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OCAN081503

August 28, 2015

U.S. Nuclear Regulatory Commission
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SUBJECT: 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 (BDBEEs) (Order Number EA-12-049)
Arkansas Nuclear One – Units 1 and 2
Docket Nos. 50-313 and 50-368
License Nos. DPR-51 and NPF-6

- REFERENCES:
1. NRC Order Number EA-12-049, *Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for BDBEEs*, dated March 12, 2012 (OCNA031206) (ML12056A045)
 2. Entergy letter to NRC, *Overall Integrated Plan (OIP) in Response to March 12, 2012, Commission Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for BDBEEs (Order Number EA-12-049)*, dated February 28, 2013 (OCAN021302) (ML13063A151)
 3. Entergy letter to NRC, *Fourth Six-Month Status Report in Response to March 12, 2012, Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for BDBEEs*, dated February 24, 2015 (OCAN021502) (ML15056A137)

Dear Sir or Madam:

On March 12, 2012, the NRC issued an order (Reference 1) to Entergy Operations, Inc. (Entergy) which required submission of an OIP pursuant to Section IV, Condition C, which was provided by Reference 2.

Reference 1 also required submission of a status report at six-month intervals following submittal of the OIP. Reference 3 provided the fourth six-month status report. The purpose of this letter is to provide the fifth 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 Stephenie Pyle at 479.858.4704.

I declare under penalty of perjury that the foregoing is true and correct; executed on August 28, 2015.

Sincerely,

ORIGINAL SIGNED BY JEREMY G. BROWNING

JGB/nbm

Attachment: Arkansas Nuclear One Units 1 and 2 Fifth Six-Month Status Report for the Implementation of Order EA-12-049, *Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for BDBEES*

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Attachment to

0CAN081503

**Arkansas Nuclear One Units 1 and 2 Fifth Six Month Status Report for the
Implementation of Order EA-12-049, *Order Modifying Licenses with
Regard to Requirements for Mitigation Strategies for
Beyond-Design-Basis External Events (BDBEEs)***

**ANO-1 and ANO-2 Fifth Six Month Status Report for the Implementation of
 Order EA-12-049, Order Modifying Licenses with Regard to Requirements for
 Mitigation Strategies for BDBEES**

1 Introduction

Entergy Operations, Inc. (Entergy) developed an Overall Integrated Plan (OIP) for Arkansas Nuclear One, Unit 1 (ANO-1) and Unit 2 (ANO-2) (Reference 1), documenting the diverse and flexible strategies (FLEX) in response to Reference 2. The OIP was updated and submitted with the First Six-Month Status Report (Reference 3). This enclosure provides an update of milestone accomplishments since submittal of the last status report (Reference 9), 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 February 1, 2015, and are current as of July 31, 2015:

- Fourth Six-Month Status Report – February 2015
- Fifth Six-Month Status Report – Complete with submission of this document in August 2015 (details provided in Section 3 below)

3 Milestone Schedule Status

The following provides an update to the milestone schedule to support the OIP. It provides the activity status of each item, and whether the expected completion date has changed. The dates are planning dates subject to change as design and implementation details are developed.

Milestone	Target Completion Date*	Activity Status	Revised Target Completion Date
Submit OIP	February 2013	Complete	
Update 1	August 2013	Complete	
Update 2	February 2014	Complete	
Update 3	August 2014	Complete	
Update 4	February 2015	Complete	
Update 5	August-2015	Complete	
Perform Staffing Analysis	September 2014	Complete	
Modifications			
Modifications Evaluation	June 2013	Complete	
Engineering and Implementation	June 2013 - October 2015	Started	
ANO-1 Implementation Outage	October 2015	Started	
ANO-2 Implementation Outage	October 2015	Started	

Milestone	Target Completion Date*	Activity Status	Revised Target Completion Date
On-site FLEX Equipment			
Purchase	September 2015	Complete	
Procure	September 2015	Started	October 2015
Off-site FLEX Equipment			
Develop Strategies with National SAFER Response Center	November 2014	Complete	
Install Off-site Delivery Station (if necessary)	October 2014	Complete	
Procedures			
Pressurized Water Reactor Owners Group issues Nuclear System Steam Supply (NSSS)-specific guidelines	June 2013	Complete Issued May 2013	
Create ANO FLEX Strategy Guide	October 2015	Started	
Create Maintenance Procedures	October 2015	Started	
Training			
Develop Training Plan	August 2015	Complete	
Implement Training	August 2015	Started	September 2015
Validation			
ANO-1 walk-throughs or demonstration(s) – including all FLEX equipment points of connect/tie-in for Phase 2 and 3	March 2015	Complete	
ANO-2 walk-throughs or demonstration(s) – including all FLEX equipment points of connect/tie-in for Phase 2 and 3	October 2015	Complete	
Submit Completion Report	February 2016	Not Started	

* 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 ANO, changes have been identified to the compliance strategies as described in the revised OIP (Reference 3).

- The ANO Phase 2 FLEX strategy for ensuring Reactor Coolant System (RCS) inventory control uses one of the ANO-2 installed charging pumps (2P-36A, 2P-36B, or 2P-36C) powered by a portable FLEX diesel generator. The strategy to use installed charging pumps as the primary and alternate means of RCS makeup is considered to be an alternate strategy to meet the guidance of NEI 12-06, Section 3.2.2 (13), which indicates that portable pumps must be used for RCS makeup during Phase 2. However, FLEX Guidance Inquiry Form 2013-06 specifically addresses the strategy to use installed charging pumps as the primary and alternate means for RCS makeup. Though a deviation from NEI 12-06, this strategy is deemed to meet the diversity requirements.

The strategy is to connect the ANO-2 charging pumps to the ANO-1 High Pressure Injection (HPI) system in order to supply make-up water to the RCS. This approach eliminates the need for an additional high-pressure pump and greatly improves the response time for ANO-1 RCS injection. This is important because B&W units require high pressure RCS injection relatively quickly, compared to other designs. If the ANO-2 charging pumps are utilized for RCS injection, the only large portable equipment required for this strategy is a portable diesel generator (PDG) to power the charging pumps. A PDG is already required for staging in the first hours following a BDBEE in order to re-power the ANO-1 pressurizer heaters and both Units' Class1E engineered safety features (ESF) battery chargers. Thus, by taking advantage of the PDG that is needed for other strategies, the complexity and number of required operator actions is reduced. This is important because the site is assumed to be at minimum staffing at the time of a BDBEE.

The ANO-1 strategy uses the ANO-2 charging pumps and a series of portable hoses to establish RCS injection. The primary suction sources for the ANO-2 charging pumps are the Boric Acid Makeup Tanks (BAMTs) and the Refueling Water Tank (RWT), both of which rely on installed piping. Alternatively, the Borated Water Storage Tank (BWST) can be connected to the common suction header of the ANO-2 charging pumps via FLEX tie-ins and portable hose. There are two available FLEX connections on the discharge of the charging pumps, both of which can be fed by any charging pump and are sufficient for the RCS make-up requirements. The primary strategy is to connect to a FLEX tie-in on line 2CCD-10-1 ½" while the alternate strategy is to connect to the threaded connection on the drain line downstream of the charging pump selected for use following a BDBEE. Each charging pump is capable of isolation from the main charging pump piping header. Between the charging pump and its discharge isolation valve is a one-inch drain line with a threaded connection. Any of these discharge tie-ins are connected with a high pressure hose to a new crosstie that spans between the ANO-2 and ANO-1 Auxiliary Buildings. The ANO-1 side of the crosstie can be connected with high pressure hose to either of two available tie-ins in the ANO-1 HPI / makeup and purification (MUP) system piping. The primary tie-in is located at Plant Elevation 335' downstream of the primary makeup pumps and connects to the Loop B HPI line. The alternate connection is located in the Upper North Piping Penetration Room and connects to the Loop A HPI line. All installed FLEX piping and tie-in locations are protected from applicable BDBEEs (e.g., flood, seismic, wind, extreme temperatures).

The ANO-2 strategy uses the ANO-2 charging pumps. The primary strategy to provide RCS injection to ANO-2 is through the existing charging flow path. The alternate strategy is to align the charging header to provide flow to the High Pressure Safety Injection (HPSI) system through manual valve manipulations. Aligning the charging pump discharge header to the HPSI system is an existing flow path and does not require any modifications. In addition, two tie-in connections in the HPSI system are installed to provide FLEX strategy capability of RCS inventory makeup and cooling. To ensure diversity on these two connections, one tie-in connection is installed in the HPSI pump A discharge line and the second tie-in connection is installed in the HPSI pump B discharge line. All installed FLEX piping and tie-in locations are protected from applicable BDBEEs (e.g., flood, seismic, wind, extreme temperatures).

A single ANO-2 charging pump is to be aligned to either ANO-1 or ANO-2. Only one unit would be aligned to receive flow at a time.

There are three charging pumps of which one is required and there is a primary and secondary means of powering the pumps upon loss of AC power, both of which provide defense-in-depth to be able to support RCS make-up. The charging pumps are seismically and electrically robust and protected from flood and wind events. The charging pumps are powered by a portable FLEX diesel generator (PDG). The PDG would be connected to the ANO electrical distribution system by temporary cables upon loss of AC. The switchgear system is robust, designed to all external events, and only the loads required would be energized from the system. Application of this methodology protects the load center from distribution issues elsewhere in the system. High-pressure hoses are used to make the final connections from the new piping connections to the cross-tie header designed to applicable BDBEEs (e.g., flood, seismic, wind, extreme temperatures). This robust approach provides additional defense-in-depth measures to have reasonable assurance of adequate protection of public health and safety in mitigating the consequences of a BDBEE and therefore, meets the requirements of NRC Order EA-12-049.

- The Near Term Task Force Recommendation 2.1 Flooding Re-evaluation for ANO is not complete. Therefore, current design basis probable maximum flood level has been used for the ANO FLEX strategy. For flood BDBEEs, a staging area above the design basis maximum plant site flood level is required. The design basis maximum flood elevation is 361 feet mean sea level. A flood of this magnitude would be forecast about five days prior to its arrival at the plant site. Therefore, in a flood BDBEE, pre-staging of equipment is performed to provide assurance that the FLEX strategy would be successful if implemented.

Upon notification of predicted flood conditions at the ANO site, pre-staging of equipment is conducted under the guidance of a model work order. Currently the model work order has 12 subtasks and items are added to this work order as additional tasks are identified during planning. The work order is expected to be activated once the Natural Emergency procedures OP-1203-025 and OP-2203-008 direct the activities to commence. In addition, the Entergy corporate severe weather procedure EN-FAP-EP-010 provides generic guidance that can be used to support overall site flood preparations. These procedures require corporate notification to identify and request additional support equipment. Equipment from the corporation would be dispatched to

the ANO site to assist. This equipment includes water vessels capable of moving heavy equipment, supplies, consumables, etc., to areas susceptible to flood waters, at any flood depth or level. This additional equipment would be available to replace N set of equipment during all conditions as necessary. Procedure revisions directing these actions are planned to be completed prior to final FLEX implementation.

In accordance with the ANO licensing basis, a flood the magnitude of the maximum probable flood would be forecast about five days prior to its arrival at the site. Therefore, time is afforded to perform actions to prepare for the flood, including the credited pre-staging actions of the FLEX equipment. Procedures are being enhanced to reflect the capabilities of the FLEX equipment to support flood preparation actions with consideration of FLEX equipment availability. Included in these improvements are the procedures that direct the notification of Entergy Corporation. The procedures are expected to discuss pre-staging necessary equipment at or near the ANO site (airboats, vessels, etc.) to replace any N set of equipment that may fail once placed into service. The replacement equipment could include the ANO FLEX equipment, National Safer Response Center (NSRC) equipment, or other procured equipment. This equipment deployment is available throughout the Entergy service territory and can be readily delivered to the ANO site in an expeditious manner.

Depending on the actual conditions expected to be experienced during the flood event, the preparations activities could differ (e.g., storm conditions may make pre-staging the backup equipment unadvisable). Nevertheless, the model work order is expected to discuss the need to consider the following actions as part of the determination of the correct preparation activities:

1. The use of a portable 40-ft SeaLand container functioning as a temporary platform. The container can be located in close proximity to the staging location of the portable PASS FLEX platform and is of the same approximate height. Cribbing can be used to ensure a level surface. The interior of the container can be loaded with material (sand, concrete blocks, etc.) to ensure container stability during rising water levels. ISO 1496 is applicable to these containers and these movable devices are constructed and qualified to withstand a minimum 300 psf loading. The weight loading of a FLEX 800 kW PDG is less than 250 psf. The loading of an additional FLEX Steam Generator (SG) Makeup pump to the roof of a SeaLand container is also less than 250 psf. Access to the roof of the SeaLand container can be via a portable ladder. The diesel generator and pump can be secured to the roof using typical rigging solutions and readily available fasteners (chains, straps, etc.). SeaLand containers are readily available on site and the capability to relocate the containers is accomplished with common commercially available equipment.
2. If both units are shutdown and cooled down in advance of the storm, two FLEX SG Makeup pumps can accommodate the required flows for this scenario and additional generator capacity can be staged on the PASS FLEX platform. Currently, the strategy stages three pumps and one PDG on the platform. It is acceptable to remove one pump and replace with an additional diesel generator as the platform can withstand this load combination and can accommodate the placement of the additional diesel generator.

Therefore, adequate plans are in place to ensure N set of equipment readiness as well as contingency planning options to replace N set of equipment with N+1 (or NSRC) equipment using resources supplied by Entergy Corporation, use of SeaLands as temporary platforms, or re-configuring the pre-staging of the number of pumps and diesels on the PASS platform.

- As stated in the revised ANO FLEX OIP (Reference 3, Enclosure 2), a modification was planned to re-power the ANO-2 Safety Injection Tank (SIT) level instruments from the station batteries. The ANO-2 cooldown analysis shows that nitrogen is precluded from being injected into the RCS based on the cooldown termination temperature; therefore, SIT level indication is not needed. This modification is not considered necessary since the ability to re-power these instruments can be accomplished through the PDG.
- NEI 12-06, Revision 0, stipulates that provisions for an additional set of portable on-site equipment is essential to provide reasonable assurance that N set of FLEX equipment remains deployable to assure success of the FLEX strategies. A subset of this portable on-site equipment are hoses and cables required to implement the FLEX strategies. The N set of hoses and cables are protected from all extreme external hazards. As an alternate approach, an additional length of hoses and cables are being stored with the N set of equipment rather than storing a complete second set in each of the storage buildings. This spare capability supports the safety functional requirements beyond the minimum necessary to support the N set of units on site, and is consistent with the NRC endorsement (Reference 10) of the NEI guidance entitled "Alternative Approach to NEI 12-06 Guidance for Hoses and Cables" (Reference 11).

The additional length of hoses and cables to be stored with the N set of equipment are the longer of 10% of the total hose/cable run or the longest segment of hose/cable. The 10% criterion extends separately to each size or type of hose and cable. The hoses and cables utilized by the ANO FLEX strategy are not one continuous hose or cable but rather are composed of smaller sections joined together to form a sufficient length.

This alternate method is being used for the spent fuel pool (SFP) makeup hose for makeup and spray strategies and for the hose used to align the ANO-2 charging pump to supply makeup to the ANO-1 RCS for inventory control. In these cases, the N set of hoses for these strategies are being stored within portions of the Auxiliary Building at various locations that are robust for all BDBEES. At least 10% of total hose run is stored in the Auxiliary Building at various locations that are robust for all BDBEE for the ANO-1 RCS inventory control. Each storage building contains at least 10% of the total hose run required to implement the SFP makeup hose for makeup and spray strategies.

- On August 24, 2015, Entergy participated in a teleconference with the ANO NRR Project Manager and FLEX technical reviewer concerning ANO's FLEX strategies for both units which require reliance on the quality condensate storage tank (QCST). The summary of the discussion below was concluded to appear reasonable.

The ANO-1 and ANO-2 SARs state that the QCST is protected by a tornado missile shield wall. The bottom five feet of the QCST was built to withstand the site design basis high wind hazards. An initial evaluation determined that the entire tank could not be qualified to meet the 300 mph wind assumed in the current ANO design basis and,

therefore, the entire tank (with the exception of the bottom five feet of the QCST) does not meet the NEI 12-06 definition of robust.

As an acceptable alternative to meeting the NEI 12-06 definition for robust, Entergy has evaluated the QCST using the current regulatory design criteria of Regulatory Guide (RG) 1.76, Revision 1, "Design-Basis Tornado and Tornado Missiles for Nuclear Power Plants." The QCST, excluding "appendages," was evaluated to be robust in accordance with RG 1.76, Revision 1. However, for the QCST to be considered robust, the "appendages" are also expected to be robust or shown not to fail in a manner that would invalidate the FLEX assumptions for tank volume.

The appendages of concern are the QCST 4-inch Schedule 40 nozzles (four nozzles) located at four positions around the QCST. Each nozzle is similar in construction and is attached to the tank six inches from the bottom. Each nozzle has a manual valve and flange which is located well below the five-foot tall missile shield wall and therefore, is considered "robust" in accordance with the current licensing bases for design basis accident mitigation. As noted in NEI 12-06, Revision 0; robust means the design of an SSC either meets the current plant design basis for the applicable external hazards or has been shown by analysis or test to meet or exceed the current design basis.

With the bottom 5 feet of the QCST currently qualified with regard to the ANO licensing basis, the application of an alternative approach of modifying the appendages to meet a different standard (RG 1.76, Revision 1) is unnecessary. While application of the criteria in RG 1.76, Revision 1, does result in a specific missile issue from an approximately $\leq 20^\circ$ pipe missile, the specific vector required for the missile render it substantially unlikely. While such a missile is credible when considering the entire surface area of a large structure (such as the QCST), the likelihood of specific locational impact given the missile shield surrounding the lower portion of the QCST and the finite air space from which such a missile would need to originate is highly unlikely.

Entergy considers it acceptable to consider the bottom five feet of the QCST to be robust based on current design and licensing bases. However, with respect to qualification for FLEX mitigation activities (beyond licensing basis even), the remainder of the tank above five feet has been evaluated as robust based on the engineering evaluation performed using RG 1.76, Revision 1. Based on these evaluations, no modification to these four nozzles are necessary at this time. As noted above, when considering RG 1.76, Revision 1, and using the very specific missile trajectories (vertical or about 22 degrees) assumption there is some probability of a missile strike. Given the missile shield and the required assumption of a specific missile trajectory, the likelihood of a missile strike is very small. The four valves and piping are considered robust for use of the QCST for FLEX.

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

Entergy expects to comply with the order implementation date for ANO-2. Based on the Reference 8 submittal, the ANO-1 full order compliance date is startup from 2R24 (fall 2015).

6 Open Items from OIP and Interim Staff Evaluation (ISE)

The following tables provide a summary and status of any open items documented in the OIP and any open items or confirmatory items documented in the ISE (Reference 6). A fourth table includes the FLEX related NRC Audit Visit Open Items and status, which includes open items on previously issued Audit Questions and new Safety Evaluation (SE) Open Items that were not closed during the April 2015 NRC Audit Visit. A fifth table includes a listing of all Audit Questions and the status of each item.

Note that during the April 2015 NRC Audit Visit the NRC utilized a spreadsheet entitled *Arkansas Nuclear One, SE Item Tracker* to maintain a status of Open Items associated with development of the NRC's SE. 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 (N/A for ANO)
- D. SFP Instrumentation RAIs (Audit Item SFP. X)
- E. Combined SE Template Technical Review Gaps (Audit Item SE. X)

In the Status columns of the following tables, the phrase "This item was closed during the April 2015 NRC Audit Visit" indicates that the item was closed during the NRC Audit and is considered closed.

OIP Open Items	Status
There were no open items documented in the ANO OIP.	N/A

ISE Open Items		Status
3.2.1.D	The NRC Staff has reviewed the ANO approach that uses the ANO-2 charging pump to supply makeup to the ANO-1 RCS for inventory control but has not concluded that this approach is acceptable. The Staff has identified a number of concerns that need to be addressed regarding the proposed RCS inventory control strategy. Therefore, this open item tracks completion of the development of an acceptable integrated RCS makeup strategy that meets the requirements of Order EA-12-049.	This item was considered Open during the April 2015 NRC Audit Visit. See the April 2015 NRC Audit Visit FLEX Related Open Items table (below) Audit Item OI 3.2.1.D for status.
3.2.1.8.B	For ANO-1 and ANO-2 verify resolution of the generic concern associated with the modeling of the timing and uniformity of the mixing of a liquid boric acid solution injected into the RCS under natural circulation conditions potentially involving two-phase flow.	This item was closed during the April 2015 NRC Audit Visit (associated with AQ ANO-041).

ISE Confirmatory Items		Status
3.1.1.2.A	Confirm whether there is a need for a power source to move or deploy the FLEX equipment (e.g., to open the door from a storage location).	This item was closed during the April 2015 NRC Audit Visit.
3.1.1.4.A	Confirm that the local staging area for Regional Response Center equipment has been identified and a description of the methods to be used to deliver the equipment to the site has been provided.	This item was closed during the April 2015 NRC Audit Visit.
3.1.3.1.A	Confirm that the axis of separation and distance between the portable equipment storage buildings provides assurance that a single tornado will not impact both buildings.	This item was closed during the April 2015 NRC Audit Visit (associated with AQ ANO-002).
3.2.1.A	Confirm that the Atmospheric Dump Valves and associated piping at both units are sufficiently robust and will remain functional during and following a seismic event.	This item was considered Open during the April 2015 NRC Audit Visit. See the April 2015 NRC Audit Visit FLEX Related Open Items table (below) Audit Item CI 3.2.1.A for status.
3.2.1.B	Confirm that the ANO-2 cooldown analysis supports the delay in the cooldown to eight hours following the extended loss of all power (ELAP).	This item was closed during the April 2015 NRC Audit Visit (associated with AQ ANO-014, 015, 018, 021, 025, 035, 049, 051, 075, 077, 078, and 085).
3.2.1.C	Confirm that the evaluation of the emergency feedwater (EFW) turbine exhaust piping for robustness is completed with acceptable results.	This item was considered Open during the April 2015 NRC Audit Visit. See the April 2015 NRC Audit Visit FLEX Related Open Items table (below) Audit Item CI 3.2.1.C for status.
3.2.1.1.A	Confirm that reliance on the RELAP5/MOD2-B&W code in the ELAP analysis for ANO-1 is limited to the flow conditions prior to boiler-condenser cooling initiation.	This item was closed during the April 2015 NRC Audit Visit (associated with AQ ANO-015).
3.2.1.1.B	Confirm that the use of CENTS in the ELAP analysis is limited to the flow conditions prior to reflux boiling initiation.	This item was closed during the April 2015 NRC Audit Visit (associated with AQ ANO-015).

ISE Confirmatory Items		Status
3.2.1.2.A	For ANO-1 confirm that the strategy is effective in keeping the RCS temperatures within the limits of the seal design temperatures, and supports the leakage rate (two gallons per minute (gpm)/seal) used in the ELAP analysis.	This item was closed during the April 2015 NRC Audit Visit (closed to 3.2.1.2.B).
3.2.1.2.B	For ANO-1, confirm adequate justification for (including seal leakage testing data) the use of two gpm/seal in the ELAP analysis.	This item was considered Open during the April 2015 NRC Audit Visit. See the April 2015 NRC Audit Visit FLEX Related Open Items table (below) Audit Item CI 3.2.1.2.B for status.
3.2.1.3.A	Verify the ELAP analysis assumption that decay heat is per ANS [American Nuclear Society] 5.1-1979 + 2 sigma, or equivalent.	This item was considered Open during the April 2015 NRC Audit Visit. See the April 2015 NRC Audit Visit FLEX Related Open Items table (below) Audit Item CI 3.2.1.3.A for status.
3.2.1.4.A	For ANO-1 confirm the revision to WCAP-17601 used and also confirm whether there are any deviations taken from the assumptions presented in Nuclear Energy Institute (NEI) 12-06, Section 3.2.	This item was closed during the April 2015 NRC Audit Visit (associated with AQ ANO-075).
3.2.1.8.A	Confirm the acceptability of the ANO-2 shutdown margin results after accounting for the delay in the cooldown to eight hours following an ELAP.	This item was closed during the April 2015 NRC Audit Visit (associated with AQ ANO-078).
3.2.1.9.A	Confirm the adequacy of the RCS injection strategy considering the analysis in licensee calculation CN-SEE-II-13-2 as it relates to the delay in the ANO-2 cooldown to eight hours following an ELAP.	This item was closed during the April 2015 NRC Audit Visit (associated with AQ ANO-051 and 077).
3.2.1.9.B	Confirm the final specific times for connection and use of the portable National SAFER Response Center pumps.	This item was closed during the April 2015 NRC Audit Visit (associated with AQ ANO-035).
3.2.3.A	Confirm acceptable results of the ANO-2 containment ELAP analysis after it is completed.	This item was considered Open during the April 2015 NRC Audit Visit. See the April 2015 NRC Audit Visit FLEX Related Open Items table (below) Audit Item CI 3.2.3.A for status.

ISE Confirmatory Items		Status
3.2.4.2.A	Confirm acceptable results of the ANO main control room heat-up calculation after it is performed.	This item was considered Open during the April 2015 NRC Audit Visit. See the April 2015 NRC Audit Visit FLEX Related Open Items table (below) Audit Item CI 3.2.4.2.A.
3.2.4.2.B	Confirm the adequacy of ANO-2 battery room ventilation for extreme temperature protection when the design development is completed.	This item was considered Open during the April 2015 NRC Audit Visit. See the April 2015 NRC Audit Visit FLEX Related Open Items table (below) Audit Item CI 3.2.4.2.B.
3.2.4.2.C	Confirm the adequacy of calculations for extreme temperature protection regarding ANO-2 turbine-driven EFW pump room and electrical equipment rooms when the design development is completed.	This item was considered Open during the April 2015 NRC Audit Visit. See the April 2015 NRC Audit Visit FLEX Related Open Items table (below) Audit Item CI 3.2.4.2.C.
3.2.4.4.A	Confirm that upgrades to the site's communications systems have been completed as planned.	This item was closed during the April 2015 NRC Audit Visit.
3.2.4.7.A	Confirm that a final strategy for use of the mobile boration unit is developed.	This item was considered Open during the April 2015 NRC Audit Visit. See the April 2015 NRC Audit Visit FLEX Related Open Items table (below) Audit Item CI 3.2.4.7.A.
3.2.4.10.A	For ANO-2 confirm that an acceptable load shedding strategy is developed.	This item was closed during the April 2015 NRC Audit Visit (associated with AQ ANO-128).
3.2.4.10.B	For ANO-2 confirm that an acceptable direct current (DC) load profile is developed.	This item was closed during the April 2015 NRC Audit Visit (associated with AQ ANO-070).
3.2.4.10.C	For ANO-2 confirm that an acceptable basis for the minimum DC bus voltage is determined.	This item was closed during the April 2015 NRC Audit Visit (associated with AQ ANO-072).

ISE Confirmatory Items		Status
3.3.2.A	Confirm that acceptable strategies and their bases are developed and maintained in an overall program document, as described in NEI 12-06, Section 11.8, items 1 and 3.	This item was closed during the April 2015 NRC Audit Visit.
3.4.A	Confirm that the licensee has fully addressed considerations (2) through (10) of NEI 12-06, Section 12.2, Minimum Capability of Off-Site Resources, which requires each site to establish a means to ensure the necessary resources will be available from off-site.	This item was closed during the April 2015 NRC Audit Visit.

April 2015 NRC Audit Visit FLEX Related Open Items			
Audit Item Reference	Item Description	Licensee Input Needed	Status
ISE OI 3.2.1.D	The NRC staff has reviewed the ANO approach that uses the ANO-2 charging pump to supply makeup to the ANO-1 RCS for inventory control but has not concluded that this approach is acceptable. The staff has identified a number of concerns that need to be addressed regarding the proposed RCS inventory control strategy. Therefore, this open item tracks completion of the development of an acceptable integrated RCS makeup strategy that meets the requirements of Order EA-12-049.	Provide RCS injection paths (primary and alternate).	Open Response was uploaded to the ePortal on 07/17/2015 for NRC review.

April 2015 NRC Audit Visit FLEX Related Open Items			
Audit Item Reference	Item Description	Licensee Input Needed	Status
ISE CI 3.2.1.A	<p>Confirm that the Atmospheric Dump Valves and associated piping at both units are sufficiently robust and will remain functional during and following a seismic event.</p> <p>(a) Clarify whether the ADVs or upstream associated piping is safety-related and protected from all external events such as tornado missiles. If not, address the following questions:</p> <p>(b) Clarify whether damage to the ADV or upstream associated piping could occur during an ELAP that would result in an uncontrolled cooldown of the reactor coolant system and provide a basis.</p> <p>(c) Clarify whether postulated damage would be limited to a single ADV and/or associated piping, or whether failures could be postulated resulting in an uncontrolled cooldown affecting both steam generators and provide a basis.</p> <p>(d) If ELAP scenarios involving the uncontrolled cooldown of one or more steam generators may be postulated, describe key operator actions that would be taken to mitigate these events.</p> <p>(e) If ELAP scenarios involving the uncontrolled cooldown of one or more steam generators may be postulated, provide analysis demonstrating that the intended mitigating actions would lead to satisfaction of the requirements of Order EA-12-049 for these cases.</p> <p>(f) As applicable, if the operator actions to mitigate an ELAP event involving an uncontrolled cooldown results in an asymmetric cooldown of the reactor coolant system, address the consequences of the asymmetric cooldown on the mixing of boric acid that is added to the reactor coolant system to ensure sub-criticality.]</p>	<p>Missile protection for the ADVs, the ADV operators, and Main Steam Safety Valves. Access (platforms). Concerns with survivability and access.</p>	<p>Open Response was uploaded to the ePortal on 07/17/2015 for NRC review.</p>

April 2015 NRC Audit Visit FLEX Related Open Items			
Audit Item Reference	Item Description	Licensee Input Needed	Status
ISE CI 3.2.1.C	Confirm that the evaluation of the EFW turbine exhaust piping for robustness is completed with acceptable results.	Verify that steam supply to the TDEFW pumps is protected.	Open Response was uploaded to the ePortal on 07/17/2015 for NRC review.
ISE CI 3.2.1.2.A	For ANO-1 confirm that the strategy is effective in keeping the RCS temperatures within the limits of the seal design temperatures, and supports the leakage rate (2 gallons per minute (gpm)/seal) used in the ELAP analysis.	N/A	Open Generic issue with Flowserve seals.
ISE CI 3.2.1.2.B	For ANO-1, confirm adequate justification for (including seal leakage testing data) the use of 2 gpm/seal in the ELAP analysis.	N/A	Open Generic issue with Flowserve seals.
ISE CI 3.2.1.3.A	Verify the ELAP analysis assumption that decay heat is per ANS [American Nuclear Society] 5.1-1979 + 2 sigma, or equivalent.	N/A	Open Pending NRC review, no further Entergy action required.
ISE CI 3.2.3.A	Confirm acceptable results of the ANO-2, containment ELAP analysis after it is completed.	N/A	Open Pending NRC review, no further Entergy action required
ISE CI 3.2.4.2.A	Confirm acceptable results of the ANO-2, Main Control Room heat-up calculation after it is performed.		Open Response was uploaded to the ePortal on 07/17/2015 for NRC review.
ISE CI 3.2.4.2.B	Confirm the adequacy of ANO-2 battery room ventilation for extreme temperature protection when the design development is completed.	Evaluation of equipment on these rooms.	Open Response was uploaded to the ePortal on 07/23/2015 for NRC review.

April 2015 NRC Audit Visit FLEX Related Open Items			
Audit Item Reference	Item Description	Licensee Input Needed	Status
ISE CI 3.2.4.2.C	Confirm the adequacy of calculations for extreme temperature protection regarding ANO-2, TDEFW pump room and electrical equipment rooms, when the design development is completed.		Open Response was uploaded to the ePortal on 07/23/2015 for NRC review.
ISE CI 3.2.4.7.A	Confirm that a final strategy for use of the mobile boration unit is developed.	Provide mobile boration strategy.	Open Response was uploaded to the ePortal on 07/17/2015 for NRC review.

April 2015 NRC Audit Visit FLEX Related Open Items			
Audit Item Reference	Item Description	Licensee Input Needed	Status
AQ - 51	<p>The table titled, "PWR Portable Equipment Phase 2," lists four pumps – steam generator feed pump, RCS injection pump, SFP makeup pump, and inventory transfer pump. The pumps have flow rates and required head of 300 gpm and 900 ft, 40 gpm and 1500 ft, 400 gpm and 400 ft, and 750 gpm and 200 ft, respectively. The second table titled, "PWR Portable Equipment Phase 3," cites a service water RRC pump with the specifications of 2500 gpm and 52.15 ft. Entergy did not provide supporting details regarding any analyses that were used to determine the required flow rates and corresponding pressures of the portable pumps for SG or RCS fill strategies for Phase 2 or 3 strategies. Entergy did not provide definitive action times in the SOE timeline. Some of the action item statements are specified as; e.g., for ANO-1; "BWST volume should last throughout the 72 hour ELAP event", "Commence Plant Cooldown – Pending outcome of PWROG analysis" and "Steam pressure is expected to be sufficient" and for ANO-2 "The exact need time for makeup to this water source is unknown until the cooldown strategy has been finalized." And "Steam pressure is expected to be sufficient. Specify the required times 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. Discuss how the operator actions are modeled in the ELAP to determine the required flow rates of the portable pumps, and justify that the capacities of each of the above discussed pumps are adequate to maintain core cooling during phases 2 and 3 of ELAP.</p>	<p>Provide pump curves.</p>	<p>Open Response was uploaded to the ePortal on 07/17/2015 for NRC review.</p>

April 2015 NRC Audit Visit FLEX Related Open Items			
Audit Item Reference	Item Description	Licensee Input Needed	Status
AQ – 56	On page 29 of the integrated plan, Entergy stated that, “Both SFPs are located in a structure that does not require additional ventilation.” No other information or supporting details e.g., elevation drawings, and locations of vent paths was provided. Provide clarification for whether adequate ventilation would exist for an ELAP with no action taken, or justify that accumulated steam in the vicinity of the SFP will not create a hazard for personnel access to mitigation equipment or adversely affect the functionality of any mitigation equipment.	Provide SFP strategy ventilation.	Open Response was uploaded to the ePortal on 07/17/2015 for NRC review.
AQ – 67	NEI 12-06, Section 3.2.2, Paragraph (5) requires evaluation of water supplies used for FLEX makeup strategies. The capacities of the QCST and the BWST along with other selected tanks mentioned in the integrated plan were not specified so it cannot be determined if these tanks capacities are adequate for the intended purposes of plant cooldown and RCS inventory makeup or additionally, when the required switchover from primary to alternate supplies would be accomplished. Provide the capacity of all the tanks and water supplies that will be used for FLEX makeup strategies, the timing for switchover to alternate supplies and discuss the consequences of using potentially impure raw water source to supply the SGs.	N/A	Open Pending NRC review, no further Entergy action required.

April 2015 NRC Audit Visit FLEX Related Open Items			
Audit Item Reference	Item Description	Licensee Input Needed	Status
AQ – 69	Guidance and strategies for supplying portable equipment fuel are specified in NEI 12-06, Section 3.2.2, Paragraph (5). The licensee states that diesel fuel required for FLEX equipment will be sourced from available onsite diesel fuel storage tanks for both ANO-1 and ANO-2. Provide a discussion regarding how long FLEX equipment can be sourced from onsite diesel fuel storage tanks, the methods to be used to retrieve oil from the site tanks and deliver to FLEX equipment, what actions are to be taken if the tanks are unavailable, how on-site makeup will be provided for indefinite coping. Also, provide an evaluation justifying that these tanks will be available or diesel fuel will be available from an assured source, with sufficient access and discuss how the quality of the fuel stored in in FLEX equipment over the long term will be maintained.	Provide strategy to avoid gelling of the diesel fuel under extreme cold weather conditions.	Open Response was uploaded to the ePortal on 07/17/2015 for NRC review.
AQ – 84	Clarify the motive force(s) that would be used to operate the ADVs for both ANO-1 and 2 and provide an analysis that supports their continued operation for the duration of the event. How many ADV cycles are expected and how many are supported by the existing on-site capabilities?	Address NRC concerns about the accessibility of the ADVs for operators.	Open Response was uploaded to the ePortal on 07/17/2015 for NRC review.
AQ – 86	Describe how manual ADV control will be accomplished (e.g., communication between the control room and a local operator stationed at the ADV), and, as applicable, whether environmental factors such as the potential for ambient noise and elevated temperatures due to exiting steam have been considered.	Address NRC concerns of temperature conditions for operators and temperature qualification of the instruments located in that area.	Open Response was uploaded to the ePortal on 07/23/2015 for NRC review.

April 2015 NRC Audit Visit FLEX Related Open Items			
Audit Item Reference	Item Description	Licensee Input Needed	Status
AQ – 91	In the event that the Dardanelle Reservoir is unavailable (e.g., due to failure of the Dardanelle Dam), provide clarification of the duration over which the emergency cooling pond is capable of providing sufficient inventory to mitigate an ELAP and how indefinite makeup would be provided in this eventuality.	Provide coping time based on available water.	Open Response was uploaded to the ePortal on 07/17/2015 for NRC review.
AQ – 106	In the six month update, licensee indicates that they may be changing methodology to providing borated water to the RCS. Provide discussion on the proposed change.	Concerns with the puncture of BWST and RWT and with the drain down calculation. During the Audit Visit, the NRC stated that the drain down calculation needed to be reviewed by more qualified NRC reviewers.	Open Pending NRC review, no further Entergy action required.
AQ – 113	Licensee states that FLEX equipment will be pre-stage once a flood event is initiated. Describe what equipment and where it will be prepositioned to assure protection. (include N+1 equipment)	Provide white paper on pre-staging of equipment for flooding.	Open Response was uploaded to the ePortal on 07/17/2015 for NRC review.

April 2015 NRC Audit Visit FLEX Related Open Items			
Audit Item Reference	Item Description	Licensee Input Needed	Status
AQ – 129	<p>Discuss the long term reliability of the steam driven AFW pump during an ELAP event. In particular:</p> <p>a. Excessive moisture in the steam supply can disrupt turbine operation. Discuss whether the ELAP event will impact steam supply line moisture removal such that turbine operation is potentially impacted. If the condensate discharges to a local sump, please address long term area temperature and humidity along with the removal of the condensate before local room flooding can occur.</p> <p>b. The steam driven AFW pump has mini flow recirc line that provides relief from dead heading the pump. This recirc may not be protected from external events associated with an ELAP event. Staff requests the licensee assess operation of the mini flow recirc line and any action required if the line become crimped, or severed resulting in loss of inventory.</p>	<p>Address NRC concerns with the re-circulation line of the TDFW not being protected.</p>	<p>Open Response was uploaded to the ePortal on 07/17/2015 for NRC review.</p>
SE – 4	<p>Explain how human factor errors will be prevented if ANO-1 uses an ANO-2 charging pump for RCS inventory control.</p>	<p>N/A</p>	<p>Open Pending NRC review, no further Entergy action required.</p>

April 2015 NRC Audit Visit FLEX Related Open Items			
Audit Item Reference	Item Description	Licensee Input Needed	Status
SE – 21	<p>The generic analysis in WCAP-17601-P strictly addressed ELAP coping time without consideration of the actions directed by a site's mitigating strategies. WCAP-17792-P extends these analytical results through explicit consideration of mitigating strategies involving RCS makeup and boration. In support of the RCS makeup and boration strategies proposed therein, a generic recommendation is made that PWRs vent the RCS while makeup is being provided.</p> <p>a. If the mitigating strategy will include venting of the RCS, please provide the following information:</p> <p>i. The vent path to be used and the means for its opening and closure.</p> <p>ii. The criteria for opening the vent path.</p> <p>iii. The criteria for closing the vent path.</p> <p>iv. Clarification as to whether the vent path could experience two-phase or single-phase liquid flow during an ELAP. If two-phase or liquid flow is a possibility, please clarify whether the vent path is designed to ensure isolation capability after relieving two-phase or liquid flow.</p> <p>v. If relief of two-phase or liquid flow is to be avoided, please discuss the availability of instrumentation or other means that would ensure that the vent path is isolated prior to departing from single-phase steam flow.</p> <p>vi. If a pressurizer PORV is to be used for RCS venting, please clarify whether the associated block valve would be available (or the timeline by which it could be repowered) in the case that the PORV were to stick open. If applicable, please further explain why opening the pressurizer PORV is justified under ELAP conditions if the</p>	N/A	Open Pending NRC review, no further Entergy action required.

April 2015 NRC Audit Visit FLEX Related Open Items			
Audit Item Reference	Item Description	Licensee Input Needed	Status
	<p>associated block valve would not be available.</p> <p>vii. If a pressurizer PORV is to be used for RCS venting, please clarify whether FLEX RCS makeup pumps and FLEX steam generator makeup pumps will both be available prior to opening the PORV. If they will not both be available, please provide justification.</p> <p>b. If RCS venting will not be used, please provide the following information:</p> <p>i. The expected RCS temperature and pressure after the necessary quantity of borated makeup has been added to an unvented RCS.</p> <p>ii. Adequate justification that the potential impacts of unvented makeup will not adversely affect the proposed mitigating strategy (e.g., FLEX pump discharge pressures will not be challenged, plant will not reach water solid condition, adequate boric acid can be injected, increased RCS leakage will not adversely affect the integrated plan timeline, etc.).</p>		

April 2015 NRC Audit Visit FLEX Related Open Items			
Audit Item Reference	Item Description	Licensee Input Needed	Status
SE – 23	<p>As applicable, please address the following items regarding the use of raw water sources for mitigating an ELAP event:</p> <p>a. Please discuss the quality of the water (e.g., suspended solids, dissolved salts) that will be used for primary makeup during ELAP events, accounting for the potential for increased suspended or dissolved material in some raw water sources during events such as flooding or severe storms.</p> <p>b. Please discuss whether instrumentation available during the ELAP event is capable of providing indication that inadequate core cooling exists for one or more fuel assemblies due to blockage at fuel assemblies' inlets or applicable bypass leakage flowpaths.</p> <p>c. As applicable, please provide justification that the use of any raw water sources will not result in blockage of coolant flow across fuel assemblies' inlets and applicable bypass leakage flowpaths to an extent that would inhibit adequate core cooling. Or, if deleterious blockage at the core inlet cannot be precluded under ELAP conditions, then please discuss alternate means for assuring the adequacy of adequate core cooling in light of available indications. For example, will ELAP mitigation procedures be capable of ensuring top-down cooling of the reactor core?</p>	N/A	Open Response was uploaded to the ePortal on 07/17/2015 for NRC review.

April 2015 NRC Audit Visit FLEX Related Open Items			
Audit Item Reference	Item Description	Licensee Input Needed	Status
SE – 26	<p>ANO-1 Final Analysis. Review final T/H analysis and determine its acceptability.</p> <p>(a) Confirm that the T/H analysis uses an acceptable evaluation model. Understand where deviations in modeling approach occur relative to WCAPs-17601 and 17792 and ensure that they are justified. (Note that these WCAP reports are not approved but serve as a reference point.)</p> <p>(b) Confirm that RCS remains in single-phase natural circulation for the entire event.</p> <p>(c) Confirm that the inputs to the calculation are appropriate to the ANO-1 plant-specific configuration, and consistent with ELAP event analytical assumptions.</p> <p>(d) Confirm consistency of analysis with licensee’s final sequence of events.</p> <p>(e) Confirm that a symmetric cooldown is used.</p> <p>(f) Confirm that seal leakage assumed in analysis is acceptable. (Note previous assumption of 2 gpm / pump is inconsistent with current leakage rate proposed by Flowserve. See CI 3.2.1.2.B.)</p> <p>(g) Confirm U1 analysis assumptions regarding makeup from U2 charging pumps are not in conflict with makeup requirements / analysis for U2.</p>	N/A	Open Pending NRC review, no further Entergy action required.
SE – 27	<p>SIT / CFT Injection. Review analysis to confirm that nitrogen injection is precluded from SITs / CFTs. As applicable, confirm that isolation / venting will be effected prior to nitrogen injection.</p>	Provide calculation for ANO-1 (CFT setpoint).	Open Response was uploaded to the ePortal on 07/17/2015 for NRC review.

April 2015 NRC Audit Visit FLEX Related Open Items			
Audit Item Reference	Item Description	Licensee Input Needed	Status
SE – 28	No instrumentation was discussed for level of RWT, BAMT, or other sources of RCS makeup. Confirm that licensee has acceptable monitoring in place to ensure timely switching of suction sources and that damage to makeup pump is prevented.	Provide level instrumentation for the tanks.	Open Response was uploaded to the ePortal on 07/17/2015 for NRC review.
SE – 29	The licensee is requested to provide a summary evaluation to confirm that the temperature and pressures within containment will not exceed the environmental qualification (EQ) of electrical equipment that is being relied upon as part of their FLEX strategies. The licensee needs to ensure that the EQ profile of the required electrical equipment remains bounding for the entire duration of the event. (SE-19 and SE-29 can be combined in the summary evaluation.)	Provide EQ summary evaluation for equipment inside containment. Concerns with a long duration event.	Open Response was uploaded to the ePortal on 07/17/2015 for NRC review.
SE – 30	Need justification for the electrical panel on the roof of the PASS building for protection from wind/rain.	Provide strategy on how to protect the electrical panel on the roof of the PASS building.	Open Response was uploaded to the ePortal on 07/17/2015 for NRC review.
SE – 31	Interaction of the electrical panel on the roof of the PASS building with the cable. No submergence of cable.	Provide strategy to protect the cables.	Open Response was uploaded to the ePortal on 07/17/2015 for NRC review.

Audit Questions	Status	Completion or Target Date
ANO-001	This item was closed during the April 2015 NRC Audit Visit.	
ANO-002	This item was closed during the April 2015 NRC Audit Visit.	
ANO-003	This item was closed during the April 2015 NRC Audit Visit.	
ANO-004	This item was closed during the April 2015 NRC Audit Visit.	
ANO-006	This item was closed during the April 2015 NRC Audit Visit.	
ANO-010	This item was closed during the April 2015 NRC Audit Visit.	
ANO-011	This item was closed during the April 2015 NRC Audit Visit.	
ANO-012	This item was closed during the April 2015 NRC Audit Visit.	
ANO-013	This item was closed during the April 2015 NRC Audit Visit.	
ANO-014	This item was closed during the April 2015 NRC Audit Visit.	
ANO-015	This item was closed during the April 2015 NRC Audit Visit.	
ANO-018	This item was closed during the April 2015 NRC Audit Visit.	
ANO-019	This item was closed during the April 2015 NRC Audit Visit.	
ANO-020	This item was closed during the April 2015 NRC Audit Visit.	
ANO-021	This item was closed during the April 2015 NRC Audit Visit.	
ANO-022	This item was closed during the April 2015 NRC Audit Visit.	
ANO-023	This item was closed during the April 2015 NRC Audit Visit.	
ANO-024	This item was closed during the April 2015 NRC Audit Visit.	
ANO-025	This item was closed during the April 2015 NRC Audit Visit.	
ANO-026	This item was closed during the April 2015 NRC Audit Visit.	
ANO-027	This item was closed during the April 2015 NRC Audit Visit.	
ANO-028	This item was closed during the April 2015 NRC Audit Visit.	
ANO-029	This item was closed during the April 2015 NRC Audit Visit.	
ANO-030	This item was closed during the April 2015 NRC Audit Visit.	
ANO-032	This item was closed during the April 2015 NRC Audit Visit.	
ANO-034	This item was closed during the April 2015 NRC Audit Visit.	
ANO-035	This item was closed during the April 2015 NRC Audit Visit.	
ANO-041	This item was closed during the April 2015 NRC Audit Visit.	
ANO-044	This item was closed during the April 2015 NRC Audit Visit.	
ANO-045	This item was closed during the April 2015 NRC Audit Visit.	

Audit Questions	Status	Completion or Target Date
ANO-046	This item was closed during the April 2015 NRC Audit Visit.	
ANO-047	This item was closed during the April 2015 NRC Audit Visit.	
ANO-049	This item was closed during the April 2015 NRC Audit Visit.	
ANO-051	This item was stasured as Open during the April 2015 NRC Audit Visit. See the April 2015 NRC Audit Visit FLEX Related Open Items table (above) Audit Item AQ 51 for status.	
ANO-055	This item was closed during the April 2015 NRC Audit Visit.	
ANO-056	This item was stasured as Open during the April 2015 NRC Audit Visit. See the April 2015 NRC Audit Visit FLEX Related Open Items table (above) Audit Item AQ 56 for status.	
ANO-059	This item was closed during the April 2015 NRC Audit Visit.	
ANO-060	This item was closed during the April 2015 NRC Audit Visit.	
ANO-061	This item was closed during the April 2015 NRC Audit Visit.	
ANO-062	This item was closed during the April 2015 NRC Audit Visit.	
ANO-063	This item was closed during the April 2015 NRC Audit Visit.	
ANO-064	This item was closed during the April 2015 NRC Audit Visit.	
ANO-066	This item was closed during the April 2015 NRC Audit Visit.	
ANO-067	Pending NRC review, no further Entergy action required.	
ANO-068	This item was closed during the April 2015 NRC Audit Visit.	
ANO-069	This item was stasured as Open during the April 2015 NRC Audit Visit. See the April 2015 NRC Audit Visit FLEX Related Open Items table (above) Audit Item AQ 69 for status.	
ANO-070	This item was closed during the April 2015 NRC Audit Visit.	
ANO-071	This item was closed during the April 2015 NRC Audit Visit.	
ANO-072	This item was closed during the April 2015 NRC Audit Visit.	
ANO-075	This item was closed during the April 2015 NRC Audit Visit.	
ANO-076	This item was closed during the April 2015 NRC Audit Visit.	
ANO-077	This item was closed during the April 2015 NRC Audit Visit.	
ANO-078	This item was closed during the April 2015 NRC Audit Visit.	
ANO-080	This item was closed during the April 2015 NRC Audit Visit.	
ANO-082	This item was closed during the April 2015 NRC Audit Visit.	
ANO-084	This item was stasured as Open during the April 2015 NRC Audit Visit. See the April 2015 NRC Audit Visit FLEX Related Open Items table (above) Audit Item AQ 84 for status.	

Audit Questions	Status	Completion or Target Date
ANO-085	This item was closed during the April 2015 NRC Audit Visit.	
ANO-086	This item was stasured as Open during the April 2015 NRC Audit Visit. See the April 2015 NRC Audit Visit FLEX Related Open Items table (above) Audit Item AQ 86 for status.	
ANO-088	This item was closed during the April 2015 NRC Audit Visit.	
ANO-089	This item was closed during the April 2015 NRC Audit Visit.	
ANO-090	This item was closed during the April 2015 NRC Audit Visit.	
ANO-091	This item was stasured as Open during the April 2015 NRC Audit Visit. See the April 2015 NRC Audit Visit FLEX Related Open Items table (above) Audit Item AQ 91 for status.	
ANO-092	This item was closed during the April 2015 NRC Audit Visit.	
ANO-094	This item was closed during the April 2015 NRC Audit Visit.	
ANO-098	This item was closed during the April 2015 NRC Audit Visit.	
ANO-100	This item was closed during the April 2015 NRC Audit Visit.	
ANO-104	This item was closed during the April 2015 NRC Audit Visit.	
ANO-106	Pending NRC review, no further Entergy action required	
ANO-107	This item was closed during the April 2015 NRC Audit Visit.	
ANO-108	This item was closed during the April 2015 NRC Audit Visit.	
ANO-109	This item was closed during the April 2015 NRC Audit Visit.	
ANO-110	This item was closed during the April 2015 NRC Audit Visit.	
ANO-112	This item was closed during the April 2015 NRC Audit Visit.	
ANO-113	This item was stasured as Open during the April 2015 NRC Audit Visit. See the April 2015 NRC Audit Visit FLEX Related Open Items table (above) Audit Item AQ 113 for status.	
ANO-115	This item was closed during the April 2015 NRC Audit Visit.	
ANO-116	This item was closed during the April 2015 NRC Audit Visit.	
ANO-117	This item was closed during the April 2015 NRC Audit Visit.	
ANO-118	This item was closed during the April 2015 NRC Audit Visit.	
ANO-120	This item was closed during the April 2015 NRC Audit Visit.	
ANO-123	This item was closed during the April 2015 NRC Audit Visit.	
ANO-125	This item was closed during the April 2015 NRC Audit Visit.	
ANO-126	This item was closed during the April 2015 NRC Audit Visit.	
ANO-127	This item was closed during the April 2015 NRC Audit Visit.	

Audit Questions	Status	Completion or Target Date
ANO-128	This item was closed during the April 2015 NRC Audit Visit.	
ANO-129	This item was stasured as Open during the April 2015 NRC Audit Visit. See the April 2015 NRC Audit Visit FLEX Related Open Items table (above) Audit Item AQ 129 for status.	
The following additional questions related to ANO Cross-Unit RCS Makeup Strategy were received in January 2014 during the audit process		
ANO-1	This item was closed during the April 2015 NRC Audit Visit.	
ANO-2	This item was closed during the April 2015 NRC Audit Visit.	
ANO-3	This item was closed during the April 2015 NRC Audit Visit.	
ANO-4	This item was closed during the April 2015 NRC Audit Visit.	
ANO-5	This item was closed during the April 2015 NRC Audit Visit.	
ANO-6	This item was closed during the April 2015 NRC Audit Visit.	
ANO-7	This item was closed during the April 2015 NRC Audit Visit.	
ANO-8	This item was closed during the April 2015 NRC Audit Visit.	
ANO-9	This item was closed during the April 2015 NRC Audit Visit.	
ANO-10	This item was closed during the April 2015 NRC Audit Visit.	
ANO-11	This item was closed during the April 2015 NRC Audit Visit.	
ANO-12	This item was closed during the April 2015 NRC Audit Visit.	
ANO-13	This item was closed during the April 2015 NRC Audit Visit.	
ANO-14	This item was closed during the April 2015 NRC Audit Visit.	
ANO-15	This item was closed during the April 2015 NRC Audit Visit.	
ANO-16	This item was closed during the April 2015 NRC Audit Visit.	

7 Potential ISE Impacts

Entergy has not identified any additional potential impacts to the ISE since the previous six month status report (Reference 9).

8 References

1. *OIP in Response to March 12, 2012, Commission Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for BDBEEs (Order Number EA-12-049)*, dated February 28, 2013 (OCAN021302) (ML13063A151)
2. NRC Order Number EA-12-049, *Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for BDBEEs*, dated March 12, 2012 (OCNA031206) (ML12056A045)
3. *First Six-Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for BDBEEs (Order Number EA-12-049)*, dated August 28, 2013 (OCAN081302) (ML13241A414)
4. *Request for Implementation Date Relief in Response to March 12, 2012, Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for BDBEEs (NRC Order EA-12-049) Arkansas Nuclear One – Unit 1*, dated April 8, 2014 (1CAN041401) (ML14098A114)
5. *Arkansas Nuclear One, UNIT 1 –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"*, dated May 20, 2014 (ML14114A697)
6. *Arkansas Nuclear One, Units 1 and 2 – ISE Relating to Overall Integrated Plan in Response to Order EA-12-049 (Mitigation Strategies) (TAC Nos. MF0942 and MF0943)*, dated February 25, 2014 (ML14007A459)
7. *Third Six-Month Status Report in Response to March 12, 2012, Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for BDBEEs (Order Number EA-12-049)*, dated August 28, 2014 (OCAN081402) (ML14241A660)
8. *Commitment Change Notification for NRC Order EA-12-049 Arkansas Nuclear One – Unit 1*, dated January 16, 2015 (1CAN011504) (ML15016A433)
9. *Fourth Six-Month Status Report Response to March 12, 2012, Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for BDBEEs (Order Number EA-12-049)*, dated February 24, 2015 (OCAN021502) (ML15056A137)
10. NRC Endorsement Letter of NEI Alternate Approach Hoses and Cables, dated May 18, 2015 (ML 15125A442)
11. NEI Letter "Alternative Approach to NEI 12-06 Guidance for Hoses and Cables", dated May 1, 2015 (ML15126A135)