area to demonstrate that at least N sets of FLEX equipment would remain deployable in the context of a tornado missile hazard.	This item was closed during the October 2016 NRC Audit Visit (Reference 17) (Associated with AQ.1)
OI 3.1.4.2.B	Deployment of FLEX Equipment (Snow, Ice and Extreme Cold) - Evaluate the potential impact on the UHS due to ice blockage or formation of frazil ice as a result of extreme cold.	This item was closed during the October 2016 NRC Audit Visit (Reference 17)
OI 3.2.3.A	Containment- Verify that the implementation of Boiling Water Reactor Owners Group (BWROG) Emergency Procedure Guideline (EPG)/Severe Accident Guideline (SAG), Revision 3, including any associated plant-specific evaluations, has been completed in accordance with the provisions of NRC letter dated January 9, 2014 (Reference 23 of ISE - Letter from Jack R. Davis (NRC) to Joseph E. Pollock (NEI) dated January 9, 2014, regarding Boiling Water Reactor Containment Venting (ML 13358A206))	This item was closed during the October 2016 NRC Audit Visit (Reference 17)

Table 3: Interim Staff Evaluation Confirmatory Items

Interim Staff Evaluation Confirmatory Items		Status
CI 3.1.1.2.A	Deployment of FLEX Equipment- Confirm that soil liquefaction will not impede vehicle movement following a seismic event.	This item was closed during the October 2016 NRC Audit Visit (Reference 17) (Associated with AQ.2)
CI 3.1.1.2.B	Deployment of FLEX Equipment- Confirm final design features of the new storage building including the susceptibility to the loss of ac power to deploy equipment.	This item was closed during the October 2016 NRC Audit Visit (Reference 17)

Table 3: Interim Staff Evaluation Confirmatory Items		
Interim Staff Evaluation Confirmatory Items		**Status**
		(Associated with AQ.1)
CI 3.1.1.2.C	Deployment of FLEX Equipment - Confirm the storage locations and means of protection against the seismic hazard of the super duty pickup trucks and the two flatbed trailers used for deployment of FLEX equipment.	This item was closed during the October 2016 NRC Audit Visit (Reference 17) (Associated with AQ.1)
CI 3.1.1.4.A	Offsite Resources- Confirm location of offsite staging area(s), access routes and methods of delivery of equipment to the site considering the seismic, flood, high wind, snow, ice and extreme cold hazards.	This item was closed during the October 2016 NRC Audit Visit (Reference 17)
CI 3.1.3.2.A	Deployment of FLEX Equipment (High Wind Hazard) - Confirm availability of debris removal equipment to facilitate deployment of FLEX equipment.	This item was closed during the October 2016 NRC Audit Visit (Reference 17) (Associated with AQ.1)
CI 3.1.3.2.B	Deployment of FLEX Equipment (High Wind Hazard) - Confirm protection of the means to move FLEX equipment.	This item was closed during the October 2016 NRC Audit Visit (Reference 17) (Associated with AQ.1)
CI 3.1.4.2.A	Deployment of FLEX Equipment (Snow, Ice and Extreme Cold) - Confirm availability of snow removal equipment to facilitate deployment of FLEX equipment.	This item was closed during the October 2016 NRC Audit Visit (Reference 17) (Associated with AQ.1)
CI 3.2.1.1.A	Computer Code Used for ELAP Analysis - Benchmarks need to be identified and discussed which demonstrate that Modular Accident Analysis Program (MAAP) is an appropriate code for the simulation of an ELAP event at JAF.	This item was closed during the October 2016 NRC Audit Visit (Reference 17) (Associated with AQ.9).
CI 3.2.1.1.B	Computer Code Used for ELAP Analysis -Confirm that the collapsed level remains above Top of Active Fuel (TAF) and the cool down rate is within technical specifications limits.	This item was closed during the October 2016 NRC Audit Visit (Reference 17) (Associated with AQ.12)
CI 3.2.1.1.C	Computer Code Used for ELAP Analysis - Confirm that MAAP was used in accordance with Sections 4.1, 4.2, 4.3, 4.4, and 4.5 of the June 2013 position paper	This item was closed during the October 2016 NRC Audit Visit

Table 3: Interim Staff Evaluation Confirmatory Items		
Interim Staff Evaluation Confirmatory Items		**Status**
	(ML 13190A201).	(Reference 17) (Associated with AQ.10).
CI 3.2.1.1.D	Computer Code Used for ELAP Analysis - Confirm that the licensee, in using MAAP, identified and justified the subset of key modeling parameters cited from Tables 4-1 through 4-6 of the "MAAP Application Guidance, Desktop Reference for Using MAAP Software, Revision 2" (Electric Power Research Institute Report 1 020236).	This item was closed during the October 2016 NRC Audit Visit (Reference 17) (Associated with AQ.11).
CI 3.2.1.1.E	Computer Code Used for ELAP Analysis - Confirm that the specific MAAP analysis case that was used to validate the timing of mitigating strategies in the Integrated Plan has been identified and is available for NRC staff to review. Alternately, a comparable level of information has been included in the supplemental response. In either case, the analysis should include a plot of the collapsed vessel level to confirm that TAF is not reached (the elevation of the TAF should be provided) and a plot of the temperature cool down to confirm that the cool down is within technical specifications limits.	This item was closed during the October 2016 NRC Audit Visit (Reference 17)
CI 3.2.1.2.A	Recirculation Pump Seal Leakage Models - Confirm the seal leakage model used in the updated MAAP analysis (which will address the MAAP code limitations when used for ELAP analysis). Evaluate the seal leakage rate model used, the details of the seal qualification tests and supporting test data, and leakage rate pressure-dependence.	This item was closed during the October 2016 NRC Audit Visit (Reference 17) (Associated with AQ.14).
CI 3.2.1.3.A	Sequence of Events (SOE) - Confirm the SOE timeline after reanalysis using the MAAP code which will address the limitations when used for the ELAP analysis.	This item was closed during the October 2016 NRC Audit Visit (Reference 17)
CI 3.2.1.4.A	Systems and Components for Consequence Mitigation - Confirm sizing of the FLEX pumps and 600 Vac FLEX diesel generator (DG) and the 4160 Vac generator to be obtained from the RRC.	This item was closed during the October 2016 NRC Audit Visit (Reference 17) (Associated with AQ.22).
CI 3.2.1.5.A	Monitoring Instrumentation and Controls- Confirm ac powered torus temperature, pressure and level and	This item was closed during the October

Table 3: Interim Staff Evaluation Confirmatory Items		
Interim Staff Evaluation Confirmatory Items		**Status**
	drywell temperature and pressure instrumentation is modified to remain powered during an ELAP.	2016 NRC Audit Visit (Reference 17) (Associated with AQ.6).
CI 3.2.1.8.A	Use of Portable Pumps - Confirm that the use of raw water from Lake Ontario for long term core and spent fuel pool cooling strategies is acceptable.	This item was closed during the October 2016 NRC Audit Visit (Reference 17) (Associated with AQ.23).
CI 3.2.2.A	Spent Fuel Pool Cooling - Confirm the method of ventilation and power requirements, if any, of the spent fuel pool area.	This item was closed during the October 2016 NRC Audit Visit (Reference 17) (Associated with AQ.28).
CI 3.2.4.2.A	Ventilation (Equipment Cooling) - Confirm that additional evaluations of the RCIC room temperature demonstrate that an acceptable environment is maintained during the transition phase both for equipment in the room and habitability for operators who may need to enter the room.	This item was closed during the October 2016 NRC Audit Visit (Reference 17) (Associated with AQ.31).
CI 3.2.4.2.B	Ventilation (Equipment Cooling) - Confirm that evaluations of the battery room temperature demonstrate that an acceptable environment, during both high ambient temperature and during extreme cold ambient temperature, is maintained during Phases 2 and 3.	This item was closed during the October 2016 NRC Audit Visit (Reference 17) (Associated with AQ.46)
CI 3.2.4.2.C	Ventilation (Equipment Cooling) - Confirm the required ventilation flow or the size of the portable fans to maintain acceptable environmental conditions in the DC equipment room.	This item was closed during the October 2016 NRC Audit Visit (Reference 17) (Associated with AQ.61)
CI 3.2.4.3.A	Heat Tracing - Confirm completion of walkdowns and evaluation of where heat tracing may be needed for freeze protection of equipment or instruments used in the ELAP mitigation strategies.	This item was closed during the October 2016 NRC Audit Visit (Reference 17) (Associated with AQ.35)

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Table 3: Interim Staff Evaluation Confirmatory Items		
Interim Staff Evaluation Confirmatory Items		**Status**
CI 3.2.4.4.A	Lighting - Confirm need for additional portable lighting, such as dc powered lights.	This item was closed during the October 2016 NRC Audit Visit (Reference 17) (Associated with AQ.36)
CI 3.2.4.4.B	Communications - Confirm that upgrades to the site's communication system have been completed.	This item was closed during the October 2016 NRC Audit Visit (Reference 17) (Associated with AQ.37)
CI 3.2.4.8.A	Electrical Power Sources - Confirm the technical basis for the selection and size of the FLEX generators to be used in support of the coping strategies.	This item was closed during the October 2016 NRC Audit Visit (Reference 17) (Associated with AQ.22 and AQ.50)
CI 3.2.4.10.A	Load Reduction to Conserve DC Power - Confirm final load shed list and the evaluation of any potential adverse effects of shedding those loads.	This item was closed during the October 2016 NRC Audit Visit (Reference 17) (Associated with AQ.65)
CI 3.2.4.10.B	Load Reduction to Conserve DC Power - Confirm the final dc load profile with the required loads and the finalized minimum battery voltage.	This item was closed during the October 2016 NRC Audit Visit (Reference 17) (Associated with AQ.64 and AQ.66)
CI 3.2.4.10.C	Load Reduction to Conserve DC Power- Confirm time after the ELAP for connecting the FLEX DG to the battery chargers.	This item was closed during the October 2016 NRC Audit Visit (Reference 17)
CI 3.4.A	Off-site Resources- Confirm that NEI 12-06, Section 12.2 guidelines 2 through 10 are addressed, or that an appropriate alternative is justified.	This item was closed during the October 2016 NRC Audit Visit (Reference 17)

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Table 4: Audit Questions		
Audit Questions	**Status**	**Completion or Target Date**
AQ.1	This item was closed during the October 2016 NRC Audit Visit (Reference 17) (associated with ISE OI 3.1.3.1.A and ISE CI 3.1.1.2.B, CI 3.1.1.2.C, CI 3.1.3.2.A, CI 3.1.3.2.B, CI 3.1.4.2.A)	N/A
AQ.2	This item was closed during the October 2016 NRC Audit Visit (Reference 17) (associated with ISE CI 3.1.1.2.A)	N/A
AQ.3	This item was closed during the October 2016 NRC Audit Visit (Reference 17)	N/A
AQ.4	This item was closed during the October 2016 NRC Audit Visit (Reference 17)	N/A
AQ.5	This item was closed during the October 2016 NRC Audit Visit (Reference 17) (associated with ISE OI 3.1.1.3.A)	N/A
AQ.6	This item was closed during the October 2016 NRC Audit Visit (Reference 17) (associated with ISE CI 3.2.1.5.A)	N/A
AQ.8	This item was closed during the October 2016 NRC Audit Visit (Reference 17)	N/A
AQ.9	This item was closed during the October 2016 NRC Audit Visit (Reference 17) (associated with ISE CI 3.2.1.1.A)	N/A
AQ.10	This item was closed during the October 2016 NRC Audit Visit (Reference 17) (associated with ISE CI 3.2.1.1.C)	N/A
AQ.11	This item was closed during the October 2016 NRC Audit Visit (Reference 17) (associated with ISE CI 3.2.1.1.D)	N/A
AQ.12	This item was closed during the October 2016 NRC Audit Visit (Reference 17) (associated with ISE CI 3.2.1.1.B)	N/A
AQ.13	This item was closed during the October 2016 NRC Audit Visit (Reference 17)	N/A
AQ.14	This item was closed during the October 2016 NRC Audit Visit (Reference 17) (associated with ISE CI 3.2.1.2.A)	N/A
AQ.15	This item was closed during the October 2016 NRC Audit Visit (Reference 17)	N/A
AQ.16	This item was closed during the October 2016 NRC Audit Visit (Reference 17)	N/A
AQ.17	This item was closed during the October 2016 NRC Audit Visit (Reference 17)	N/A
AQ.18	This item was closed during the October 2016 NRC Audit Visit (Reference 17)	N/A

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Table 4: Audit Questions		
Audit Questions	**Status**	**Completion or Target Date**
AQ.19	This item was statused as open during the October 2016 NRC Audit Visit (Reference 17). See Table 5 (below) for status of this item.	N/A
AQ.21	This item was closed during the October 2016 NRC Audit Visit (Reference 17)	N/A
AQ.22	This item was closed during the October 2016 NRC Audit Visit (Reference 17) (associated with ISE CI 3.2.1.4.A and CI 3.2.4.8.A)	N/A
AQ.23	This item was closed during the October 2016 NRC Audit Visit (Reference 17) (associated with ISE CI 3.2.1.8.A)	N/A
AQ.26	This item was closed during the October 2016 NRC Audit Visit (Reference 17)	N/A
AQ.27	This item was closed during the October 2016 NRC Audit Visit (Reference 17)	N/A
AQ.28	This item was closed during the October 2016 NRC Audit Visit (Reference 17) (associated with ISE CI 3.2.2.A)	N/A
AQ.29	This item was closed during the October 2016 NRC Audit Visit (Reference 17)	N/A
AQ.31	This item was closed during the October 2016 NRC Audit Visit (Reference 17) (associated with ISE CI 3.2.4.2.A)	N/A
AQ.32	This item was closed during the October 2016 NRC Audit Visit (Reference 17)	N/A
AQ.33	This item was closed during the October 2016 NRC Audit Visit (Reference 17)	N/A
AQ.34	This item was closed during the October 2016 NRC Audit Visit (Reference 17)	N/A
AQ.35	This item was closed during the October 2016 NRC Audit Visit (Reference 17) (associated with ISE CI 3.2.4.3.A)	N/A
AQ.36	This item was closed during the October 2016 NRC Audit Visit (Reference 17) (associated with ISE CI 3.2.4.4.A)	N/A
AQ.37	This item was closed during the October 2016 NRC Audit Visit (Reference 17) (associated with ISE CI 3.2.4.4.B)	N/A
AQ.38	This item was closed during the October 2016 NRC Audit Visit (Reference 17)	N/A
AQ.40	This item was closed during the October 2016 NRC Audit Visit	N/A

Table 4: Audit Questions		
Audit Questions	**Status**	**Completion or Target Date**
	(Reference 17)	
AQ.46	This item was closed during the October 2016 NRC Audit Visit (Reference 17) (associated with ISE CI 3.2.4.2.B)	N/A
AQ.50	This item was closed during the October 2016 NRC Audit Visit (Reference 17) (associated with ISE CI 3.2.4.8.A)	N/A
AQ.52	This item was closed during the October 2016 NRC Audit Visit (Reference 17)	N/A
AQ.53	This item was closed during the October 2016 NRC Audit Visit (Reference 17)	N/A
AQ.55	This item was closed during the October 2016 NRC Audit Visit (Reference 17)	N/A
AQ.56	This item was closed during the October 2016 NRC Audit Visit (Reference 17)	N/A
AQ.57	This item was closed during the October 2016 NRC Audit Visit (Reference 17)	N/A
AQ.58	This item was closed during the October 2016 NRC Audit Visit (Reference 17)	N/A
AQ.59	This item was closed during the October 2016 NRC Audit Visit (Reference 17)	N/A
AQ.60	This item was closed during the October 2016 NRC Audit Visit (Reference 17)	N/A
AQ.61	This item was closed during the October 2016 NRC Audit Visit (Reference 17) (associated with ISE CI 3.2.4.2.C)	N/A
AQ.62	This item was closed during the October 2016 NRC Audit Visit (Reference 17)	N/A
AQ.63	This item was closed during the October 2016 NRC Audit Visit (Reference 17)	N/A
AQ.64	This item was closed during the October 2016 NRC Audit Visit (Reference 17) (associated with ISE CI 3.2.4.10.B)	N/A
AQ.65	This item was closed during the October 2016 NRC Audit Visit (Reference 17) (associated with ISE CI 3.2.4.10.A)	N/A
AQ.66	This item was closed during the October 2016 NRC Audit Visit (Reference 17) (associated with ISE CI 3.2.4.10.B)	N/A
AQ.68	This item was closed during the October 2016 NRC Audit Visit (Reference 17)	N/A

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Table 4: Audit Questions		
Audit Questions	**Status**	**Completion or Target Date**
AQ.69	This item was closed during the October 2016 NRC Audit Visit (Reference 17) (associated with ISE CI 3.2.4.2.B)	N/A
AQ.70	This item was closed during the October 2016 NRC Audit Visit (Reference 17)	N/A
AQ.71	This item was closed during the October 2016 NRC Audit Visit (Reference 17)	N/A

NOTE

During the October 2016 Audit Visit, additional information related to each Open Item was provided to the NRC for review. By the end of the NRC Audit Visit, the NRC verbally had statused each open item and indicated what the staff needed to close the Open Items. The "Status" column in the table below reflects the current activity in progress to close the Open Items.

Table 5: October 2016 - NRC Audit Visit FLEX Related Open Items		
Audit Item Reference	**Item Description**	**Status (Post Audit)**
AQ.19	Provide additional information regarding the installed diesel-driven fire pump and the associated piping, fuel supply and support equipment to demonstrate that it is protected against all postulated BDBEEs.	Open Pending NRC review, no further Entergy action required.
SE.8	Provide a discussion/analysis on the ability of electrical and mechanical equipment (i.e., valve solenoids, instruments, relays, etc.) located within containment and other areas of the plant (i.e., Main Control Room, RCIC [reactor core isolation cooling] Pump Room, SRV areas, Switchgear Rooms, Battery Rooms, etc.) that is relied upon during an ELAP to function in the expected environmental conditions (for both extreme high and low temperatures) for the duration of the ELAP event (i.e., indefinitely).	Open Pending NRC review, no further Entergy action required.

7. Potential Interim Staff Evaluation Impacts

In addition to the changes to compliance methods identified in Section 4, Entergy has not identified any additional potential impacts to the Interim Staff Evaluation since the previous six month status report (Reference 12).

8. References

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

1. Entergy to NRC, JAFP-13-0025, 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 (ML13063A287).
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 (ML12054A736).
3. Entergy to NRC, JAFP-13-0112, 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 28, 2013 (ML13241A204).
4. NRC letter, James A. FitzPatrick Nuclear Power Plant – Interim Staff Evaluation Relating to Overall Integrated Plan in Response to Order EA-12-049 (Mitigation Strategies) (TAC No. MF1077), dated February 21, 2014 (ML14007A681)
5. Entergy to NRC, JAFP-14-0023, 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 28, 2014 (ML14059A359)
6. Entergy to NRC, JAFP-14-0105, 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 28, 2014 (ML14241A261)
7. Entergy to NRC, JAFP-15-0026, 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 27, 2015 (ML15058A587)
8. NEI 12-06, Diverse and Flexible Coping Strategies (FLEX) Implementation Guide, Revision 0, dated August 2012 (ML12242A378)
9. Entergy to NRC, JAFP-16-0045, Certification of Permanent Cessation of Power Operations, dated March 16, 2016 (ML16076A391)
10. Entergy to NRC, JAFP-15-0104, 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 28, 2015 (ML15240A370)

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11. Entergy to NRC, JAFP-16-0027, 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), dated February 26, 2016 (ML16057A603)

12. Entergy to NRC, JAFP-16-0139, Seventh 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 25, 2016 (ML14007A681)

13. Entergy to NRC, JAFP-16-0061, Request for Relaxation of March 12, 2012 Commission Orders Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond Design Basis External Events and Reliable Spent Fuel Pool Instrumentation (Order Number EA-12-049 and EA-12-051), dated April 14, 2016 (ML16105A379)

14. Entergy to NRC, JAFP-16-0096, Supporting Information for Request for Relaxation of March 12, 2012 Commission Orders Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond Design Basis External Events and Reliable Spent Fuel Pool Instrumentation (Order Number EA-12-049 and EA-12-051), dated June 16, 2016 (ML16168A452)

15. Entergy to NRC, JAFP-16-0147, Request for Extension to Comply with March 12, 2012 Commission Orders Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond Design Basis External Events and Reliable Spent Fuel Pool Instrumentation (Order Number EA-12-049 and EA-12-051), dated September 8, 2016 (ML16252A477)

16. Entergy and Exelon Generation to NRC, Application for Order Approving Transfer of Renewed Facility Operating License and Proposed Conforming License Amendment, dated August 18, 2016 (ML16235A081)

17. NRC to Entergy, James A. FitzPatrick Nuclear Power Plant - Report for the Audit Regarding Implementation of Mitigating Strategies and Reliable Spent Fuel Pool Instrumentation Related to Orders EA-12-049 and EA-12-051 (CAC Nos. MF1077 AND MF1076), dated December 14, 2016 (ML16343A011)

18. NRC to Entergy, James A. FitzPatrick Nuclear Power Plant - Relaxation of the Schedule Requirements for Order EA-12-049, "Issuance of Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events" and Order EA-12-051, "Reliable Spent Fuel Pool Instrumentation" (CAC Nos. MF1077 and MF1076), dated December 2, 2016 (ML16173A342)

19. Entergy to NRC, JAFP-16-0148, Request for Extension to Comply with NRC Order EA-13-109, "Order Modifying Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions", dated September 8, 2016 (ML16252A482)

20. NRC to Entergy, James A. FitzPatrick Nuclear Power Plant - Relaxation of the Schedule Requirements for Order EA-13-109: Order Modifying Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions, dated January 9, 2017 (ML16336A754)

21.