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U.S. Nuclear Regulatory Commission
Washington, DC 20555

Duke Energy Carolina, LLC (Duke Energy)
Oconee Nuclear Station, Units 1, 2 and 3
Docket Numbers 50-269, 50-270, 50-287
Renewed License Numbers DPR-38, DPR-47, and DPR-55

Subject: Sixth Six-Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049)

References:

1. Nuclear Regulatory Commission (NRC) Order Number EA-12-049, *Order Modifying Licensees With Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events*, dated March 12, 2012 (Accession No. ML12054A735).
2. Oconee Nuclear Station's *Overall Integrated Plan in Response to March 12, 2012, Commission Order to Modify Licenses With Regard To Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order EA-12-049)*, dated February 28, 2013 (Accession No. ML13063A065).
3. Oconee Nuclear Station's *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 29, 2013 (Accession No. ML13246A009).
4. Oconee Nuclear Station's *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 (Accession No. ML14064A197).
5. Oconee Nuclear Station's *Third Six-Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses With Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049)*, dated August 27, 2014 (Accession No. ML14245A019).
6. Oconee Nuclear Station's *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 (Accession No. ML15063A027).
7. Oconee Nuclear Station's *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 26, 2015 (Accession No. ML15247A069).
8. NEI 12-06, [Rev. 0], *Diverse and Flexible Coping Strategies (FLEX) Implementation Guide*, dated August 2012 (Accession No. ML12242A378).

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Ladies and Gentlemen,

On March 12, 2012, the Nuclear Regulatory Commission (NRC) issued Order EA-12-049 (Reference 1) to Duke Energy which was immediately effective and directed Duke Energy to develop 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. The Order required that, following NRC's issuance of its final Interim Staff Guidance (ISG), Duke Energy would submit an Overall Integrated Plan (OIP), followed by status reports at six-month intervals.

Duke Energy has thus far submitted the OIP (Reference 2), and five six-month reports (References 3 to 7) for Oconee Nuclear Station. The purpose of this letter is to provide the sixth six-month status report. The enclosure provides updates related to compliance with NRC Order EA-12-049 and Nuclear Energy Institute (NEI) 12-06 (Reference 8) during the July 29, 2015 to January 28, 2016 update period.

This letter contains no new or revised Regulatory Commitments.

Should you have any questions regarding this submittal, please contact David Haile with Oconee Regulatory Affairs, at (864) 873-4742.

I declare under penalty of perjury that the foregoing is true and correct. Executed on February 29, 2016.

Sincerely,

Scott L. Batson
Vice President
Oconee Nuclear Station

Enclosure:

1. Oconee Nuclear Station, Sixth Six-Month Status Report for Order EA-12-049 (FLEX), Units 1, 2, and 3.

cc:
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Mr. Eddy Crowe
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Oconee Nuclear Station

ENCLOSURE 1

Oconee Nuclear Station (ONS)
Sixth Six Month Status Report for Order EA-12-049 (FLEX),
Units 1, 2, and 3

ENCLOSURE: ONS SIXTH SIX-MONTH STATUS REPORT (ORDER EA-12-049) (FLEX)
(Note: The references for this Enclosure are listed in Section 8)

1) Introduction

On March 12, 2012, the Nuclear Regulatory Commission (NRC) issued Order EA-12-049 (Reference E1) to Duke Energy which required the development of guidance and strategies related to mitigation of a beyond-design-basis external event. The Order required each plant to issue an Overall Integrated Plan (OIP) pursuant to the NRC's Interim Staff Guidance (ISG) (Reference E2) which endorsed, with clarifications and exceptions, the industry guidance document, NEI 12-06 (Reference E3). The Order also required that update reports on progress or change to the OIP be submitted every six months.

An Overall Integrated Plan (Reference E4) was developed based on the diverse and flexible strategies (FLEX) from NEI 12-06 in response to NRC Order EA-12-049 and was submitted to the NRC on February 28, 2013. Five six-month updates have subsequently been submitted to the NRC (References E5, E18, E28, E29 and E30).

This report constitutes the sixth six-month update, and reports milestone accomplishments, changes to the compliance method or schedule, or any need for relief/relaxation, and the basis, which occurred during the period from July 29, 2015 to January 28, 2016 (hereafter referred to as "the update period").

2) Milestone Accomplishments (during the update period)

The following milestone(s) were completed:

1. The fifth six-month status report was submitted August 26, 2015.
2. Unit 2 Implementation and Implementation Walkdowns were completed.
3. Unit 2 Training was implemented.
4. Unit 2 is considered in compliance with NRC Order EA-12-049 as of November 11th, 2015 (Reference E31).

3) Milestone Schedule Status

The following represents the milestone status at the end of the update period. The table reflects updates to the milestone table in Attachment 2 of the Overall Integrated Plan. It provides the status of each activity, and whether the target completion date has changed.

Note: The dates are planning dates, and are subject to change as design and implementation details are developed. Revised target completion dates are not expected to impact the implementation date(s) of the Order.

Milestone	Target Completion Date	Activity Status	Revised Target Completion Date
Licensing Actions:			
Submit Overall Integrated Plan	Feb 2013	Complete	Date Not Revised
Submit 6 Month Update 1	Aug 2013	Complete	Date Not Revised
Submit 6 Month Update 2	Feb 2014	Complete	Date Not Revised
Submit 6 Month Update 3	Aug 2014	Complete	Date Not Revised
Submit 6 Month Update 4	Feb 2015	Complete	Date Not Revised
Submit 6 Month Update 5	Aug 2015	Complete	Date Not Revised
Submit 6 Month Update 6	Feb 2016	This Submittal	Date Not Revised
Submit 6 Month Update 7	Aug 2016	Not Started	Date Not Revised

ENCLOSURE: ONS SIXTH SIX-MONTH STATUS REPORT (ORDER EA-12-049) (FLEX)
(Note: The references for this Enclosure are listed in Section 8)

Milestone	Target Completion Date	Activity Status	Revised Target Completion Date
Modifications:			
Develop Modifications	Aug 2016	Started	Date Not Revised
Procurement:			
Identify Significant Material/Equipment	Sept 2013	Complete	Date Not Revised
Material/Equipment Procurement/Delivery	August 2016	Started	Units 1 and 3 Schedule Date Revised
Implementation Walkdowns:			
Conduct N-1 Outage Walkdowns – U1	Nov 2014	Complete	Date Not Revised
Conduct N-1 Outage Walkdowns – U2	Nov 2013	Complete	Date Not Revised
Conduct N-1 Outage Walkdowns – U3	May 2014	Complete	Date Not Revised
Conduct Implementation Walkdowns – U1	Oct 2016	Not Started	Date Not Revised
Conduct Implementation Walkdowns – U2	Oct 2015	Complete	Date Not Revised
Conduct Implementation Walkdowns – U3	April 2016	Started	Date Not Revised
Staffing:			
Conduct Staffing Analysis	July 2016	Complete	Date Not Revised
Training:			
Develop Training program – U1	July 2016	Started	Date Not Revised
Develop Training program – U2	July 2015	Complete	Date Not Revised
Develop Training program – U3	April 2016	Started	Date Revised
Implement Training – U1	Oct 2016	Started	Date Not Revised
Implement Training – U2	Oct 2015	Complete	Date Not Revised
Implement Training – U3	April 2016	Started	Date Not Revised
Procedures:			
Develop FLEX Guidelines (FGs)	June 2016	Started	Date Not Revised
Develop Maintenance Procedures	June 2016	Started	Date Not Revised
Regional Response Centers:			
Develop Strategies/Playbook with RRC	April 2015	Complete	Date Not Revised
Install Offsite Delivery Pad	March 2015	Complete (Installation not required)	August 2015
Implementation:			
Implement Modifications – U1	Nov 2016	Started	Date Not Revised
Implement Modifications – U2	Nov 2015	Complete	Date Not Revised
Implement Modifications – U3	May 2016	Started	Date Not Revised

4) Changes to Compliance Method

No changes to compliance method that are alternatives to NEI 12-06 Rev. 0 were made during the update period.

Provided on the Fifth Six-Month Status Report (Reference E30):
During the July 2015 NRC Onsite Audit, it was discussed that the Atmospheric Dump Valves (ADVs) are rugged but not located in a structure protected from all beyond design-basis external events. Therefore, the NRC Auditors' perspective was that crediting ADV operation should be considered an alternate approach to NEI 12-06. Oconee acknowledges this position. Justification is provided in OSC-11383 Attachment 10 (Reference E25) with respect to why the use of the ADVs is acceptable.

5) Need for Relief and Basis for the Relief

Duke Energy Carolinas, LLC (Duke Energy), Oconee Nuclear Station, Units 1, 2, and 3 anticipates meeting the Order implementation date and no relief is required at this time.

6) Open Items from Overall Integrated Plan and Draft Safety Evaluation

The following tables provide a summary status of the Open Items. The table Section 6.a. provides the open items identified in the original OIP submitted on February 28, 2013. The table Section 6.b. provides a list of open items that were added after February 28, 2013 through the end of the update period. The table Section 6.c. provides a list of open and confirmatory items related to the Interim Staff Evaluation (ISE) (Reference E19). The table Section 6.d. addresses any generic concerns (No new generic issues were identified during this update period).

a) Open Items Documented in the Overall Integrated Plan

Overall Integrated Plan Open Items	Status
1. Revised PMP HMR51 Analysis	Completed (References E32 and E33) Analysis approved by the NRC. Tracked by ONS NTM 01935875-01. Closed during NRC July 2015 Audit.
2. Max flood level on site 'after modifications'	Completed (Reference E32) Modifications do not impact flooding levels in approved analysis. Tracked by ONS NTM 01935875-02. Closed during NRC July 2015 Audit.
3. Deployment Path Program	Completed for Unit 2 (Reference E37 - U2 Compliance Matrix) Tracked by ONS NTM 01935875-03. On track for Unit 1 and 3 implementation. Closed during NRC July 2015 Audit.
4. Procedures and FSGs	Completed for Unit 2 (Reference E37 - U2 Compliance Matrix) Tracked by ONS NTM 01935875-04. On track for Unit 1 and 3 implementation. Closed during NRC July 2015 Audit.
5. FLEX Equipment Programmatic Control	Completed for Unit 2 Tracked by ONS NTM 01935875-05. On track for Unit 1 and 3 implementation. Closed during NRC July 2015 Audit.

ENCLOSURE: ONS SIXTH SIX-MONTH STATUS REPORT (ORDER EA-12-049) (FLEX)
(Note: The references for this Enclosure are listed in Section 8)

Overall Integrated Plan Open Items	Status
6. Personnel Training	Completed for Unit 2 (Reference E37 - U2 Compliance Matrix) Tracked by ONS NTM 01935875-06. On track for Unit 1 and 3 implementation. Closed during NRC July 2015 Audit.
7. FLEX Basis Document	Completed for Unit 2 (Reference E34) (Reference E37 - U2 Compliance Matrix) Tracked by ONS NTM 01935875-07. On track for Unit 1 and 3 implementation. Closed during NRC July 2015 Audit.
8. Configuration Control	Completed for Unit 2 (Reference E37 - U2 Compliance Matrix) Tracked by ONS NTM 01935875-08. On track for Unit 1 and 3 implementation. Closed during NRC July 2015 Audit.
9. RRC	Completed (Reference E35) Tracked by ONS NTM 01935875-09. Closed during NRC July 2015 Audit.
10. Cooldown Analysis	Initial analyses complete. Additional cases are being incorporated. Tracked by ONS NTM 01935875-10. Closed during NRC July 2015 Audit.
11. ADV Survivability and Accessibility	Completed (Reference E37 - U2 Compliance Matrix) Tracked by ONS NTM 01935875-11. Closed during NRC July 2015 Audit.
12. Load Shed Analysis	Completed (Reference E25, Att. 3) Tracked by ONS NTM 01935875-12. Closed during NRC July 2015 Audit.
13. Hydraulic Analysis for Pump Flow (Intake Canal to SGs)	Completed (Reference E22) Analysis results are acceptable. Tracked by ONS NTM 01935875-13. Closed during NRC July 2015 Audit.
14. Fuel Oil Consumption	Completed (Reference E25, Att. 4) Tracked by ONS NTM 01935875-14. Closed during NRC July 2015 Audit.
15. Hydraulic Analysis for Pump Flow (CTP-1 to SGs)	Completed (Reference E22) Analysis results are acceptable. Tracked by ONS NTM 01935875-15. Closed during NRC July 2015 Audit.
16. Water in embedded CCW lines & Hydraulic Analysis for Pumping Configuration	Completed (Reference E26) Tracked by ONS NTM 01935875-16. Closed during NRC July 2015 Audit.
17. PSW Modification (EC 91877)	Completed Tracked by ONS NTM 01935875-17. Closed during NRC July 2015 Audit.
18. Alternate FLEX Connections Modification (SG Makeup)	Completed (Reference E23) Tracked by ONS NTM 01935875-18. Closed during NRC July 2015 Audit.

Overall Integrated Plan Open Items	Status
19. Breaking Siphons in Embedded CCW Piping	Completed for Unit 2 Tracked by ONS NTM 01935875-19. On track for Unit 1 and 3 implementation. Closed during NRC July 2015 Audit.
20. Instrumentation Repower (Alternate Repower Strategy)	Completed for Unit 2 (Reference E37 - U2 Compliance Matrix) Tracked by ONS NTM 01935875-20. On track for Unit 1 and 3 implementation. Closed during NRC July 2015 Audit.
21. FLEX Equipment Storage	Completed (Reference E36) Tracked by ONS NTM 01935875-21. Closed during NRC July 2015 Audit.
22. Portable Power Distribution (Primary Repower Strategy)	Completed for Unit 2 (Reference E37 - U2 Compliance Matrix) Tracked by ONS NTM 01935875-22. On track for Unit 1 and 3 implementation. Closed during NRC July 2015 Audit.
23. Long term SG and SFP Makeup	Completed (Reference E37 - U2 Compliance Matrix) Tracked by ONS NTM 01935875-23. Closed during NRC July 2015 Audit.
24. Hydrogen Buildup Analysis	Completed (Reference E27: Sect. 3.14 and Att. E) Tracked by ONS NTM 01935875-24. Closed during NRC July 2015 Audit.
25. BWST Tap Analysis and Modification (RCS Makeup)	Completed for Unit 2 (Reference E37 - U2 Compliance Matrix) Tracked by ONS NTM 01935875-25. On track for Unit 1 and 3 implementation. Closed during NRC July 2015 Audit.
26. Containment Analysis	Completed (Reference E37 - U2 Compliance Matrix) Tracked by ONS NTM 01935875-26. Closed during NRC July 2015 Audit.
27. Hydraulic Analysis for Pump Flow (CTP-1 to SFPs & Intake Canal to SFPs)	Completed (Reference E37 - U2 Compliance Matrix) Tracked by ONS NTM 01935875-27. Closed during NRC July 2015 Audit.
28. Robustness of SFP Refill Lines	Completed (References E6 & E7) Validated SFP Refill Lines are installed as QA-1 and are seismically robust. Tracked by ONS NTM 01935875-28. Closed during NRC July 2015 Audit.
29. Lighting Evaluation	Completed (Reference E37 - U2 Compliance Matrix) Tracked by ONS NTM 01935875-29. Closed during NRC July 2015 Audit.
30. Communication Assessment	Completed (Reference E37 - U2 Compliance Matrix) Tracked by ONS NTM 01935875-30. Closed during NRC July 2015 Audit.

Overall Integrated Plan Open Items	Status
31. NEI 12-01 Staffing Study (Reference E24)	Completed (Reference E37 - U2 Compliance Matrix) Tracked by ONS NTM 01935875-31. Closed during NRC July 2015 Audit.
32. HVAC Analysis	Completed (Reference E37 - U2 Compliance Matrix) Tracked by ONS NTM 01935875-32. Closed during NRC July 2015 Audit.

b) Open Items added after February 28th, 2013

Open Items	Status
33. Evaluate changes to the RCSMU FLEX Strategy recommended by independent audit to eliminate the SSF RCMUP repower strategy and implement train specific diesel powered pump strategies (primary and alternate).	Completed (Reference E25 Att. 2) Tracked by ONS NTM 01935875-33. Closed during NRC July 2015 Audit.
34. Evaluate changing the alternate repower FLEX strategy to enhance deployment times by utilizing a small 120 VAC portable diesel generator (approximately 6000 watts) deployed on the Turbine Building deck to provide 120 VAC feeds to connections in the control room and cable room to repower the key instrumentation parameters.	Completed for Unit 2 (Reference E37 - U2 Compliance Matrix) Tracked by ONS NTM 01935875-34. On track for Unit 1 and 3 implementation. Closed during NRC July 2015 Audit.
35. Validate the 10' assumed inundation level discussed in the OIP [Assumption #8] is still conservative with respect to the Defense in Depth Modifications analyzed in OIP Reference 48 (which used a slightly modified model run) and the credited CAL model run in OIP reference 14.	This item superseded by Open Item 40 Tracked by ONS NTM 01935875-35. Closed during NRC July 2015 Audit.
36. Perform raw water fouling analysis for core cooling and heat removal.	Completed (Reference E37 - U2 Compliance Matrix) Tracked by ONS NTM 01935875-36. Closed during NRC July 2015 Audit.
37. Evaluate freeze protection requirements in areas of the plant that contain equipment used in FLEX strategies.	Completed (Reference E37 - U2 Compliance Matrix) Tracked by ONS NTM 01935875-37. Closed during NRC July 2015 Audit.
38. Evaluate and establish a technical basis for use of non-safety related, installed equipment credited for mitigating an ELAP event.	Completed (Reference E37 - U2 Compliance Matrix) Tracked by ONS NTM 01935875-38. Closed during NRC July 2015 Audit.
39. FLEX Strategy for Shutdown Modes: Determine what mods, procedures, equipment, etc. is needed to support a Shutdown Modes FLEX Strategy.	Completed for Unit 2 (Reference E37 - U2 Compliance Matrix) Tracked by ONS NTM 01935875-39. On track for Units 1 and 3 implementation. Closed during NRC July 2015 Audit.
40. Clarification of Applicable External Flooding Hazard at ONS.	Completed (Reference E37 - U2 Compliance Matrix) Tracked by ONS NTM 01935875-40. Closed during NRC July 2015 Audit.

c) Interim Staff Evaluation (ISE)

ISE Open Items	Status
1. Provide a description and justification for the specific evaluation model(s) used in the ELAP analyses for Oconee (ISE Open Item # 3.2.1.1.A).	Open (Reference E31 - U2 Compliance Letter) Tracked by ONS NTM 01938086-02.
2. The licensee should either (1) develop a successful mitigating strategy that does not rely on repowering the SSF RCMU pumps following recession of floodwaters or (2) provide adequate justification that the SSF RCMU pumps can reliably be repowered following recession of floodwaters (ISE Open Item # 3.2.1.6.A).	Completed (Reference E25 Att. 2) Closed during NRC July 2015 Audit.
3. Provide adequate basis that nitrogen from the core flood tanks will not be injected into the reactor coolant system (ISE Open Item # 3.2.1.6.B).	Completed (Reference E37 - U2 Compliance Matrix) Closed during NRC July 2015 Audit.
4. When further analyses are completed, the licensee should provide additional information that either supports a conclusion that pressurizer relief or safety valves do not lift during the ELAP event or that lifting of the valve(s), if it occurs, is acceptable (ISE Open Item # 3.2.1.6.C).	Open (Reference E31 - U2 Compliance Letter) Tracked by ONS NTM 01938086-03.
5. Provide additional information demonstrating successful mitigation of an ELAP event involving an uncontrolled cooldown resulting from consequential damage to the main steam system due to the severe natural hazard that initiates the ELAP event (ISE Open Item # 3.2.1.6.D).	Open (Reference E31 - U2 Compliance Letter) Tracked by ONS NTM 01938086-04.
6. Demonstrate that Oconee's approach for modeling boric acid mixing is consistent with a generically acceptable methodology or develop a plant-specific technical basis to support the modeling assumptions for boric acid mixing in the ELAP analysis for Oconee (ISE Open Item # 3.2.1.8.B).	Completed (Reference E37 - U2 Compliance Matrix) Closed during NRC July 2015 Audit.

ISE Confirmatory Items	Status
1. Confirm that ONS's final FLEX equipment deployment routes include adequate consideration of potential soil liquefaction or other conditions that could impede movement following a severe seismic or other BOB event (Confirmatory Item # 3.1.1.2.A).	Completed (Reference E37 - U2 Compliance Matrix) Closed during NRC July 2015 Audit.
2. Confirm that the licensee's reference source providing guidance for operators to obtain instrument readings under ELAP conditions adequately addresses the considerations in NEI 12-06, Section 5.3.3, consideration (1) (Confirmatory Item # 3.1.1.3.A).	Completed (Reference E37 - U2 Compliance Matrix) Closed during NRC July 2015 Audit.
3. Confirm that the details for delivery and staging of off-site resources in the licensee's RRC playbook developed by the SAFER team and the utility are acceptable for all BDBEEs (Confirmatory Item # 3.1.1.4.A).	Completed (Reference E37 - U2 Compliance Matrix) Closed during NRC July 2015 Audit.
4. To show conformity with NEI 12-06, Section 6.2.3.2, consideration 2, confirm that persistent, prohibitive flooding levels will not occur at the ONS site (Confirmatory Item # 3.1.2.2.A).	Completed (Reference E37 - U2 Compliance Matrix) Closed during NRC July 2015 Audit.

ISE Confirmatory Items	Status
5. Confirm that the final ELAP computer code analyses for core cooling, reactor coolant system inventory, shutdown margin, and containment integrity have acceptable methodology and assumptions and support the sequence of events timeline (Confirmatory Item # 3.2.1.1.B).	Open (Reference E31 - U2 Compliance Letter) Tracked by ONS NTM 01938086-05.
6. Reliance on the RELAP5/MOD2- Babcock & Wilcox (B&W) and RETRAN-30 codes in the ELAP analysis for B&W plants should be limited at the present time to the flow conditions prior to boiler-condenser cooling initiation. Confirm that the code is not used outside this range (Confirmatory Item # 3.2.1.1.C).	Completed (Reference E37 - U2 Compliance Matrix) Closed during NRC July 2015 Audit.
7. Confirm the means of isolating RCP seal return and RCS letdown in accordance with the Jocassee dam break procedure and the associated timeframe (Confirmatory Item # 3.2.1.2.A).	Completed (Reference E37 - U2 Compliance Matrix) Closed during NRC July 2015 Audit.
8. Confirm that RCP seal temperature would be maintained at an acceptably low value by establishing injection flow to the RCP seals via the SSF RCMU pump within 20 minutes of event initiation (Confirmatory Item # 3.2.1.2.B).	Open (Reference E31 - U2 Compliance Letter) Tracked by ONS NTM 01938086-06.
9. Confirm there is justification for the assumed seal leakage rates for the Bingham RCPs with Sulzer seal assemblies (Confirmatory Item # 3.2.1.2.C).	Open (Reference E31 - U2 Compliance Letter) Tracked by ONS NTM 01938086-07.
10. Confirm there is justification for the assumed seal leakage rates for the Westinghouse 93-A RCPs with Flowserve N-9000 seals with the Abeyance feature (Confirmatory Item # 3.2.1.2.D).	Open (Reference E31 - U2 Compliance Letter) Tracked by ONS NTM 01938086-08.
11. Confirm that steam generator pressure indication will be available to support the cooldown directed by the ELAP mitigating strategy, or provide adequate basis that such indication is unnecessary even at average reactor coolant temperatures below 525 degrees Fahrenheit (Confirmatory Item # 3.2.1.5.A).	Completed (Reference E37 - U2 Compliance Matrix) Closed during NRC July 2015 Audit.
12. Confirm that the final containment analysis (open item 26) demonstrates that there will be no impact on the credited instrumentation (Confirmatory Item # 3.2.1.5.B).	Completed (Reference E37 - U2 Compliance Matrix) Closed during NRC July 2015 Audit.
13. When evaluations are completed, confirm that the survivability and performance of the atmospheric dump valves is adequate to support ONS's mitigation strategy (Confirmatory Item # 3.2.1.6.E).	Open (Reference E31 - U2 Compliance Letter) Tracked by ONS NTM 01938086-09.
14. Confirm that the analysis to determine Oconee's boration requirements in Phase 2 of the mitigating strategy provides acceptable results (Confirmatory Item # 3.2.1.8.A).	Completed (Reference E37 - U2 Compliance Matrix) Closed during NRC July 2015 Audit.
15. Confirm that the BWST design provides tornado missile protection to ensure a source of borated water (Confirmatory Item # 3.2.1.8.C).	Completed (Reference E37 - U2 Compliance Matrix) Closed during NRC July 2015 Audit.
16. Confirm the portable pump capability requirements and fuel requirements to implement Phase 2 and Phase 3 strategies (Confirmatory Item # 3.2.1.9.A).	Completed (Reference E37 - U2 Compliance Matrix) Closed during NRC July 2015 Audit.

ISE Confirmatory Items	Status
17. Confirm acceptability of the SFP cooling strategy when it is completed (Confirmatory Item # 3.2.2.A).	Completed (Reference E37 - U2 Compliance Matrix) Closed during NRC July 2015 Audit.
18. Confirm that the results of the licensee's containment analysis beyond 72 hours are acceptable (ONS open item 26) (Confirmatory Item # 3.2.3.A).	Completed (Reference E37 - U2 Compliance Matrix) Closed during NRC July 2015 Audit.
19. Confirm using the analysis of hydrogen buildup (open item 24), that there will be no impact on the Phase 2 ventilation strategies (Confirmatory Item # 3.2.4.2.A).	Completed (Reference E37 - U2 Compliance Matrix) Closed during NRC July 2015 Audit.
20. Confirm that the results of ONS's evaluation of building and area temperatures (licensee-identified open item 32), are acceptable to support the licensee's proposed ELAP mitigation strategies (Confirmatory Item # 3.2.4.2.B).	Completed (Reference E37 - U2 Compliance Matrix) Closed during NRC July 2015 Audit.
21. Confirm that the licensee's evaluation of freeze protection (ONS open item 37) is acceptable (Confirmatory Item # 3.2.4.3.A).	Completed (Reference E37 - U2 Compliance Matrix) Closed during NRC July 2015 Audit.
22. Confirm that the licensee's analysis of lighting (open item 29) is acceptable (Confirmatory Item # 3.2.4.4.A).	Completed (Reference E37 - U2 Compliance Matrix) Closed during NRC July 2015 Audit.
23. Confirm that upgrades to the site's communications systems have been completed (Confirmatory Item # 3.2.4.4.B).	Completed (Reference E37 - U2 Compliance Matrix) Closed during NRC July 2015 Audit.
24. Confirm that ONS's FLEX strategies with regard to protected and internal locked area access are acceptable (Confirmatory Item # 3.2.4.5.A).	Completed (Reference E37 - U2 Compliance Matrix) Closed during NRC July 2015 Audit.
25. Confirm that the use of non-safety related installed equipment (licensee's open item 38) is acceptable (Confirmatory Item # 3.2.4.7.A).	Completed (Reference E37 - U2 Compliance Matrix) Closed during NRC July 2015 Audit.
26. Confirm that the licensee's strategy for providing chemical treatment pond make up water at a rate of 700,000 gallons per day following a flooding event is acceptable. This is ONS Open Item 23 in the Integrated Plan (Confirmatory Item # 3.2.4.7.B).	Completed (Reference E37 - U2 Compliance Matrix) Closed during NRC July 2015 Audit.
27. Confirm that ONS's processes and procedures to prevent inappropriate interactions of portable electrical power sources with permanent plant equipment (ONS's open item 4) conforms to the guidance in NEI 12-06, Section 3.2.2, Guideline (13), or provides an acceptable alternative to that guidance (Confirmatory Item # 3.2.4.8.A).	Completed (Reference E37 - U2 Compliance Matrix) Closed during NRC July 2015 Audit.
28. Confirm that the licensee's FLEX generator sizing calculations/analysis and single line diagrams showing proposed connections of FLEX electrical equipment are acceptable (Confirmatory Item # 3.2.4.8.B).	Completed (Reference E37 - U2 Compliance Matrix) Closed during NRC July 2015 Audit.
29. Confirm that the licensee's fuel oil consumption analysis (licensee's open item 14) is acceptable (Confirmatory Item # 3.2.4.9.A).	Completed (Reference E25, Att. 4) Closed during NRC July 2015 Audit.

ISE Confirmatory Items	Status
30. Confirm the licensee has considered the coordination of SSF and portable equipment during a "T=0" event, explaining what criteria will be used to determine when to switch from use of the SSF to use of portable equipment and to explain whether the SSF can be used beyond 72 hours (Confirmatory Item # 3.2.4.9.B).	Completed (Reference E25, Att. 1) Closed during NRC July 2015 Audit.
31. Confirm that the licensee's analyses on load shedding (licensee's open item 12), and summaries of battery sizing calculations for both seismic and flooding scenarios of ELAP are acceptable (Confirmatory Item # 3.2.4.10.A).	Completed (Reference E25 Att. 3) Closed during NRC July 2015 Audit.
32. Confirm that the licensee's implementation of maintenance and testing guidance for FLEX equipment is acceptable (Confirmatory Item # 3.3.1.A).	Completed (Reference E37 - U2 Compliance Matrix) Closed during NRC July 2015 Audit.
33. Offsite Resources - Confirm NEI 12-06 Section 12.2, Guidelines 2 through 10, are addressed with SAFER (Confirmatory Item # 3.4.A).	Completed (Reference E37 - U2 Compliance Matrix) Closed during NRC July 2015 Audit.

d) Generic Concerns

The following summarizes ONS's review of six generic issues:

i. **Electric Power Research Institute (EPRI) Report 3002001785, *Use of Modular Accident Analysis Program (MAAP) in Support of Post-Fukushima Applications* and NRC endorsement (Reference E8 & Reference E17).**

- The Oconee mitigating strategy is evaluated using RELAP5 and RETRAN for the NSSS response, and FATHOMS and GOTHIC for the containment response.

ii. **Electric Power Research Institute (EPRI) Report 3002000623, Nuclear Maintenance Applications Center: Preventive Maintenance Basis for FLEX Equipment and NRC endorsement (Reference E9 & Reference E10).**

- ONS intends to follow EPRI Report 30002000623 in the development of maintenance and testing programs for equipment acquired in response to Mitigation Strategies Order EA-12-049 unless otherwise justified.

iii. **Westinghouse report, Westinghouse Response to NRC Generic Request for Additional Information (RAI) on CENTS Code in Support of the Pressurized Water reactor Owners Group (PWROG) and NRC endorsement (Reference E11 & Reference E12).**

- The Oconee mitigating strategy is evaluated using RELAP5 and RETRAN for the NSSS response, and FATHOMS and GOTHIC for the containment response.

iv. **Nuclear Energy Institute (NEI) position paper, Position Paper: Shutdown/Refueling Modes and NRC endorsement (Reference E13 & Reference E14).**

- It is Oconee's intent to abide by the NEI position paper for shutdown and refueling modes.

v. **Nuclear Energy Institute (NEI) white paper, Battery Life Issue and NRC endorsement (Reference E15 & Reference E16).**

- The SSF has a design basis mission time of 72 hours. ONS plans to utilize the SSF as long as it remains operational. After an ELAP is determined, ONS will utilize the SSF in a dual loop feed to cooldown to 240-250 degrees. ONS will simultaneously deploy Phase 2 equipment during this timeframe utilizing the priority established from our thermal-hydraulic analysis. All instrument readings required to support the ELAP cool down are available in the SSF during this Phase 1 time period. This will allow time to deploy the primary repower strategy to repower the vital battery chargers and associated busses without performing additional load shedding. This approach eliminates resources required to perform additional load shedding activities on all 3 units in the T+2, to T+3 hour timeframe in which many critical activities are underway and eliminates potential unanticipated interactions created by load shed activities. Based on the above, the station vital batteries will be available for approximately 4 hours after loss of power.

vi. **Westinghouse position paper, Westinghouse Response to NRC Generic Request for Additional information (RAI) on Boron Mixing in support of the Pressurizer Water Reactor Owners Group (PWROG) and NRC endorsement (References E20 & E21).**

- Oconee Nuclear Station will address this generic issue in the ISE Open Item # 3.2.1.8.B.

7) Potential Interim Staff Evaluation Impacts

Changes to the NRC Phone Audit Questions, OIP Open Items, and ISE Open/Confirmatory Items were dispositioned during the July 2015 NRC Onsite Audit. No other changes have the potential to impact the ISE.

8) References

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

E1. 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 (Accession No. ML12054A735).

E2. NRC Interim Staff Guidance JLD-ISG-2012-01, *Compliance with Order EA-2-049, Order Modifying Licenses with Regard to Requirements for Mitigation strategies for Beyond-Design-Basis External Events*, dated August 29, 2012 (Accession No. ML12229A174).

E3. NEI 12-06, Revision 0, *Diverse and Flexible Coping Strategies (FLEX) Implementation Guide,* dated August 2012 (Accession No. ML12242A378).

E4. Duke Energy Letter, *Oconee Nuclear Station, Units 1 ,2 and 3 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 28th, 2013 (Accession No. ML13063A065).

E5. Duke Energy Letter, *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 29, 2013 (Accession No. ML13246A009).

E6. Flow Diagram - Unit 1 & 2 Spent Fuel Cooling System (104A-1.1, Revision 53).

E7. Flow Diagram - Unit 3 Spent Fuel Cooling System (104A-3.1, Revision 48).

E8. EPRI Report 3002001785, *Use of Modular Accident Analysis Program (MAAP) in Support of Post-Fukushima Applications*, dated June 2013 (Accession No. ML13190A201).

E9. EPRI Report 3002000623, *Nuclear Maintenance Applications Center: Preventive Maintenance Basis for FLEX Equipment*, dated September 2013 (Accession No. ML13276A573).

E10. NRC letter from Jack R. Davis, Director Mitigating Strategies Directorate (NRR), to Nuclear Energy Institute, Mr. Joseph E. Pollock Vice President Nuclear Operations, dated October 7, 2013 (Accession No. ML13276A224).

E11. Westinghouse Report, *Westinghouse Response to NRC Generic Request for Additional Information (RAI) on CENTS Code in Support of the Pressurized Water reactor Owners Group (PWROG)*, dated September 25, 2013 (Withheld from public disclosure).

E12. NRC letter from Jack R. Davis, Director Mitigating Strategies Directorate (NRR), to Jack Stringfellow, PWR Owners Group, Program Management - Westinghouse, dated October 7, 2013 (Accession No. ML13276A555).

E13. NEI Position Paper, *Shutdown/Refueling Modes*, dated September 18, 2013 (Accession No. ML13273A514).

E14. NRC letter from Jack R. Davis, Director Mitigating Strategies Directorate (NRR), to Nuclear Energy Institute, Mr. Joseph E. Pollock, Vice President Nuclear Operations, dated September 30, 2013 (Accession No. ML13267A382).

E15. NEI White Paper, *Battery Life Issues,* dated August 21, 2013 (Accession No. ML13241A186).

E16. NRC letter from Jack R. Davis, Director Mitigating Strategies Directorate (NRR), to Nuclear Energy Institute, Mr. Joseph E. Pollock, Vice President Nuclear Operations, dated September 16, 2013 (Accession No. ML13241A188).

E17. NRC letter from Jack R. Davis, Director Mitigating Strategies Directorate (NRR), to Nuclear Energy Institute, Mr. Joseph E. Pollock, Vice President Nuclear Operations, dated October 3, 2013 (Accession No. ML13275A318).

E18. Duke Energy Letter, *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 (Accession No. ML14064A197).

E19. NRC letter from Jeremy S. Bowen, Mitigating Strategies Directorate (NRR), Mr. Scott Batson, Site Vice President Oconee Nuclear Station, dated February 10, 2014 (Accession No. ML 13365A258).

E20. Westinghouse Position Paper, *Westinghouse Response to NRC Generic Request for Additional Information (RAI) on Boron Mixing in support of the Pressurizer Water Reactor Owners Group (PWROG)*, dated August 16, 2013 (Accession No. ML13235A135).

E21. NRC letter from Jack R. Davis, Director Mitigating Strategies Directorate (NRR), to Jack Stringfellow, PWR Owners Group, Program Management - Westinghouse, dated January 8, 2014 (Accession No. ML13276A183).

E22. ONS Hydraulic Analysis Calculation - 11232.

E23. ONS Engineering Change Document - 113065.

E24. NEI 12-01, Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities, Revision 0, May 2012 (Accession No. ML12125A412).

E25. ONS Select Fukushima Related Technical Evaluations, Analyses, and Position Papers Calculation -11383.

E26. ONS FLEX Strategy Intermediate Cooling Hydraulic Calculation -11329.

E27. ONS Auxiliary Building GOTHIC Heat-Up Analysis - ELAP Event Cases - 11253.

E28. Duke Energy Letter, *Third Six-Month Status Report in Response to March 12, 2012, Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049),* dated August 27, 2014 (Accession No. ML14245A019).

E29. Duke Energy Letter, *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 (Accession No. ML 15063A027).

E30. Duke Energy Letter, *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 26, 2015 (Accession No. ML15247A069).

E31. Duke Energy Letter, *Notification of Compliance with Order EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond Design Basis External Events for Oconee Nuclear Station, Unit 2* (Accession No. ML16028A194).

E32. ONS Station Calculation - 10865 Revision 1.

E33. NRC letter from Juan F. Uribe, Hazards Management Branch Japan Lessons-Learned Division Project Manager, to Mr. Scott Batson, Site Vice President Oconee Nuclear Station, dated September 24, 2015 (Accession No. ML 15239B261).

E34. CSD-EG-ONS-1619.1000 *Diverse and Flexible Coping Strategies (FLEX) Program Document - Oconee Nuclear Station*, Revision 0.

E35. CSD-EG-ONS-1619.1001 *SAFER Response Plan for Oconee Nuclear Station*, Revision 1.

E36. ONS Engineering Change Document - 112453.

E37. CSD-EG-ONS-1619.1003 *Compliance Matrices for NRC Orders EA-12-049 and EA-12-051 (Place Holder).*