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10CFR50.4

August 27, 2013
Serial: HNP-13-080

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

Shearon Harris Nuclear Power Plant, Unit 1
Docket No. 50-400

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, *Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events*, dated March 12, 2012, (ADAMS Accession No. ML12056A045)
2. NRC Interim Staff Guidance JLD-ISG-2012-01, *Compliance with Order EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events*, Revision 0, dated August 29, 2012, (ADAMS Accession No. ML12229A174)
3. NEI 12-06, *Diverse and Flexible Coping Strategies (FLEX) Implementation Guide*, Revision 0, dated August 2012, (ADAMS Accession No. ML12242A378)
4. Duke Energy Letter, *Carolina Power and 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 No. ML12307A021)
5. Duke Energy Letter, *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 No. ML13112A020)

Ladies and Gentlemen:

On March 12, 2012, the Nuclear Regulatory Commission (NRC) issued Order EA-12-049 (Reference 1) to Duke Energy Progress, Inc., formerly known as Carolina Power & Light Company. 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 (Reference 2) and an overall integrated plan pursuant to Section IV, Condition C. Reference 2 endorses industry guidance document NEI 12-06, Revision 0 (Reference 3) with clarifications and exceptions. Reference 4 provided the Duke Energy initial status report regarding mitigation strategies. Reference 5 provided the Duke Energy overall integrated plan for Harris Nuclear Plant.

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

This letter contains no new regulatory commitments. If you have any questions regarding this report, please contact Mr. David H. Corlett, Regulatory Affairs Manager, at 919-362-3137.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on [8/27/2013].

Sincerely,

Ernest J. Kapopoulos, Jr.

Enclosure: First Six Month Status Report (Order EA-12-049)

cc: Mr. J. D. Austin, NRC Sr. Resident Inspector, HNP
Mr. W. L. Cox III, Section Chief, North Carolina DENR
Mr. A. Hon, NRC Project Manager, HNP
Mr. V. M. McCree, NRC Regional Administrator, Region II
Mr. E. J. Leeds, NRC Director, Office of Nuclear Reactor Regulation
Mr. S. R. Jones, NRR/DSS/SBPB, NRC
Ms. J. A. Kratchman, NRR/JLD/PMB, NRC

SERIAL: HNP-13-080

ENCLOSURE

SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1
DOCKET NO. 50-400

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

1 Introduction

Duke Energy Progress, Inc., formerly known as Carolina Power & Light Company, developed an Overall Integrated Plan (Reference 2), for the Shearon Harris Nuclear Power Plant, Unit 1, (HNP) documenting the diverse and flexible strategies (FLEX), in response to NRC Order EA-12-049 (Reference 1). The Overall Integrated Plan 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 from February 28, 2013, to July 30, 2013 (hereafter referred to as "the update period").

2 Milestone Accomplishments

The following milestones were completed during the update period:

1) Submitted Integrated Plan

3 Milestone Schedule Status

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

The 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 Integrated Plan	February 28, 2013	Complete	Date Not Revised
6 Month Status Update	August 28, 2013	Started	Date Not Revised
Conduct N-1 Outage Walkdowns	November 2013	Not Started	Date Not Revised
Identify Significant Material/Equipment	January 2014	Started	Date Not Revised
6 Month Status Update	February 28, 2014	Not Started	Date Not Revised
Develop Strategies / Playbook w/RRC	March 2014	Not Started	Date Not Revised
Develop Training Program	March 2014	Not Started	Date Not Revised
6 Month Status Update	August 28, 2014	Not Started	Date Not Revised
Develop Modifications	October 2014	Started	Date Not Revised

Milestone	Target Completion Date	Activity Status	Revised Target Completion Date
Conduct Implementation Walkdowns	December 2014	Started	Date Not Revised
Material / Equipment Procurement / Delivery	December 2014	Not Started	Date Not Revised
Conduct Staffing Analysis	December 2013	Revised	January 2015
Implement Training	February 2015	Not Started	Date Not Revised
Install Offsite Delivery Pad	February 2015	Not Started	Date Not Revised
6 Month Status Update	February 28, 2015	Not Started	Date Not Revised
Develop FLEX Strategy Guidelines (FSGs)	March 2015	Not Started	Date Not Revised
Develop Maintenance Procedures	March 2015	Not Started	Date Not Revised
Implement Modifications	May 2015	Not Started	Date Not Revised
Implementation Complete	May 2015	Not Started	Date Not Revised

4 Changes to Compliance Method

The following summarizes the changes to the compliance method as documented in the Overall Integrated Plan (OIP) (Reference 1).

1) Change: HNP's OIP stated the Dedicated Shutdown Diesel Generator (DSDG) would be hardened and protected to provide power to Motor Control Center (MCC) 1D23 (Figure 26 & 27) (Modification Open Item #40). HNP determined hardening the DSDG will not be performed, therefore the DSDG will not be used as a credited power source for FLEX (Evaluation Open Item #65).

   Justification: A FLEX power source aligned to MCC 1D23 will serve as the credited supply. Open Item #44 implements this change.

   Documentation: Open Item #40 will not be implemented and has been cancelled.

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

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

6. Open Items

The following tables provide 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	Analysis to determine expected duration of TDAFW pump operation under ELAP conditions	Started
2	Staging analysis timeline of FLEX feedwater pump and plant specific pump analysis at chosen FLEX injection points and water sources specifically for HNP	Started
3	Determine highest rate of RCS cooldown with only one SG PORV	Started
4	Determine if B.5.b connections 1AF-173/174/175 are adequately sized to meet SG feedwater requirements from decay heat (not credited)	Started
5	Determine how much time the CST can be relied upon for	Started
6	Projected Inventory usage for RCS and SGs	Started
7	Determine the amount of SG inventory needed for the first 72 hours per cooldown strategy in PA-PSC-0965	Started
8	Determine any adverse affects from using borated water from RWST in Steam Generators	Started
9	Determine HNP specific FLEX FW pump capacity requirements (discharge pressure and flow)	Started
10	A FLEX/ELAP staffing analysis needs to be performed for all coping strategies	Not Started
11	Calculation needed to determine the cooling flow requirements beyond the 24 hours in SAMG-CA-002 in Mode 5 and 6	Started
12	RCS boron concentration and boration in gallons to maintain inventory control and core cooling in regards to keeping the core subcritical with RCS cooldown strategy in PA-PSC-0965 Attachment 3	Started
13	RWST is partially exposed to tornado missiles and analysis will need to be done to determine the volume that can be credited	Started
14	Analysis to determine HNP specific high pressure make up pump minimum performance rating necessary to support FLEX coping strategies	Started
15	Analysis to determine if the ASI pump can meet the HNP minimum high pressure makeup requirements. Analysis to determine HNP specific Modes 5 and 6 FLEX pump capacity requirements for RCS low pressure injection	Started
16	Analysis needed to confirm RCS Depressurization via Reactor Vessel Head Vents will be effective	Started
17	Analysis of BAT and RWST during ELAP without heat tracing during cold weather conditions	Started
18	Determine if RCS venting is needed	Started
19	Analysis to determine minimum pump performance rating to support ESW delivery to all FLEX usage point simultaneously and prevent pump run-out	Started

	Overall Integrated Plan Open Item	Status
20	Analysis to determine HVAC requirements for operating installed and temporary equipment under ELAP conditions for maintaining reliable operation	Started
21	Habitability analysis needed for local manual control of SG PORVs in the Steam Tunnel under ELAP conditions	Started
22	Habitability analysis for local manual control of TDAFW pump at RAB 236 elevation	Started
23	Analysis needed for loss of HVAC on TDAFW equipment	Started
24	Calculation to determine power consumption assuming all HVAC is provided by portable blower units to support selection of FLEX generator size	Started
25	Analysis to determine total fuel consumption rates of all FLEX equipment	Not Started
26	Calculation to determine pounds of boron versus RWST tank level percent to achieve desired boron concentration	Started
27	Detailed analysis of consequences from performing a DC deep load shed. Specifically to determine what equipment is still needed to carry-out FSG coping functions. Instrument loops and etc.	Not Started
28	Detailed calculation needed to validate the coping time that will be added to Station Batteries to provide needed margin to the plant's installed equipment's coping time	Not Started
29	Analysis of the affects of AUX Reservoir water being used for heat removal	Started
30	Analysis of FLEX pump suction strainer sizes to any downstream FLEX flow path clearances.	Not Started
31	Containment Pressure & Temperature Analysis at extended time periods (is containment spray needed as a coping action?)	Started
32	Hydrogen production & removal in Battery Rooms	Not Started
33	Seismic analysis of lighting fixtures and analysis of lighting needs in the plant during ELAP	Started
34	Analysis needed to determine portable power and pump needs for selected FLEX strategies	Started
35	Analysis to determine expected length of time for FLEX equipment to operate under extended ELAP conditions based on operation condition	Started
36	Analysis to provide delivery path to equipment from Fuel Oil Storage Tanks and FLEX Storage Facility	Not Started
37	Determine impact of internal plant flooding events	Not Started
38	Boil off analysis of Spent Fuel Pool during full core offload immediately following a full core offload, determine length of coping time without any make-up to SFP immediately following full core offload	Not Started
39	Analysis to determine any radiological affects to the public by using contaminated water sources for feedwater use to the Steam Generators	Started
40	Modification - Harden/Protect Dedicated Shutdown Diesel Generator to provide power to MCC 1D23.	Canceled (Change 1)
41	Modification - Seismically upgrade the Alternate Seal Injection System to serve as one coping strategy to provide High Pressure RCS injection	Not Started
42	Modification - Add an Alternate Seal Injection pump discharge path to the CVCS charging header. Add an alternate suction path to the Alternate Seal Injection pump from the RWST and BAT. Provides alternate injection paths to the RCS while also providing a larger inventory source	Not Started

	Overall Integrated Plan Open Item	Status
43	Modification - Protect and seismically upgrade MCC 1D23 and all connections/distribution. Provides power to Safety Related Battery Chargers and the Alternate Seal Injection System	Not Started
44	Modification - FLEX Generator(s) electrical connections at: • 1A3-SA 480V Bus (Pri) • 1B3-SB 480V Bus (Pri) • 1A21-SA 480V MCC (Alt) • 1A31-SA 480V MCC (Alt) • 1B21-SB 480V MCC (Alt) • 1B31-SB 480V MCC (Alt) • Primary & Alternate 480 VAC distribution/ control for FLEX pumps, FLEX outlets for lighting, ventilation, etc	Not Started
45	Modification - Modify control power circuits for A & B SG PORVs to be powered from Instrument Buses SI, SII, or SIV. Modification provides the ability to control steaming/RCS cooldown	Not Started
46	Modification - Add FLEX pump suction and discharge connection points to the AFW system upstream of Motor Driven AFW flow control valves. Modification will provide AFW flow control and the ability to provide inventory to the Steam Generators from portable pumps	Not Started
47	Modification - Modify MDAFW FCVs control power circuit. Install key switch jumper in to simulate a Motor Driven Auxiliary Feedwater pump breaker closed. ARP 19A (SA) R2 terminal 119 & 120. Provides 125 V DC power to ARP19A (SA) and instrument bus SI for the purpose of operators controlling feedwater flow to the Steam Generators from the MCB	Not Started
48	Modification - Add FLEX RCS suction and discharge connection points to CVCS on A & B train. Provides the capability to inject inventory (borated) from a FLEX pump to the RCS from the BAT or RWST	Not Started
49	Modification - Add FLEX pump discharge connection points to the Emergency Service Water system. Provides a pressurized water source to CST, RAB & FHB Fire Protection SSE hose station headers, and Spent Fuel Pools	Not Started
50	Modification - Add quick connect connection point at 4 inch flanges downstream of valves 2DFO-262 and 2DFO-280. Allows connection of a FLEX pump to transfer fuel oil from the Fuel Oil Storage Tanks to support fuel delivery to operating FLEX equipment	Not Started
51	Modification - Install enhanced Spent Fuel Pool level indication. Refer to NTTF 7.1	Not Started
52	Modification - Verify seismic qualification or seismically upgrade piping bounded by valves 1CT-23, 1SF-10, 2SF-10, and 1SF-193. Allows HNP to credit Spent Fuel Make-up from the RWST via the installed Fuel Pool Cooling Pumps which are being powered from a FLEX generator. Also allows HNP to credit ESW Emergency Makeup to Spent Fuel Pools	Not Started
53	Modification - Add quick connects at tank locations to support transfer of water using a FLEX transfer pump. This allows filling of the Refuel Water Storage Tank from the Reactor Make-up Water Storage Tank, and CST from the Condenser Hotwell, Demineralized Water Storage Tank, Filtered Water Storage Tank, and Refuel Water Storage Tank	Not Started

	Overall Integrated Plan Open Item	Status
54	Modification - Add FLEX connection points to the Containment Spray System. Abates high pressure/high temperature conditions inside containment	Not Started
55	Modification -Add temporary power cables and connection points at select MOV MCC breaker/control cubicles. Provides the ability to perform a onetime stroke of valves that are needed to be repositioned in an ELAP event	Started
56	Modification - Structure(s) built in compliance to ASCE 7-10 to house and protect FLEX generators and equipment	Not Started
57	Modification - Install FLEX distribution network to power FLEX equipment (pumps, ventilation, lighting, power outlets, and temporary power to MOVs)	Not Started
58	Modification - Upgrade the installed in-plant emergency DC lighting packs with Light Emitting Diode bulbs. This will significantly extend the operating time of the lights installed in the plant	Not Started
59	Modification - Seismically qualify/upgrade the Condenser Hotwell Transfer Suction Piping and add isolation valve. This will significantly increase the credited volume of the Condensate Storage Tank	Not Started
60	Develop a procedure to take local reading in containment electrical penetration, PIC, or RVLIS for all required readings	Not Started
61	Contract for offsite fuel delivery	Not Started
62	Contract for Demineralized Water Processing Skid or tanker delivery	Not Started
63	Perform an analysis to determine the amount of volume for the RMWST that can be credited	Not Started
64	Evaluate to determine that a modification can be implemented with reasonable assurance of success to seismically upgrade the condensate transfer pump suction line penetration to the CST and estimated total CST inventory we can credit. In the current configuration, 238K gallons is credited as available and protected (Tank-0020)	Started
65	Evaluate to determine that a modification can be implemented with reasonable assurance of success considering economic feasibility to harden (seismic, flood & missile protect) the DSDG, MCC 1D23, ASI Pump, ASI Tank, associated system piping and all electric connections/distribution and instrumentation	Started
66	FLEX 4.2 Programmatic Controls – Implement programmatic controls for review, revision and/or generation of procedures and guidelines as required to address additional programmatic controls as a result of FLEX requirements	Started
67	FLEX 4.2 Programmatic Controls – Implement programs and processes to assure personnel proficiency in the mitigation of beyond-design-basis external events in accordance with NEI 12-06	Not Started
68	FLEX 4.2 Programmatic Controls – Establish FLEX Strategies and basis in an overall FLEX Basis Document	Not Started
69	FLEX 4.2 Programmatic Controls – Modify existing plant configuration control procedures to ensure that changes to the plant design, physical layout, roads, buildings, and miscellaneous structures will not adversely impact the approved FLEX Strategies IAW NEI 12-06, Section 11.8	Not Started

	Overall Integrated Plan Open Item	Status
70	FLEX 4.2 Programmatic Controls – Training will be initiated through the Systems Approach to Training (SAT) Process. Training will be developed and provided to all involved plant personnel based on any procedural changes or new procedures developed to address and identify FLEX activities. Applicable training will be completed prior to the implementation of FLEX	Not Started
71	External Hazards for Structures – Structures to provide protection of the FLEX equipment will be constructed to meet the requirements identified in NEI 12-06, Section 11. The structures will be built prior to the FLEX implementation date	Started
72	External Hazards for Structures – Develop Procedures and Programs to address storage structure requirements, deployment path requirements, and FLEX equipment requirements relative to the External Hazards applicable to HNP	Not Started
73	Purchase sufficient amounts of portable equipment to fulfill selected FLEX strategies	Started
74	Initiate PMs and develop testing procedures to support FSG guidelines for FLEX equipment	Started
75	Develop Regional Response Center (RRC) playbook	Not Started
76	Determine Regional Response Center (RRC) portable equipment requirements (water, boron, etc.)	Started
77	Determine Phase 3 equipment/commodities requirements (food, fuel, etc.)	Not Started
78	Convert to high capacity SAT phone batteries	Started
79	Modification - Modify SG PORV hydraulic pump motor MCC cubicles to provide for quick connection of a temporary FLEX power source	Started

b. Open Items added after February 28, 2013

Overall Integrated Plan Open Item	Status
None	N/A

c. Draft Safety Evaluation

Draft Safety Evaluation Open Item	Status
Draft SE has not been provided	N/A

7 Potential Draft Safety Evaluation Impacts

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

8 References

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

1) NRC Order Number EA-12-049, *Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events,* dated March 12, 2012

2) Duke Energy Letter, *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 No. ML13112A020)