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U.S. Nuclear Regulatory Commission
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Brunswick Steam Electric Plant, Unit Nos. 1 and 2
Docket Nos. 50-325 and 50-324
Renewed License Nos. DPR-71 and DPR-62

Subject: 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)

References:

1. NRC Order Number EA-12-049, *Issuance of Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events*, dated March 12, 2012, ADAMS Accession Number ML12054A735
2. NRC Interim Staff Guidance JLD-ISG-2012-01, *Compliance with Order EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events*, Revision 0, dated August 29, 2012, ADAMS Accession Number ML12229A174
3. NEI 12-06, *Diverse and Flexible Coping Strategies (FLEX) Implementation Guide*, Revision 0, dated August 2012, ADAMS Accession Number ML12242A378
4. CP&L and FPC to NRC, *Carolina Power & Light Company and Florida Power Corporation's Initial Status Report in Response to March 12, 2012, Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049)*, dated October 29, 2012, ADAMS Accession Number ML12307A021
5. CP&L to NRC, *Overall Integrated Plan in Response to March 12, 2012, Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049)*, dated February 28, 2013, ADAMS Accession Number ML13071A559
6. NRC Order Number EA-13-109, *Issuance of Order to Modify Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions*, dated June 6, 2013, ADAMS Accession Number ML13143A321

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Ladies and Gentlemen,

On March 12, 2012, the U.S. Nuclear Regulatory Commission (NRC) issued Order EA-12-049 (i.e., Reference 1) to Duke Energy Progress, Inc., formerly known as Carolina Power & Light Company (CP&L). Reference 1 was immediately effective and directs Duke Energy to develop, implement, and maintain guidance and strategies to maintain or restore core cooling, containment, and spent fuel pool cooling capabilities in the event of a beyond-design-basis external event. Specific requirements are outlined in Attachment 2 of Reference 1.

Reference 1 required submission of an initial status report 60 days following issuance of the final interim staff guidance (i.e., Reference 2) and an overall integrated plan pursuant to Section IV, Condition C. Reference 2 endorses industry guidance document NEI 12-06, Revision 0 (i.e., Reference 3) with clarifications and exceptions identified in Reference 2. Reference 4 included the Duke Energy initial status report regarding mitigation strategies at the Brunswick Steam Electric Plant (BSEP). Reference 5 provided the Overall Integrated Plan (OIP) for BSEP, Unit Nos. 1 and 2.

Reference 1 requires submission of a status report at six-month intervals following submittal of the OIP. Reference 3 provides direction regarding the content of the status reports. The purpose of this letter is to provide the first 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.

NRC Order EA-13-109 (i.e. Reference 6) results in an impact to the overall strategy of the Hardened Containment Vent System and, as a result, changes to the FLEX strategy for containment control will be incorporated into the OIP. BSEP will adopt the Boiling Water Reactor Owners' Group (BWROG) Emergency Procedures and Severe Accident Guidelines (EPG/SAGs), Revision 3, associated with allowable venting practices.

This letter contains no new regulatory commitments.

If you have any questions or require additional information, please contact Mr. Leonard Beller, Site Fukushima Response Manager, BSEP, at (910) 454-7844.

I declare, under penalty of perjury, that the foregoing is true and correct. Executed on August 20, 2013.

Sincerely,



George T. Hamrick

Enclosure:

First Six-Month Status Report (Order EA-12-049), Brunswick Steam Electric Plant (BSEP), Unit Nos. 1 and 2, Docket Nos. 50-325 and 50-324, Renewed License Nos. DPR-71 and DPR-62

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ENCLOSURE

FIRST SIX MONTH STATUS REPORT (ORDER EA-12-049)

BRUNSWICK STEAM ELECTRIC PLANT (BSEP), UNIT NOS. 1 AND 2

DOCKET NOS. 50-325 AND 50-324

RENEWED LICENSE NOS. DPR-71 AND DPR-62

**ENCLOSURE
BSEP FIRST SIX MONTH STATUS REPORT (ORDER EA-12-049)**

1 Introduction

Brunswick Steam Electric Plant (BSEP) developed an Overall Integrated Plan (OIP) (i.e., Reference 1 of this enclosure), documenting the diverse and flexible strategies (FLEX), in response to NRC Order EA-12-049 (i.e., Reference 2 of this enclosure). The OIP was submitted to the NRC on February 28, 2013. This enclosure provides an update of milestone accomplishments including any changes to the compliance method, schedule, or need for relief/relaxation and the basis, if any, that occurred during the period between February 28, 2013, and July 30, 2013, hereafter referred to as "the update period."

2 Milestone Accomplishments

The following milestones were completed during the update period:

- Completed and submitted Phase 1 Staffing Analysis in accordance with Recommendation 9.3 of the Near Term Task Force (NTTF)

Note: Phase 2 Staffing Analysis will be tracked via Recommendation 9.3 of the NTTF

3 Milestone Schedule Status

The following provides an update to Attachment 2 of the OIP. It provides the activity status of each item, and whether the expected completion date has changed. The dates are subject to change as design and implementation details are developed.

Two new milestones were added for Walk-through and/or simulations of FLEX Phase 2 and Phase 3 Implementation Guides.

The revised milestone target completion dates are not expected to impact the Order implementation date.

Milestone	Target Completion Date	Activity Status	Revised Target Completion Date
Submit 60 Day Status Report	10/29/12	Complete	Date Not Revised
Submit Overall Integrated Implementation Plan	2/28/13	Complete	Date Not Revised
Submit 6 Month Status Report	8/30/13	Started	Date Not Revised
Perform Staffing Analysis Phase 1 of NEI 12-01	11/29/13	Complete	Date Not Revised
Submit 6 Month Status Report	2/28/14	Not Started	Date Not Revised
Develop Unit 2 Modification Engineering Change (EC) Packages, including Storage Facility	3/27/14	Started	Date Not Revised

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Milestone	Target Completion Date	Activity Status	Revised Target Completion Date
Perform station-specific analysis following generic BWROG FLEX implementation analysis review (Open Item 19)	3/30/14	Started	Date Not Revised
Develop Strategies/Contract with Regional Response Center (RRC)	4/1/2014	Started	Date Not Revised
Submit 6 Month Status Report	8/29/14	Not Started	Date Not Revised
SAT Process for Training (Unit 2)	01/27/14	Started	Date Not Revised
SAT Process for Training (Unit 1)	01/26/15	Not Started	Date Not Revised
Develop Training Plan (Unit 2)	07/27/14	Started	Date Not Revised
Develop Training Plan (Unit 1)	07/26/15	Not Started	Date Not Revised
Procure Equipment (Unit 2)	11/27/14	Started	Date Not Revised
Procure Equipment (Unit 1)	11/26/15	Started	Date Not Revised
Procure Additional FLEX Equipment (Unit 2)	11/27/14	Not Started	Date Not Revised
Procure Additional FLEX Equipment (Unit 1)	11/26/15	Not Started	Date Not Revised
Create Maintenance Procedures (Unit 2)	01/27/15	Not Started	Date Not Revised
Create Maintenance Procedures (Unit 1)	01/26/16	Not Started	Date Not Revised
Procedure Changes incorporating response strategies (Unit 2)	01/27/15	Not Started	Date Not Revised
Procedure Changes incorporating response strategies (Unit 1)	01/26/16	Not Started	Date Not Revised
Implement Training (Unit 2)	02/27/15	Started	Date Not Revised
Implement Training (Unit 1)	02/26/16	Not Started	Date Not Revised
Submit 6 Month Status Report	2/27/15	Not Started	Date Not Revised
Unit 2 Implementation Outage	March 2015	Not Started	Date Not Revised
Develop Unit 1 Modification EC Packages	3/26/15	Not Started	Date Not Revised
Submit 6 Month Status Report	8/31/15	Not Started	Date Not Revised

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Milestone	Target Completion Date	Activity Status	Revised Target Completion Date
Implement Modifications (Unit 2)	April 2015	Not Started	Date Not Revised
Implement Modifications (Unit 1)	April 2016	Not Started	Date Not Revised
Submit 6 Month Status Report	2/29/16	Not Started	Date Not Revised
Unit 1 Implementation Outage	March 2016	Not Started	Date Not Revised
Submit Completion Report (Unit 2)	April 2015	Not Started	Date Not Revised
Submit Completion Report (Unit 1)	April 2016	Not Started	Date Not Revised
Submit 6 Month Status Report	8/31/16	Not Started	Date Not Revised

4 Changes to Compliance Method

The following summarizes changes to strategies as documented in the OIP (i.e., Reference 1). These changes do not impact BSEP's compliance with NEI 12-06.

- 1) **Change:** The OIP identified modifications to support implementation of NRC Order EA-12-050 (i.e., Reference 3 of this enclosure) in conjunction with the sites FLEX response. However, NRC Order EA-13-109 (i.e., Reference 4 of this enclosure) results in an impact to the overall strategy of the Hardened Containment Vent System and, as a result; changes to the FLEX strategy for Containment Control will be incorporated into the OIP. BSEP will adopt the Boiling Water Reactor Owners' Group (BWROG) Emergency Procedures and Severe Accident Guidelines (EPG/SAGs), Revision 3, associated with allowable venting practices. The scope of modifications, required to satisfy EA-13-109, has not been adequately evaluated, therefore, BSEP will utilize strategies as described in the B.5.b guidance to facilitate manual wetwell venting when required.

Justification: NRC Order EA-13-109 has superseded NRC Order EA-12-050. This order changes the time line requirements associated with full implementation of the Hardened Containment Vent System. A description of updated methodologies and processes will be incorporated into the responses to EA-13-109 and the plants will be modified for these processes in accordance with the requirements of EA-13-109.

Documentation: Closed/Deleted Open Item 13. New Open Item 20 added to track a new modification/process to facilitate the venting practices.

- 2) **Change:** The OIP identified a modification to establish crosstie capabilities between Unit 1 and Unit 2 High Pressure Coolant Injection/Reactor Core Isolation Cooling (HPCI/RCIC) suction supply lines due to the potential for a stack failure impacting the Unit 2 Condensate Storage Tank (CST). An evaluation (i.e., Reference 6 of this enclosure) of tornado impacts to the plant stack was completed, resulting in the determination that the

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stack will not fail during tornado conditions. Based on this evaluation, the crosstie between the Unit 1 and Unit 2 HPCI/RCIC suction piping is no longer required. This crosstie was discussed in the Core Cooling section of the Overall Integrated Plan but was not identified as the primary or the alternate Core Cooling Phase 2 response.

Justification: The evaluation was completed which determined the stack will not fail as a result of the wind force associated with a design basis tornado.

Documentation: This item is closed with no additional tracking required. (Calculation 2MSS-0011)

- 3) Change: The OIP identified the Clean Water Storage Tank (CWST) (i.e., Reference 5 of this enclosure) would be located on the North East side of the plant. The new location for the CWST will be on the South East side of the plant. The location will be outside of the Protected Area but inside of the Owner Controlled Area. The design of this modification is still in progress with soil evaluations currently being conducted. Provided no additional barriers are discovered, the South East side of the plant will be the location of the CWST.

Justification: Relocation was required due to impacts with Security Measures and available space which were discovered during the initial modification preparation activities.

Documentation: Open Item 9 will track completion of this item.

- 4) Change: The OIP identified hose deployment paths based on the initially proposed location of the CWST. These hose routes will be changed due to the relocation of the CWST. The final deployment paths will be provided in a later submittal.

Justification: Relocation of the CWST requires changes to the deployment paths that were identified in the OIP, Attachment 3, Conceptual Sketches.

Documentation: Open Item 9 will track completion of this item and Open Item 1 will track demonstration of deployment path acceptability.

- 5) Change: The OIP did not address long term makeup capability for the CWST. Initial plans included the utilization of the RRC equipment to provide this capability. After additional discussions and evaluations it has been determined that a local process for long term makeup is more appropriate.

Justification: Long term makeup to the CWST will be better suited by having a local response/process established at BSEP.

Documentation: New Open Item 21 will track completion of this item.

- 6) Change: The OIP did not address the need to develop guidance for obtaining local vital indications during an Extended Loss of Alternating Current Power (ELAP). FLEX strategies are designed to maintain DC power and thereby prevent the need to obtain local vital indications of this nature.

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Justification: After additional discussions and evaluations, it has been determined that a local process will further support BSEPs FLEX response.

Documentation: New Open Item 22 will track completion of this item.

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

BSEP expects to comply with the order implementation date and no relief/relaxation is required at this time.

6 Open Items

The following Table provides a summary status of the Open Items. The table under Section 6.a. provides the open items identified in the original OIP submitted on February 28, 2013. The table under Section 6.b. provides a list of open items that were added after February 28, 2013. The table under 6.c. provides a list of open items related to the Draft Safety Evaluation.

a. Open Items Documented in the Overall Integrated Plan.

Overall Integrated Plan Open Item	Status
1) Perform a formal validation of FLEX deployment, connection, and action timelines after the procedural guidance is developed and related staffing study is completed.	Not Started
2) Implement programmatic controls.	Not Started
3) Develop plant equipment control guidelines, in accordance with NEI 12-06 Section 11.5, to manage the unavailability of equipment and applicable connections that directly perform a FLEX mitigation strategy.	Not Started
4) Establish programs and process to assure personnel proficiency in the mitigation of beyond-design-basis events is developed and maintained in accordance with NEI 12-06 Section 11.6.	Started
5) Maintain FLEX strategies in overall FLEX basis documents.	Started

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6) Modify existing plant configuration control procedures to ensure that changes to the plant design, physical plant layouts, roads, buildings, and miscellaneous structures will not adversely impact the approved FLEX strategies in accordance with NEI 12-06 Section 11.8.	Not Started
7) Complete applicable training prior to the implementation of FLEX.	Started
8) Complete construction of FLEX Equipment Storage Building prior to the implementation of FLEX.	Started
9) Develop BSEP procedures and programs to address storage structure requirements, deployment path requirements, and FLEX equipment requirements relative to the hazards applicable to BSEP.	Started
10) Design FLEX equipment connection points (e.g. mechanical, pneumatic, and electrical) to withstand the applicable external hazards.	Started
11) Perform study to validate Suppression Pool temperatures exceeding 220°F.	Started
12) Develop site specific procedures or guidelines, utilizing the industry developed guidance from the Owners' Groups, EPRI, and NEI Task team, to address the criteria in NEI 12-06.	Started
13) Modify the current HCVS in accordance with NRC Order EA-12-050, <i>Issuance of Order to Modify Licenses with Regard to Reliable Hardened Containment Vents.</i>	Delete/ Superseded by EA-13-109 and will be tracked by EA-13-109 Response
14) Complete SFP level instrumentation modifications per NRC Order EA 12-051, <i>Issuance of Order to Modify Licenses With Regard to Reliable Spent Fuel Pool Instrumentation.</i>	Started
15) Developed deep load-shedding procedures to extend coping time for station batteries.	Not Started
16) Modify procedures such that operator manual actions, in areas where habitability is a concern, occur early in the FLEX timeline, to the extent practical.	Not Started

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17) Revise procedures to open Reactor Building doors to provide a natural air circulation path.	Not Started
18) Provide transportation equipment to move large skids/trailer-mounted equipment provided from off- site.	Not Started
19) Review generic BWROG analysis of FLEX implementation and perform station-specific analysis (NEDC 33771P, Revision 1)	Started

b. Open Items added after February 28, 2013

Overall Integrated Plan Open Item	Status
20) Develop a process/methodology to rupture the Wetwell Vent Disc with Containment pressure below 55 psi.	Not Started
21) Develop a process/methodology to provide Clean Water Makeup to the CWST during Phase 3 response.	Not Started
22) Develop guidance for obtaining local vital indications during a loss of DC in conjunction with an ELAP. This strategy will be available for appropriate plant personnel use in response to these failures.	Not Started

c. Open items related to the Draft Safety Evaluation.

Draft Safety Evaluation Open Item	Status
None	Draft Safety Evaluation has not been provided by the NRC.

7 Potential Draft Safety Evaluation Impacts

There are no potential impacts to the Draft Safety Evaluation identified at this time.

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8 References

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

- 1) CP&L to NRC, *Overall Integrated Plan in Response to March 12, 2012, Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049)*, dated February 28, 2013, ADAMS Accession Number ML13071A559
- 2) NRC Order Number EA-12-049, *Issuance of Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events*, dated March 12, 2012, ADAMS Accession Number ML12054A735
- 3) NRC Order Number EA-12-050, *Issuance of Order to Modify Licenses with Regard to Reliable Hardened Containment Vents*, dated March 12, 2012, ADAMS Accession Number ML12054A694
- 4) NRC Order Number EA-13-109, *Issuance of Order to Modify Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions*, dated June 6, 2013, ADAMS Accession Number ML13143A321
- 5) Clean Water Storage Tank (CWST) plant modification, engineering change (EC) 90394, Install an adequately sized CWST
- 6) Stack Calculation 2MSS-0011, Evaluation of the Plant Stack for Tornado Wind Forces.