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Dominion®

August 27, 2015

10 CFR 2.202
EA-12-049

Attention: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Serial No.: 14-393E
NL&OS/DEA: R2
Docket No.: 50-336
License No.: DPR-65

DOMINION NUCLEAR CONNECTICUT, INC.
MILLSTONE POWER STATION UNIT 2
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)

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

2. Dominion Nuclear Connecticut, Inc., 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 (Serial No. 12-161B)

3. Dominion Nuclear Connecticut, Inc., 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 March 2, 2015 (Serial No. 14-393B)

On March 12, 2012, the Nuclear Regulatory Commission (NRC) issued an Order (Reference 1) to Dominion Nuclear Connecticut, Inc. (DNC). Reference 1 was immediately effective and directed DNC to develop, implement, and maintain guidance and strategies to maintain core cooling, containment, and spent fuel pool cooling capabilities in the event of a beyond-design-basis external event.

Reference 1 required submission of an Overall Integrated Plan (OIP) (Reference 2) pursuant to Section IV, Condition C. Reference 1 also required submission of a status report at six-month intervals following submittal of the OIP.

Attachment 1 to this letter provides the fifth six-month status report and an update of milestone accomplishments since the submittal of the previous six-month status report

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(Reference 3), including any changes to the compliance method, schedule, or need for relief and the basis.

Attachment 2 to this letter contains the responses to the Open Items and Confirmatory Items from the Interim Staff Evaluation for EA-12-049 (ML13338A445) dated January 29, 2014.

If you have any questions, please contact Ms. Diane E. Aitken at (804) 273-2694.

Sincerely,

Gianna C. Clark
Vice President – Nuclear Support Services

Attachments (2)

Commitments made by this letter: No new Regulatory Commitments

COMMONWEALTH OF VIRGINIA)
)
COUNTY OF HENRICO)

The foregoing document was acknowledged before me, in and for the County and Commonwealth aforesaid, today by Gianna C. Clark who is Vice President – Nuclear Support Services of Dominion Nuclear Connecticut, Inc. She has affirmed before me that she is duly authorized to execute and file the foregoing document in behalf of that Company, and that the statements in the document are true to the best of her knowledge and belief.

Acknowledged before me this 27TH day of August, 2015.

My Commission Expires: May 31, 2018.

Vicki L. Hull
Notary Public

(SEAL)

Vicki L. Hull
NOTARY PUBLIC
Commonwealth of Virginia
Reg. # 140542
My Commission Expires May 31, 2018

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NRC Senior Resident Inspector
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Attachment 1

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

August 2015

Dominion Nuclear Connecticut, Inc. (DNC)
Millstone Power Station Unit 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

1 Introduction

Dominion Nuclear Connecticut, Inc. (DNC) developed an Overall Integrated Plan (OIP) (Reference 1), documenting the diverse and flexible strategies (FLEX) for Millstone Power Station Unit 2 (MPS2), in response to Nuclear Regulatory Commission (NRC) Order Number EA-12-049 (Reference 2). This attachment provides an update of milestone accomplishments and open items since the fourth status report (Reference 6), including changes to the compliance method, schedule, or need for relief/relaxation and the basis, if any.

2 Milestone Accomplishments

The following milestones have been completed since the development of the OIP, and are current as of July 31, 2015.

- Submit Integrated Plan
- Develop Strategies
- Develop Modifications
- Develop Training Plan
- Implement Training
- Develop Strategies/Contract with NSRC
- Purchase Equipment
- Receive Equipment
- Validation Walk-throughs or Demonstrations of FLEX Strategies and Procedures
- Create Maintenance Procedures

3 Milestone Schedule Status

The following table provides an update to Attachment 2A of the OIP. It provides the activity status of each item as of August 10, 2015.

Milestone	Target Completion Date	Activity Status	Revised Target Completion Date
Submit Integrated Plan	February 2013	Complete	
Develop Strategies	April 2014	Complete	
Develop Modifications	March 2015	Complete	

Milestone	Target Completion Date	Activity Status	Revised Target Completion Date
Implement Modifications	October 2015	Started	
Develop Training Plan	April 2014	Complete	
Implement Training	September 2015	Complete	
Issue FSGs and Associated Procedure Revisions	September 2015	Started	
Develop Strategies/Contract with NSRC*	August 2014	Complete	
Purchase Equipment	February 2014	Complete	
Receive Equipment	September 2014	Complete	
Validation Walk-throughs or Demonstrations of FLEX Strategies and Procedures	February 2015	Complete	
Create Maintenance Strategies	August 2014	Complete	
Outage Implementation	October 2015	Not Started	

* NSRC is the National SAFER Response Center.

4 Changes to Compliance Method

By letter dated February 28, 2013, (Reference 1), DNC provided an OIP to address Beyond-Design-Basis (BDB) events at MPS2 and Millstone Power Station Unit 3 (MPS3) as required by Order Number EA-12-049, dated March 12, 2012. The first Six-Month Status Update of the OIP for MPS2 and MPS3 was provided by letter dated August 23, 2013 (Reference 4). The second, third, and fourth Six-Month Status Updates for MPS2 were provided by letters dated February 28, 2014 (Reference 3), August 28, 2014 (Reference 5), and March 2, 2015 (Reference 6), respectively.

There have been no changes to the compliance method information provided in the MPS2 OIP and subsequent updates previously reported.

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

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

6 Open Items

The NRC has established an audit process to allow the exchange of information between licensees and the NRC Staff (Reference 7). Between July 21, 2014 and July 25, 2014, MPS2 and MPS3 were the subject of an NRC onsite audit where the site specific aspects of DNC's proposed FLEX Mitigating Strategies were reviewed. During this NRC onsite audit, the staff reviewed site specific documentation and upon completion of the audit, indicated that further review of several items was not anticipated as DNC proceeds towards compliance with Orders EA-12-049 and EA-12-051. These items are identified in the following tables in Section 6.

6.1. Open Items from Overall Integrated Plan

The following table provides a description of the Open Items (OI) identified by DNC and documented in Attachment 2B of the MPS2 Overall Integrated Plan submitted on February 28, 2013 and a summary of the status of each item.

Overall Integrated Plan Open Items		
OI #	**Description**	**Status**
1	Verify response times listed in timeline and perform staffing assessment.	Complete. (Reference 24). In the Final Audit Report from the July 2014 NRC Onsite Audit, the NRC Staff indicated that further review of this item was not anticipated as DNC proceeds towards compliance with Order EA-12-049. (Reference 8)
2	Preliminary analyses have been performed to determine the time to steam generator (SG) overfill without operator action to reduce Auxiliary Feedwater (AFW) flow, time to SG dryout without AFW flow, and time to depletion of the Condensate Storage Tank (CST). Final durations will be provided when the analyses are completed.	Complete. (Reference 9) In the Final Audit Report from the July 2014 NRC Onsite Audit, the NRC Staff indicated that further review of this item was not anticipated as DNC proceeds towards compliance with Order EA-12-049. (Reference 8)

Overall Integrated Plan Open Items		
OI #	**Description**	**Status**
3	Analyses will be performed to develop fluid components performance requirements and confirm fluid hydraulic-related strategy objectives can be met.	Complete. The hydraulic calculation for the FLEX pumps deployed using their associated hose networks have confirmed that the primary and the alternate connections for core cooling/decay heat removal, Reactor Coolant System (RCS) Inventory, and reactivity control (RCS Injection), and Spent Fuel Pool (SFP) make-up strategies can be satisfactorily accomplished in response to an Extended Loss of AC Power (ELAP)/Loss of Ultimate Heat Sink (LUHS) event. (Reference 10) Hydraulic calculations have confirmed that the Service Water (SW) flows for the Containment cooling options are adequate. (Reference 10) In the Final Audit Report from the July 2014 NRC Onsite Audit, the NRC Staff indicated that further review of this item was not anticipated as DNC proceeds towards compliance with Order EA-12-049. (Reference 8)
4	A study is in progress to determine the design features, site location(s), and number of equipment storage facilities. The final design for BDB equipment storage will be based on the guidance contained in NEI 12-06, Section 11.3, Equipment Storage. A supplement to this submittal will be provided with the results of the equipment storage study.	Complete. A single 10,000 sq. ft. Type 1 building has been constructed at Millstone Power Station (MPS) for storage of BDB equipment. The building is designed to meet the plant's design basis for the Safe Shutdown Earthquake, high wind hazards, snow, ice and cold conditions, and is located above the flood elevation from the most recent site flood analysis. The BDB Storage Building is sited south of the railroad bridge, on the west side of the MPS access road, adjacent to the existing northeast contractor parking lot. (References 11 and 12) In the Final Audit Report from the July 2014 NRC Onsite Audit, the NRC Staff indicated that further review of this item was not anticipated as DNC proceeds towards compliance with Order EA-12-049. (Reference 8)

Overall Integrated Plan Open Items		
OI #	**Description**	**Status**
5	FLEX Support Guidelines (FSGs) will be developed in accordance with PWROG guidance. Existing procedures will be revised as necessary to implement FSGs.	Started. FSGs 9, 10, and 13 have been approved. The remaining FSGs and the existing plant procedures needed to implement the FSGs will be completed per the Milestone Schedule (Section 3) above.
6	Electric Power Research Institute (EPRI) guidance documents will be used to develop periodic testing and preventative maintenance procedures for BDB equipment. Procedures will be developed to manage unavailability of equipment such that risk to mitigating strategy capability is minimized.	Complete. EPRI guidance documents have been used, where available, to develop the testing and preventative maintenance strategies for the sites. Fleet-wide templates have been developed and input into the individual site maintenance strategies. Specific Periodic Maintenance (PM) procedures (Work Orders) based on these templates will be issued prior to the required PM frequencies identified in the approved PM strategies. A fleet-wide FLEX Strategy Program Document has been developed (Refer to Open Item 7). The program includes the requirement to manage unavailability of equipment in accordance with Section 11.5.3 of NEI 12-06. A fleet-wide procedure has been developed to specifically address equipment unavailability. (Reference 13) In the Final Audit Report from the July 2014 NRC Onsite Audit, the NRC Staff indicated that further review of this item was not anticipated as DNC proceeds towards compliance with Order EA-12-049. (Reference 8)
7	An overall program document will be developed to maintain the FLEX strategies and their bases, and provide configuration control and change management for the FLEX Program.	Complete. In the Final Audit Report from the July 2014 NRC Onsite Audit, the NRC Staff indicated that further review of this item was not anticipated as DNC proceeds towards compliance with Order EA-12-049. (Reference 8)

Overall Integrated Plan Open Items		
OI #	**Description**	**Status**
8	The DNC Nuclear Training Program will be revised to assure personnel proficiency in the mitigation of BDB events is developed and maintained. These programs and controls will be developed and implemented in accordance with the Systematic Approach to Training (SAT).	Complete. In the Final Audit Report from the July 2014 NRC Onsite Audit, the NRC Staff indicated that further review of this item was not anticipated as DNC proceeds towards compliance with Order EA-12-049. (Reference 8)
9	Confirm consistency of the FLEX strategies with the PWROG evaluation of post-loss of all AC power plant response for Combustion Engineering plants.	Complete. The Combustion Engineering (CE) Owners Group has issued generic guidelines to address plant response for post-loss of all AC power for Combustion Engineering plants. Based on these guidelines, DNC has developed plant specific FSGs for MPS2 to address plant response for post-loss of all AC power. Specifically, MPS2 will depressurize the steam generators (SGs) to a plant specific target SG pressure to prevent Safety Injection Tank (SIT) nitrogen injection. (Reference 14) In the Final Audit Report from the July 2014 NRC Onsite Audit, the NRC Staff indicated that further review of this item was not anticipated as DNC proceeds towards compliance with Order EA-12-049. (Reference 8)

Overall Integrated Plan Open Items		
OI #	**Description**	**Status**
10	Develop strategy for use of the BDB AFW Pump to provide SG injection in the unlikely event of loss of TDAFW pump due to hurricane related storm surge flooding of the Turbine Building.	Complete. A modification to the storm preparation procedure has been developed which requires the early deployment of one BDB auxiliary feedwater (AFW) pump to the MPS2 Turbine Building Truck Bay. The modification will go into effect upon implementation of the MPS2 FSGs. (Reference 12) In the Final Audit Report from the July 2014 NRC Onsite Audit, the NRC Staff indicated that further review of this item was not anticipated as DNC proceeds towards compliance with Order EA-12-049. (Reference 8)
11	Plant modifications will be completed for permanent plant changes required for implementation of FLEX strategies.	See Milestone Schedule above for completion schedule. In the Final Audit Report from the July 2014 NRC Onsite Audit, the NRC Staff indicated that further review of this item was not anticipated as DNC proceeds towards compliance with Order EA-12-049. (Reference 8)
12	Complete the engineering evaluation of the main steam atmospheric dump valve (MS ADV) outlet lines.	Complete. The evaluation identified the need for a plant modification to the atmospheric dump valve (ADV) outlet lines. The identified modification is included in Open Item 11. (References 22 and 23) In the Final Audit Report from the July 2014 NRC Onsite Audit, the NRC Staff indicated that further review of this item was not anticipated as DNC proceeds towards compliance with Order EA-12-049. (Reference 8)

Overall Integrated Plan Open Items		
OI #	**Description**	**Status**
13	Complete the evaluation of TDAFW pump long term operation with ≤ 120 psig inlet steam pressure.	Complete. Turbine driven auxiliary feedwater (TDAFW) pump operation and adequate AFW flow to the SGs at SG pressures < 120 psig has been confirmed. (References 15 and 16) In the Final Audit Report from the July 2014 NRC Onsite Audit, the NRC Staff indicated that further review of this item was not anticipated as DNC proceeds towards compliance with Order EA-12-049. (Reference 8)
14	The Phase 3 coping strategy to maintain Containment integrity is under development. Methods to monitor and evaluate Containment conditions and depressurize/cool Containment, if necessary, will be provided in a future update.	Complete. (Reference 3) In the Final Audit Report from the July 2014 NRC Onsite Audit, the NRC Staff indicated that further review of this item was not anticipated as DNC proceeds towards compliance with Order EA-12-049. (Reference 8)
15	Analyses will be performed to develop electrical components performance requirements and confirm electrical loading-related strategy objectives can be met.	Complete. Calculations have been completed for the sizing and loading analysis of the 120VAC, 480VAC, and 4160 VAC generators and confirm the electrical loading-related strategy objectives can be met (Reference 17). In the Final Audit Report from the July 2014 NRC Onsite Audit, the NRC Staff indicated that further review of this item was not anticipated as DNC proceeds towards compliance with Order EA-12-049. (Reference 8)

Overall Integrated Plan Open Items		
OI #	**Description**	**Status**
16	An evaluation of all BDB equipment fuel consumption and required re-fill strategies will be developed.	Complete. An evaluation of the BDB equipment fuel consumption and required refill strategies has been completed and provided as part of the ongoing NRC audit process. (Reference 12) In the Final Audit Report from the July 2014 NRC Onsite Audit, the NRC Staff indicated that further review of this item was not anticipated as DNC proceeds towards compliance with Order EA-12-049. (Reference 8)
17	A lighting study will be performed to validate the adequacy of supplemental lighting and the adequacy and practicality of using portable lighting to perform FLEX strategy actions.	Complete. A lighting study has been completed validating the adequacy of supplemental lighting and the adequacy and practicality of using portable lighting to perform FLEX Strategy actions. This was provided as part of the ongoing NRC audit process. (Reference 12) In the Final Audit Report from the July 2014 NRC Onsite Audit, the NRC Staff indicated that further review of this item was not anticipated as DNC proceeds towards compliance with Order EA-12-049. (Reference 8)

Overall Integrated Plan Open Items		
OI #	**Description**	**Status**
18	A comprehensive study of communication capabilities is being performed in accordance with the commitments made in DNC letter S/N 12-205F dated October 29, 2012 in response to Recommendation 9.3 of the 10 CFR 50.54(f) letter dated March 12, 2012. The results of this study will identify the communication means available or needed to implement command and control of the FLEX strategies at Millstone. Validation of communications required to implement FLEX strategies will be performed as part of Open Item No. 1.	Complete. A study documenting the communications strategy has been completed. The study concludes that effective implementation of the FLEX strategies will include the use of satellite phones and hand-held radios. The study acknowledges that MPS2 does not have a sound-powered phone system or equivalent and that radio usage has limitations in a few remote plant locations. These remote locations are, however, associated only with alternate BDB connections and would use dispatched personnel, if necessary. (Reference 18). The tabletop assessment of the FLEX strategies performed as part of the Phase 2 Staffing study has identified that the coordination of command and control of the FLEX strategies between the MPS2 and MPS3 Control rooms will initially require the use of dispatched personnel. In the Final Audit Report from the July 2014 NRC Onsite Audit, the NRC Staff indicated that further review of this item was not anticipated as DNC proceeds towards compliance with Order EA-12-049. (Reference 8)
19	Details of the ventilation strategy are under development and will conform to the guidance given in NEI 12-06. The details of this strategy will be provided at a later date.	Complete. See Attachment 2, OIP Section F5 – Safety Functions Support (Ventilation). In the Final Audit Report from the July 2014 NRC Onsite Audit, the NRC Staff indicated that further review of this item was not anticipated as DNC proceeds towards compliance with Order EA-12-049. (Reference 8)

Overall Integrated Plan Open Items		
OI #	**Description**	**Status**
20	Preferred travel pathways will be determined using the guidance contained in NEI 12-06. The pathways will attempt to avoid areas with trees, power lines, and other potential obstructions and will consider the potential for soil liquefaction.	Complete. The soil liquefaction study has been completed (Reference 19), which supports the location of the storage building and the haul routes. The results have been included with the final design package for the storage building (Reference 11). In the Final Audit Report from the July 2014 NRC Onsite Audit, the NRC Staff indicated that further review of this item was not anticipated as DNC proceeds towards compliance with Order EA-12-049. (Reference 8)
21	The equipment listed in Table 1 will be received on site.	Complete. In the Final Audit Report from the July 2014 NRC Onsite Audit, the NRC Staff indicated that further review of this item was not anticipated as DNC proceeds towards compliance with Order EA-12-049. (Reference 8)

6.2. Open Items from Interim Staff Evaluation (ISE)

The responses to the Open Items (OIs) from the ISE for MPS2 (Reference 20) are provided in Attachment 2.

6.3. Confirmatory Items from Interim Staff Evaluation

The responses to the Confirmatory Items (CIs) from the ISE for MPS2 (Reference 20) are provided in Attachment 2.

6.4. Audit Questions Reviewed During the MPS2 NRC Onsite Audit

Various MPS2 Audit Questions (AQs) were evaluated during the MPS NRC Onsite Audit.

In the Final Audit Report from the July 2014 NRC Onsite Audit (Reference 8), the NRC Staff indicated that for the majority of the AQs, further review was not anticipated as DNC proceeds towards compliance with Order EA-12-049. However, the following AQs are still under review by the NRC Staff:

AQs: 2, 3, 6, 7, 8, 9, 12, 32, 35, 44, 58, and 80

The responses to the above AQs are being addressed through the ongoing NRC audit process (Reference 7).

6.5. Additional Items Reviewed During the MPS2 NRC Onsite Audit

Additional Safety Evaluation (SE) Review items were identified and evaluated during the MPS NRC Onsite Audit.

In the Final Audit Report from the July 2014 NRC Onsite Audit (Reference 8), the NRC Staff indicated that for the majority of these SE items, further review was not anticipated as DNC proceeds towards compliance with Order EA-12-049. However, the following SE items are still under review by the NRC Staff:

SEs: 7 and 8

The responses to the above SE items are being addressed through the ongoing NRC audit process (Reference 7).

7 Potential Safety Evaluation Impacts

Section 6.5 addresses the additional Safety Evaluation (SE) Review items identified and evaluated during the MPS NRC Onsite Audit.

Additionally, DNC has participated in the industry effort to develop the format of the Final Integrated Plan (FIP) that will support NRC preparation of the Safety Evaluation documenting MPS2 compliance with Order EA-12-049. The MPS2 FIP will be consistent with the example FIP provided by NEI to the industry in letter APC 14-20 dated September 5, 2014. (Reference 21).

8 References

The following references support the updates to the Overall Integrated Plan described in this attachment and are available in ADAMS or have previously been provided to the staff for their review.

1. DNC's 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 29, 2013 (Serial No. 12-161B).
2. NRC Order Number EA-12-049, "Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," dated March 12, 2012.

3. DNC's 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 (Serial No. 12-161E).
4. DNC's 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 23, 2013 (Serial No. 12-161D).
5. DNC's Six Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049), dated August 28, 2014 (Serial No. 14-393).
6. DNC's 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 March 2, 2015 (Serial No. 14-393B).
7. NRC letter from Jack R. Davis, Director Mitigating Strategies Directorate to All Operating Reactor Licensees and Holders of Construction Permits, "Nuclear Regulatory Commission Audits of Licensee Responses to Mitigating Strategies Order EA-12-049," dated August 28, 2013 (ML13234A503).
8. Letter from Mr. Stephen Monarque (NRC) to Mr. Dave Heacock (Dominion) titled "Millstone Power Station, Units 1 and 2 – Report for the Onsite Audit Regarding Implementation of Mitigating Strategies and Reliable Spent Fuel Pool Instrumentation Related to Orders EA-12-049 and EA 12-051," dated November 17, 2014 (ML14275A017).
9. DNC's Supplement to Overall Integrated Plan in Response to March 21, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis Events (Order Number EA-12-049), dated April 30, 2013 (Serial No. 12-161C).
10. Calculation 13-015, "MPS2 & MPS3 FLEX Strategy Hydraulic Calculations," Rev. 0.
11. Design Change MPG-13-00010, "BDB Storage Building/Millstone Power Station/Units 2&3."
12. ETE-CPR-12-0009, Rev. 3 "Beyond Design Basis – FLEX Strategy Overall Integrated Plan Basis Document."
13. Procedure CM-AA-BDB-102, Rev. 001, "Beyond Design Basis FLEX Equipment Unavailability Tracking."
14. PWROG letter, OG-13-197, Transmittal of PA-PSC-0965 Final CE-NSSS Specific ELAP Response (FLEX) Guidelines, May 17, 2013.

15. Calculation 13-024, "Turbine Driven Auxiliary Feedwater (TDAFW) Pump Delivered Flow at Reduced Steam Generator Pressure," Rev. 0, April 22, 2013.

16. Engineering Technical Evaluation ETE-MP-2013-1034, "MPS2 Turbine Driven Aux Feedwater Pump Minimum Continuous Operating Speed," Rev. 0, dated March 12, 2013.

17. Calculation 2013-ENG-04383E2, "Millstone Power Station Unit 2 Beyond Design Basis – FLEX Electrical 4160V, 4840V and 120VAC System Loading Analysis," Rev. 0.

18. ETE-CPR-2013-0003, "Beyond Design Basis Communications Strategy/Plan," Rev. 2.

19. URS Geotechnical Investigation and Engineering Report, FLEX Storage Building Project, Millstone Power Station, Waterford, Connecticut, dated January 27, 2014.

20. Millstone Power Station, Units 2 and 3 - Interim Staff Evaluation Relating to Overall Integrated Plan in Response to Order EA-12-049 (Mitigating Strategies), dated January 31, 2014.

21. Letter from Nicholas Pappas, Senior Project Manager, Engineering and Operations Support, NEI, to Administrative Points of Contact and Fukushima Points of Contact, "Notification of the NRC of Implementation of the Mitigating Strategies Order (EA-12-049)," dated September 5, 2014 (Serial No. APC 14-20).

22. Calculation 14-ENG-04426M2 "Stress Model for the Unit 2 "A" Atmospheric Dump valve Exhaust Line (Problem No. 28)" Rev. 2.

23. Calculation 14-ENG-04425M2 "Stress Model for the Unit 2 "B" Atmospheric Dump valve Exhaust Line (Problem No. 28)" Rev. 2.

24. ETE-CPR-2013-1008, "Millstone Power Station Unit 2 & 3 Beyond Design Basis FLEX Validation for Time Sensitive Actions (TSA's)," Rev. 2.

Attachment 2

Responses to Mitigation Strategies Interim Staff Evaluation (ISE) Items for Millstone Power Station Unit 2

Dominion Nuclear Connecticut, Inc. (DNC)
Millstone Power Station Unit 2

Responses to Mitigation Strategies Interim Staff Evaluation (ISE) Items for Millstone Power Station Unit 2

ISE Open Items:

ISE OI 3.2.1.8.A:

Core Subcriticality and Boron Mixing: The PWROG submitted to NRC a position paper, dated August 15, 2013, which provides test data regarding boric acid mixing under single-phase natural circulation conditions and outlined applicability conditions intended to ensure that boric acid addition and mixing would occur under conditions similar to those for which boric acid mixing data is available. During the audit process, the licensee informed the NRC staff of its intent to abide by the generic approach discussed above. The licensee should address the clarifications in the NRC endorsement letter dated January 8, 2014.

DNC Response:

The NRC staff clarifications to the PWROG's position paper on boron mixing are addressed as follows:

Clarification (1): The Millstone Power Station Unit 2 (MPS2) evaluation for boron mixing has considered both the case of maximum Reactor Coolant Pump (RCP) seal leakage (15 gpm/seal), as well as the zero leakage case. Westinghouse Letter LTR-FSE-13-46, Revision 0, "Westinghouse Response to NRC Generic Request for Additional Information (RAI) on Boron Mixing in Support of the Pressurized Water Reactor Owners Group (PWROG)," August 15, 2013 argued that the zero leakage case is more limiting than the high leakage case from the standpoint of mixing because it delays the boron contribution from a Safety Injection Tank (SIT) injection, resulting in more reliance on pumped injection from the Reactor Coolant System (RCS) FLEX pump. However, MPS2 has not credited boron from a SIT injection in developing its FLEX strategy. Therefore, the maximum leakage case is the most limiting.

Clarification (2): For the maximum leakage case, MPS2 intends to initiate RCS makeup of 45 gpm by the 16th hour following the onset of the Extended Loss of AC Power (ELAP)/Loss of Ultimate Heat Sink (LUHS) condition. This is well in excess of the maximum total RCS leakage of approximately 15 gpm at 16 hours (see WCAP-17601, Figure 5.5.2.1-5, RCP Seal Leak Rate). Westinghouse WCAP-17792-P, "Emergency Procedure Development Strategies for Extended Loss of AC Power Event for all Domestic Pressurized Water Reactor Designs," calculated that for MPS2, the time at which two-phase flow drops below single phase natural circulation flow is greater than 24 hours. Since makeup flow will begin prior to this time and will exceed the maximum

leakage flow, the approach to the condition where two-phase flow drops below single phase natural circulation flow would be halted and, in fact, reversed. Accordingly, the conditions identified in Clarification 2a are applicable as the RCS flow stays within the favorable conditions identified for boron mixing. The conditions identified in Clarification 2b will not occur with the above RCS makeup strategy.

Clarification (3): Provided that the flow in all RCS loops is greater than or equal to the corresponding single-phase natural circulation flow rate, the staff considers a mixing delay period of one hour following the addition of the targeted quantity of boric acid to the reactor coolant system to be appropriate. MPS2's reactivity calculation, MISC-11791, shows that no increase in boron concentration is required for steam pressures down to the 120 psig target steam pressure in ECA-0.0. Cooldown below this point is not anticipated until beyond Phase 2. Thus, available boron mixing time will be much greater than the one hour specified in Clarification (3).

ISE OI 3.2.4.1.A:

The licensee did not provide sufficient information regarding cooling functions provided by such systems as auxiliary building cooling water, service water, or component cooling water cooling when AC power is lost during the ELAP for Phase 1 and 2. For example, the potential need for cooling water for the Turbine Drive Auxiliary Feedwater (TDAFW) pump bearings was not discussed. Additional analysis by the licensee is required to determine the acceptability of the licensee's plans to provide supplemental cooling to the subject components when normal cooling will not be available during the ELAP.

DNC Response:

The permanently installed plant mechanical equipment used to support Phase 1 and Phase 2 FLEX strategies include various tanks, piping systems, the TDAFW pump, and a Unit 2 charging pump. None of these components require cooling support systems, such as component cooling water or service water, to perform their required functions. Therefore, no additional analysis is required to confirm the acceptability of supplemental cooling to plant equipment.

ISE Confirmatory Items:

ISE CI 3.1.1.2.A:

Confirm that the preferred travel pathways are determined using the guidance contained in NEI 12-06. The pathways will attempt to avoid areas with trees, power lines, and other potential obstructions and will consider the potential for soil liquefaction. This is scheduled to be completed in June 2014.

DNC Response:

The Millstone Haul Route Evaluation has been completed and incorporated into Section 19.2 of Engineering Technical Evaluations ETE-CPR-2012-0009, Revision 3 and ETE-CPR-2012-0008, Revision 4 for MPS2 and Millstone Power Station Unit 3 (MPS3), respectively. The evaluations conclude that, with one (1) exception, adequate onsite equipment is available to clear anticipated debris material/structures and that there are no liquefaction concerns for the designated haul routes. Although debris can generally be cleared or moved out of the way, there are alternate routes around potential obstacles. The single exception stems from the unlikely failure of the Millstone stack into the alleyway used for deployment of the MPS2 120/240 VAC and 480 VAC diesel generators (DGs) to their primary (original) location. There is no alternate route to this deployment location.

Review of the amount of possible debris has shown that the removal of the debris would take a large number of personnel and/or additional equipment for breaking apart the debris. Additionally, if the entire stack remains intact when it falls, the entire pathway could be blocked. Breaking apart the entire stack and removing the debris may be too challenging in the required time without the proper personnel and equipment, which may not be available.

An alternate location for the 120/240 VAC and 480 VAC DGs has been identified in the event that the pathway to the primary location area at the west end of the Millstone Power Station Unit 1 (MPS1) Radwaste Building is not accessible. The alternate area for the 480 VAC DG is in the alleyway just south of the MPS1 Radwaste Building. The alternate area for the 120/240 VAC DG is in the area east of the MPS2 Auxiliary Building at the Health Physics entrance. The available cables for both DGs are of sufficient length for either their primary or alternate locations. The alternate areas were identified in response to concerns regarding blockage of the haul route to the primary location due to failure of the Millstone stack structure.

Liquefaction has been evaluated for the Beyond-Design-Basis (BDB) Storage Building site and both haul routes from the BDB Storage Building to the station Protected Area (PA) and on the east side of the station for access to the barge slip at the south end of the station. These haul route segments outside of the PA have been evaluated for liquefaction based on geophysical data recently obtained for the Beyond Design Basis

project. All areas inside the station PA have also been evaluated for liquefaction concerns. Results of the evaluations indicate there are no liquefaction concerns for any of the above areas.

For the areas inside the PA, a review of the construction specification documents addressing the site work performed during construction indicates that liquefaction is not a concern with the backfill materials placed in accordance with these specifications. For areas inside the PA that may not have been excavated and backfilled during the construction of the original units, the MPS2 and MPS3 Final Safety Analysis Report (FSAR) documents address the naturally occurring, in-situ materials for Millstone Power Station (MPS). Both FSAR documents state that based on the properties of these materials, the in-situ, naturally occurring materials are not subject to liquefaction during a seismic event. (MPS2 FSAR Section 2.7.6 and MPS3 FSAR Section 2.5.4.8). The PA fence has not been moved out beyond the original fence line except to encompass the Independent Spent Fuel Storage Installation (ISFSI) area. This area is not included in any haul routes used for deployment of BDB equipment.

In summary, results of the evaluations conclude that there are no liquefaction concerns for the designated haul routes, and that adequate onsite equipment is available to clear anticipated debris material.

ISE CI 3.1.1.3.A:

Confirm that a review is completed to determine impacts from large internal flooding sources that are not seismically robust and do not require AC power.

DNC Response:

Areas internal to the plant where BDB strategies require mechanical or electrical connections be made and hose and cable runs be established were reviewed to determine if they could be impacted by large internal flooding sources that are not seismically robust and do not require AC power.

The following summarizes this review's findings:

- BDB mechanical connections within the Turbine Building would not be impacted by large internal flooding sources that are not seismically robust and do not require AC power. A review of the MPS2 Turbine Building found tanks that are not seismically designed. Given the volume of the Condenser pit, no credible internal flooding source exists that would prevent BDB strategies from being implemented. If a significant volume of water accumulated in the Condenser pit and the hot well connection credited as one of the Condensate Storage Tank (CST) makeup sources could not be easily accessed, the dedicated BDB

portable transfer pump could alternatively take suction directly from the Condenser pit. An accumulation of water affecting either the TDAFW pump or the motor driven Auxiliary Feedwater (AFW) pumps, at El. 1'-6", is not considered credible due to curbing that would have to be overflowed by an accumulation of water at El. 14'-6" of the Turbine building, which is also not considered credible.

- BDB electrical connections made within the lower 4160 Switchgear Room and the MPS1 Cable Vault are not impacted by large internal non-seismically robust flooding sources and do not require AC power.

- A flooding source that can potentially function following a seismic event and a loss of all AC power is the diesel driven fire pump. As part of the MPS2 Individual Plant Evaluation for External Events (IPEEE), walkdowns were performed to identify seismic vulnerabilities. These walkdowns determined fire piping to be seismically rugged. Therefore, it is not considered a credible flooding source.

- Inadvertent actuation of water based fire suppression systems due to seismic events is possible, but would not represent a large flooding source. Further, in all cases, termination of the actuation is possible either through isolation or stopping the diesel driven fire pump.

- No non-seismically designed large flooding sources exist within the Auxiliary Building, Enclosure Building or Emergency Diesel Generator (EDG) rooms that could affect the ability to implement BDB strategies.

- The MPS2 Intake Structure pump room is not subject to internal flooding, given a seismic event, due to the ability to drain back into Long Island Sound and thus preventing any significant accumulation of water on the pump room floor.

- The Control Room is not susceptible to internal flooding.

ISE CI 3.1.1.4.A:

The licensee's plan for implementing the use of off-site resources is not complete. The local assembly areas have not been identified. The licensee is also evaluating the possibility of boat transport for personnel.

DNC Response:

National SAFER Response Center (NSRC) local staging areas, access route evaluations, and transportation evaluations to the site have been determined as documented in the SAFER Trip Report for Millstone Power Station, 12-9211132-000, dated November 20, 2012.

The SAFER Response Plan (First Issue) dated June 25, 2014 for Millstone has been issued.

Both SAFER documents have previously been provided to the NRC staff and are available for review.

The possibility of transporting personnel from Long Island Sound to the MPS site by boat has been evaluated and determined not to be a feasible option.

In response to questions received during the July 2014 MPS BDB Onsite Audit regarding details of the coordination with state and local emergency management organizations, the following information is provided:

DNC's BDB and Emergency Preparedness (EP) groups in conjunction with the SAFER organization, conducted an information sharing session in February 2014 titled, "Industry Approach to Addressing Order EA-12-049: Mitigating Strategies." This session was attended by state emergency responders and was conducted at the Millstone Nuclear Training Center. State and local jurisdiction/EPZ town emergency management directors and other appropriate interested state level emergency management officials were in attendance. The session consisted of a joint presentation by DNC's BDB group and the SAFER organization on what constitutes a Beyond Design Basis External Event (BDBEE). Also addressed was DNC's BDB Mitigating Strategies, includeding the SAFER organization's response to a BDBEE. The presentation was followed by a question and answer session.

Personnel from the BDB group scheduled a meeting with the State of Connecticut - Emergency Management Program Supervisor in August 2014 to discuss the SAFER Response Plan, including the proposed routes for the delivery of emergency equipment from the NSRC and the onsite/offsite staging areas. The Emergency Management Program Supervisor is Millstone's Single-Point-Of-Contact for the State of Connecticut, covering the Department of Emergency Management, State Department of

Transportation (DOT), and State National Guard. Following this meeting an additional information exchange occurred in October 2014 with Department of Emergency Management, State DOT, and State Police personnel. This second information exchange occurred with representatives from DNC EP and BDB groups. The BDB group made a presentation to the State of Connecticut at the Department of Emergency Services & Public Protection (DESPP) Headquarters in Middletown, CT. This presentation covered the Background and Scope of the BDB Project and discussed the BDB-SAFER Response Plan, including the equipment and logistics for the delivery and set-up of pooled industry equipment to be used for long term response to a BDB event. Implementation of the SAFER plan involves cooperation with many State and Federal agencies, including the Department of Emergency Management and Homeland Security (DEMHS), DOT, State Police, National Guard, and the Federal Aviation Adminstration (FAA). This presentation provided a crucial interface between the Station and the State Emergency Response personnel. All attendees received a copy of the Millstone SAFER Response Plan document.

EP attends periodic meetings with the local officials that ensures offsite agencies are aware of and will support emergency response capabilities such as communications associated with a spectrum of emergency events, including BDBEE in accordance with Millstone's Emergency Response Plan.

Regarding the coordination of transportation modes for the delivery of equipment from off-site resources, DNC has placed a decision point within procedural guidance document EP-AA-FLX-101, Single Point of Contact, for use by DNC's Single Point of Contact (SPOC). Per the Attachment titled, "Millstone Travel Route Assessment and Debris Removal Guidance," the DNC SPOC is responsible for interfaces with the SAFER organization as the NSRC Phase 3 equipment is traveling towards the station.

The procedural guidance in this attachment includes a step that states:

> "**IF** projected road/haul paths from Bradley International Airport to the station are inaccessible or bridges have not been cleared by the State Emergency Management for NSRC ground transportation, **THEN** contact SAFER SPOC to dispatch ground transportation to Staging Area C for helicopter operation to the station."

The SAFER Response Plan has steps to simultaneously or concurrently initiate notifications for helicopter support from the multiple commercial helicopter companies, State National Guard via State Emergency Management organizations, and Federal support through the Federal Emergency Management Agency (FEMA).

ISE CI 3.1.2.2.A:

The licensee has identified open items related to deployment of equipment during flooding conditions resulting from a hurricane; to verify response times listed in the timeline and perform staffing assessment, and to perform an evaluation of all BDB equipment fuel consumption and required re-fill strategies, and to determine preferred travel pathways using the guidance contained in NEI 12-06. The pathways will attempt to avoid areas with trees, power lines, and other potential obstructions.

DNC Response:

Overall Integrated Plan (OIP) Open Item (OI) Number 10 was completed and documented as "Complete" in the Six-Month Status Update letter dated February 27, 2014 (SN: 12-161E). ETE-CPR-2012-0009 Revision 2, Sections 12.3.2.1 and 16.2.2, incorporated the response to Open Item Number 10 related to deployment of equipment during flooding conditions as stated below.

12.3.2.1 PROACTIVE ACTIONS FOR FLOODS WITH WARNING TIMES

> Existing procedures AOP 2560 (Reference 12-2) and C OP 200.6 initiate activities at the MPS2 site in response to storm/hurricane watches and warnings. In addition to securing items around the site, these activities include actions that impact the operation of the power plant in preparation for severe weather. At various stages of increased wind speed and surge level conditions, these procedures require adjustments be made to power level, various tank levels, etc. and the installation of flood barriers in preparation for a hurricane flood surge and loss of power onsite. Additionally, a BDB AFW pump will be deployed inside of the Turbine Building Truck Bay in advance of a site flooding event that could prohibit transport of this pump as a backup to the existing TDAFW pump located in the lower levels of the Turbine Building.

16.2.2 PRE-STAGED EQUIPMENT

> A portable diesel powered transfer pump and associated hoses, fittings and fuel oil are pre-staged in the MPS2 Turbine Building to transfer water to the Condensate Storage Tank (CST). In addition, a BDB AFW pump will be deployed in the MPS2 Turbine Building Truck Bay as part of storm preparations to provide back up to the TDAFW pump in the event of site flooding. Its placement will be approximately 75 feet from the primary connection point for auxiliary feed and the CST suction source.

The portion of ISE CI 3.1.2.2.A, "...verify response times listed in the timeline and perform staffing assessment," is a duplicate item and is documented in ISI CI 3.2.1.6.C and OIP OI 1.

The portion of ISE CI 3.1.2.2.A, "...perform and evaluation of all BDB equipment fuel consumption and required refill strategy," is a duplicate item and is documented in ISE CI 3.2.4.9.A. In that response it is identified that the fuel tank for the AFW pump is sized for 24 hours which provides more than adequate time for a PMH storm surge to recede.

The portion of ISE CI 3.1.2.2.A regarding the identification of preferred travel pathways is a duplicate item and is documented in ISE CI 3.1.1.2.A.

ISE CI 3.2.1.A:

Confirm that Combustion Engineering Case 21 in WCAP-17601-P, as evaluated in MPS2 document ETE-NAF-2012-0150, Section 6.1, is representative for MPS2 and appropriate for simulating the ELAP transient.

DNC Response:

Westinghouse Letter LTR-TDA-13-31, Attachment 5, confirmed that Combustion Engineering Case 21 in WCAP-17601-P was used to determine the time to reflux cooling for MPS2. The applicability of this reference case to MPS2 is evaluated in detail in ETE-NAF-2012-0150, Revision 2, Section 6.1. A specific comparison of simulation and plant parameters between MPS2 and the Combustion Engineering Case 21 is provided in Table F.1 in. ETE-NAF-2012-0150, Revision 2. Both LTR-TDA-13-31 and ETE-NAF-2012-0150, Revision 2 have previously been provided to the NRC staff and are available for review.

ISE CI 3.2.1.1.A:

Confirm that Westinghouse letter LTR-TDA-13-31, Revision 0-B, Attachment 1, shows that the CENTS code used in the ELAP analysis for Combustion Engineering (CE) plants is limited to analyzing the flow conditions before reflux boiling initiates. This review should confirm an acceptable definition for the initiation of reflux boiling.

DNC Response:

As discussed in Westinghouse Letter LTR-TDA-13-31, Dominion will deploy FLEX RCS makeup at 16 hours, prior to the onset of reflux cooling at 27.7 hours as calculated by CENTS in the reference analysis of Reference 1, Attachment 1, Table B.2.1.

To ensure adequate margin to reflux cooling, the PWROG proposed and the NRC accepted the following definition of when reflux cooling begins when applying the CENTS computer code:

"Reflux cooling begins when the one hour centered moving average (CMA) of SG U-bend flow quality has increased to 0.1 in any loop."

For the bounding case of RCP failed-seal leakage flowrate at the controlled bleed-off (CBO) line flow limiting check valve setpoint (15 gpm/RCP), Westinghouse calculations for MPS2 show transition to reflux cooling occurs at 24.7 hours after initiation of the event (see Table B.4-1 of WCAP-17992-P, Revision 0, "Emergency Procedure Development Strategies for Extended loss of AC Power Event for all Domestic Pressurized Water Reactor Designs.")

As stated in MPS2 OIP Six-Month Status Update letter dated August 23, 2013 (S/N 12-161D), RCS inventory make-up will be initiated within 16 hours of the occurrence of an ELAP/LUHS event. The injection flowrate of 45 gpm (~6 lbm/sec) exceeds the expected leak rate (<2 lbm/sec for 4 seals per WCAP-17601 Figure 5.5.2.1-5) at 16 hours, thus further RCS inventory reduction and reflux cooling will be avoided and the validity of the CENTS analysis is maintained.

ISE CI 3.2.1.2.A:

The RCP seal initial maximum leakage rate should be greater than or equal to the upper bound expectation for the seal leakage rate for the ELAP event discussed in the PWROG position paper addressing the RCP seal leakage for CE plants (ADAMS Accession No. ML13235A151 (Non-Publicly Available)) or justification should be provided for use of a lower value.

DNC Response:

The RCP seal leakage for the MPS2 plant-specific ELAP analysis is based on the CENTS thermal hydraulic analyses presented in Section 5.5.2 of WCAP-17601. This analysis assumed initial maximum leakage from the RCP seals at 15 gpm per pump. As described in WCAP-17601, this leak rate is based on failure of the first three (3) stages of all four (4) RCPs seals and the maximum flowrate through the controlled bleed-off (CBO) lines flow limiting check valves, which will shut when flow exceeds 15 gpm.

The upper bound expectation for seal leakage rate stated in the PWROG position paper addressing RCP seal leakage (Westinghouse Letter LTR-FSE-13-45 dated August 16, 2013) is 15 gpm per pump.

Therefore, the RCP seal leak rate used in the plant-specific analysis is equal to the upper bound expectation for seal leakage used in the PWROG position paper.

ISE CI 3.2.1.6.A:

Sequence of Event (SOE) Action Item 5 indicates that the ELAP is declared at 45 minutes, and Action Item 6 indicates that at 50 minutes (5 minutes after the declaration of the ELAP), the operator controls Steam Generator (SG) atmospheric dump valves (ADVs) and AFW flow locally as an on-going action for cooldown and decay heat removal. On page 105 of the integrated plan in Attachment 1B NSSS Significant Reference Analysis Deviation Table, the licensee notes in item 6 that cooldown starts at 2 hours at 75°F/hr. to a SG pressure of 135 psia. Clarification is needed to correct this apparent inconsistency.

DNC Response:

This item has been addressed in the formal response to Audit Question 21 provided in Attachment 3 of the MPS2 Six-Month Status Update letter dated February 28, 2014 (SN: 12-161E).

As indicated in the formal response, the MPS2 Sequence of Events timeline has been revised. The time constraint of 50 minutes has been corrected to 2 hours to be consistent with WCAP-17601.

ISE CI 3.2.1.6.B:

The licensee did not provide a discussion regarding the operator actions required to control SG ADVs and AFW flow and justification is needed to determine that all the required operator actions are reasonably achievable within the required time constraint of 50 minutes during the ELAP conditions, or a discussion regarding the required cooldown completion time that is supportable by analysis.

DNC Response:

This item has been addressed in the formal response to Audit Question 21 provided in Attachment 3 of the MPS2 Six-Month Status Update letter dated February 28, 2014 (SN: 12-161E).

As indicated in the formal response, the MPS2 Sequence of Events timeline has been revised. The time constraint of 50 minutes has been corrected to 2 hours to be consistent with WCAP-17601.

ISE CI 3.2.1.6.C:

Confirm that response times listed in the SOE timeline are verified and that staffing assessment has been performed.

DNC Response:

The staffing study for MPS has been completed in accordance with "Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident," Enclosure 5 pertaining to Recommendation 9.3, dated March 12, 2012. The staffing assessment was submitted by letter dated June 12, 2014, "Millstone Power Station Units 2 and 3, March 12, 2012 Information Request, Phase 2 Staffing Assessment Report," and in the "Response to Request for Additional Information Regarding Phase 2 Staffing Assessment Report, Recommendation 9.3," dated September 22, 2014. In the RAI response letter dated September 22, 2014, DNC notified the NRC that the final staffing assessment report would be submitted by July 30, 2015. Operator training was completed by April 30, 2015 and no issues were identified that would affect the results documented in the previous staffing submittals. The FLEX Support Guideline (FSG) strategies can be successfully implemented using the current minimum on-shift staffing. Therefore, the conclusions reached by the NRC following their review of the Phase 2 Staffing Study remain valid.

DNC has completed validation testing of the FLEX strategies for MPS2 in accordance with industry developed guidance. ETE-CPR-1014-1008, Revision 2, documents the activities used to assure that required tasks, manual actions, and decisions for FLEX strategies may be executed within the constraints identified in the Overall Integrated Plan.

ISE CI 3.2.2.A:

Following a BDB event, a vent pathway would be required in the event of SFP bulk boiling and can be established by opening the Fuel Building roll-up doors for inlet and outlet air flow. However the licensee's strategy for providing air flow to remove steam generated from pool boiling is not clear. The path for inlet and exhaust air is apparently the same i.e., the fuel building rollup doors. It is not clear from the discussion provided how this will enable a flow path to vent the steam and condensate from the Fuel Building.

DNC Response:

The NRC observation is correct. The description of the method for establishing a vent pathway for removal of steam or water vapor from the Spent Fuel Pool (SFP) area was incomplete in the February, 2013 OIP submittal for MPS2. The planned primary method to provide the vent pathway is to open the Auxiliary Building Roll-Up Door at the 14'6" level (Door 208) and open two doors at the 71' mezzanine level above the SFP (Doors 253 and 254) to produce a 'chimney effect' to provide venting of steam/vapor. The description of the vent pathway has been corrected in the Millstone FLEX basis document (ETE-CPR-2012-0009 Revision 2, Section 6.2.2).

Other methods are also available to provide ventilation for defense in depth. These methods include alternate door openings, use of fans, and removal of building siding.

ISE CI 3.2.3.A:

During the audit process the licensee stated that the details of the long term Containment cooldown and depressurization strategies for MPS2 are still under development. Upon selection of the preferred strategy, detailed GOTHIC analysis will be performed to document and validate the strategy and also to provide operators with timelines and guidelines for actions to ensure the long term integrity of the Containment throughout the Phase 3 of the postulated ELAP/LUHS scenario. Confirm that the revised analyses and the selected strategy are acceptable.

DNC Response:

OIP OI Number 14 was completed and documented as "Complete" in the Six-Month Status Update letter dated February 28, 2014 (SN: 12-161E). Attachment 2 of the update letter provided the Containment cooling strategy. OIP Open Item No. 3, which addresses the thermal and hydraulic calculations, is for confirmation that the Containment strategies are adequate. Calculation 13-015, "MPS2 & MPS3 FLEX Strategy Calculations," Revision 3 has been completed in response to Licensee

Identified Open Item 3. This calculation has previously been provided to the NRC staff and is available for review.

ISE CI 3.2.4.2.A:

The ventilation evaluation will be completed later this year and the results will be provided in the February 2014 6-Month update. Confirm that the evaluation and results are acceptable.

DNC Response:

Detailed evaluations of the effects of loss ventilation during an ELAP/LUHS have been completed and documented in the MPS2 FLEX basis document (ETE-CPR-2012-0009 Revision 2, Section 10.4.2) and Calculation MISC-11806, Revision 0. The purpose of these evaluations was threefold:

- To identify areas containing electrical and/or mechanical equipment heat loads that would be energized and or credited during the various phases of ELAP/LUHS coping strategies.

- To determine the steady state ambient air temperatures for these areas during the Loss of Ventilation following ELAP.

- To identify short and long-term compensatory cooling measures, if necessary and the timing for the implementation of these measures to maintain area temperatures below the acceptable levels.

Typically, the results show that opening doors early in ELAP/LUHS scenario can significantly limit temperature increases due to loss of forced ventilation, therefore, maintaining room temperatures generally less than 120°F. The supporting calculations for these evaluations are available for review on the ePortal site in the folder titled "MPS2 Ventilation Calculations".

Ventilation of the SFP area for removal of steam from SFP boil-off is addressed separately in Section 6.2.2 of ETE-CPR-2012-0009. Ventilation is established by opening various doors to allow airflow to provide ventilation in the SFP area. There are five doors at various elevations that can be opened to provide for the necessary ventilation pathways. In addition, holes can be cut in the metal façade of the building, if necessary, to achieve adequate ventilation of the SFP area.

The documents referenced in the above response have previously been provided to the NRC staff and are available for review.

ISE CI 3.2.4.4.A:

Confirm the adequacy of existing lighting and the adequacy of portable lighting to perform FLEX strategy actions.

DNC Response:

In order to validate the adequacy of supplemental lighting and the adequacy and practicality of using portable lighting to perform FLEX strategy actions, an evaluation of the tasks to be performed and the available battery powered emergency lighting in the designated task areas was completed. The results are documented in plant Design Change DC MPS2-12-01145 and summarized in Section 10.5 of ETE-CPR-2012-0009. Tasks evaluated included traveling to/from the various areas necessary to implement the FLEX strategies, making required mechanical and electrical connections, performing instrumentation monitoring, and performing component manipulations.

Some of the battery powered emergency lights are designated as Appendix R lights. These Appendix R lights are designed and periodically tested to insure the battery pack will provide a minimum of 8 hours of lighting with no external AC power sources. The remainder of the emergency lights are designed and tested for 90 minutes of lighting.

Battery powered emergency lights were determined to provide adequate lighting for all interior travel pathways needed to access the BDB connection points. However, in some areas supplemental lighting will be required to safely perform the required electrical and mechanical connections. Supplemental lighting may also be required to return from the required areas depending on when and how long these actions are required.

The supplemental lighting consist of ready to use flashlights and Remote Area Lighting Systems (RALS). The RALS will be deployed to support the FLEX strategy tasks. These RALS's are rechargeable LED lighting systems designed to power the LED lights for 7 hours at 6000 Lumens and 40 hours at 500 lumens.

FLEX Support Guideline FSG-5 directs the operators to use flashlights and RALS as part of their deployment. Accordingly, a number of RALS and flashlights are kept in the fully charged condition and stored in a location nearby to the MPS2 Control Room for easy access. All BDB equipment that is stored onsite, including supplemental lighting, is accounted for and maintained per the site Periodic Maintenance (PM) program.

Additional RALS and flashlights are stored in the BDB Storage Facility in a fully charged condition.

During a BDB event, a charging station powered by one of the portable 120VAC utility generators (also stored in the BDB Storage Facility) will be setup to provide charging of

RALS and flashlights as required. Flashlights are stored with spare batteries and RALS would not require recharging until after additional staff has arrived onsite.

There are no emergency lighting fixtures in the yard outside of the protected area that provide necessary lighting in those areas where portable BDB equipment is to be deployed. Therefore, the diesel powered pumps and generators are outfitted with light plants that are powered from their respective diesels to support connection and operation of BDB equipment. In addition to the lights installed on the portable BDB equipment, portable light plants are included in the FLEX response strategies. These portable diesel powered light plants can be deployed from the BDB Storage Building as needed to support night time operations. Additional portable light plants are available from the NSRC.

In addition to installed emergency DC lighting, flashlights and the stored RALSs and portable light plants, the BDB Storage Building also includes a ready to use stock of flashlights and head lights to further assist the staff responding to a BDB event during low light conditions.

ISE CI 3.2.4.4.B:

Confirm that upgrades to the site's communications systems have been completed.

DNC Response:

The study documenting the communications strategy has been completed. Subsequently, OIP OI Number 18 was documented as "Complete" in the Six-Month Status Update letter dated February 28, 2014 (SN: 12-161E). The plan concluded that FLEX strategies can be effectively implemented with a combination of satellite phones and hand-held radios. The study acknowledges that MPS2 does not have a sound-powered phone system or equivalent and that radio usage is sufficient but limited in some "alternate connection" areas. A portable radio repeater is available to enhance radio communications, once the communications trailer is deployed. The tabletop assessment of the FLEX strategies performed as part of the Phase 2 Staffing study identified that the coordination for command and control of the FLEX strategies between the MPS2 and MPS3 Control Rooms will initially require the use of dispatched personnel until a pre-staged, battery operated field phone system is deployed.

Although the overall communications plan has not changed for MPS2, the details regarding the components to be used and the number of components have continued to evolve. At this time, the quantity of components needed to implement the communications strategy has been determined to be 40 satellite phones and 40 hand held radios. These numbers represent both operating units on the Millstone site. Distribution of the satellite phones includes MPS2 and MPS3 Control Rooms (MCR),

the Technical Support Center (TSC), Local Emergency Operations Facility (LEOF), and the surrounding county Offsite Response Organizations. The hand held radios are for command and control of the FLEX mitigating strategies and include 10 spare radios, a portable radio repeater, and three batteries per device.

The required communications equipment has been received and tested onsite and all required modifications to implement the MPS2 communications strategy have been completed.

The MCR and TSC satellite phones were installed per plant design change DC MPG-14-01080. Hand-held satellite phones are available for initial notifications of state, federal, and local authorities. Afterward, Security personnel will deploy a satellite phone antennae setup. This antennae setup will be established with a fiber optics cable from an outdoor portable dish antennae to the installed inside "desk sets." This portion of the communications strategy is intended to suffice for approximately the first six hours. Once augmented staff arrives onsite, a mobile communications trailer designed to handle both satellite voice and data traffic, as well as to function as a radio repeater to enhance onsite communications, will be deployed from the BDB Storage Building.

In response to specific questions received during the July 2014 NRC Onsite Audit, the following additional information is provided:

Question 1: Complete the assessment of the TA-312 sound powered phones for all five hazards (survivability), including potential challenges in the routing of the phones.

The Battery Operated Field Phones are stored in a locker in the MPS3 Control Building and a locker in the Millstone Unit 1 Control Room (for the MPS2 phones). The lockers each contain two Battery Operated Field Phones (TA-312), a DR-8 reel of WD-1 wire with two RL159 Reeling Machines, a roll of Duct Tape, packages of "D" Cell batteries, reel wire connectors, wire nuts, roll of electrical tape, wire stripper/cutter, and a portable radio. These lockers are protected from flooding, high winds/missiles, extreme temperatures, and are secured/supported in order to be seismically protected.

Upon the loss of communication between the MCRs, the Battery Operated Field Phones and replacement batteries will be moved from their lockers to each of the Unit Supervisor's Desks and the WD-1 wire will be deployed between the MPS3 Control Room and MPS2 Control Room along the west side of the station (primary path). This is the shortest distance and offers the best opportunity for the person deploying the wire to communicate via portable radios, if necessary. If the west side of the station is inaccessible, an alternate path is to deploy the wire on the east side of the station which is the longest cable route. If outside conditions make deployment outside the site structures hazardous or impractical, there is an additional alternate deployment path inside the plant through the Turbine Buildings and the Condensate Polishing Facility. The cable has been tested through closed doors, including water tight doors,

and no damage to the wire or the wire jacket was observed as well as no reduction in sound quality.

Question 2: Look at implementing procedural and emergency plan changes needed to allow each Unit to individually declare an ELAP, in the event communications between the CRs can be not effectively established in the required timeframe. The impact on off-site organizations needs to be considered.

MPS has two separate control rooms which present a unique challenge for onsite communications. Each unit's control room operates independent of the other and each enters their own unit-specific procedures in response to a loss of AC power event. Site procedures currently establish the Shift Manager (SM) in the MPS3 Control Room as the Site Emergency Manager for matters that impact the entire site and for notifications to offsite federal, state, and local agencies.

However, in accordance with the MPS Emergency Plan, each unit can declare an emergency situation to offsite agencies using the satellite phones available in each control room. In the event that MPS2 is at minimum staffing when a BDB external event occurs, they may not have an available designated MPS Emergency Plan communicator and would then rely on a "runner" to notify MPS3 of the MPS2 situation. In this case, MPS3 would provide the required offsite notifications for both units.

For this minimum staffing scenario, a MPS2 Chemistry Technician will report to the MPS2 Control Room upon the loss of AC power event. If communications between the control rooms is not available, the MPS2 SM will direct the Chemistry Technician to immediately function as the "runner" to communicate the status of MPS2 to the MPS3 Control Room SM. This dialogue will occur upon declaration of the emergency on MPS2 and will allow the MPS3 SM to make appropriate notifications in accordance with the requirement of the MPS Emergency Plan. Accordingly, there should be no impact on the notification of offsite organizations since they would be initiated as required.

After briefing the MPS3 SM, the MPS2 Chemistry Technician will then support the MPS3 Chemistry Technician in the process of deploying the Battery Operated Field Phones (TA-312) as required, as discussed in the response to Question 1, to establish direct communications between the Control Rooms. This deployment should be complete within 45 minutes from the initiation of the BDB event, which corresponds to the anticipated time at which each unit would be declaring that an ELAP has occurred. However, if needed, the Chemistry Technicians can continue to function as "runners" in the event the Battery Operated Field Phones are not deployed and operating. MPS2 would require information on the status of the site Station Blackout (SBO) diesel from the MPS3 SM in order to declare an ELAP. If communication between the Control Rooms has not been established with the sound-powered field phones, this information would be communicated by a "runner."

By letter dated September 22, 2014, DNC responded to a Request for Additional Information regarding the MPS Phase 2 Staffing Report. In this response, the role of Security in the deployment of communications equipment was identified. Essentially, four Security Officers have been designated to assist with debris removal and staging FLEX and communications equipment. The use of security personnel to perform BDB functions was based upon a tiered approach to minimize the impact to security response capability.

With regard to communications equipment, Security personnel will deploy the RapidCom satellite phone antennae arrangement. Later, they will deploy the Communications on Wheels (COW) trailer with a self powered satellite phone antennae setup and a radio repeater to improve site radio reception.

ISE CI 3.2.4.6.A:

Additional information is needed to confirm habitability of the Main Control Room during the ELAP.

DNC Response:

As discussed in response to ISE CI 3.2.4.2.A, the Control Room Complex habitability analysis has been documented in Section 10.4.2 of the MPS2 FLEX Strategy Document (ETE-CPR-2010-0009, Revision 2).

As discussed in Sub Section 10.4.2.2.1, Calculation 07-ENG-04264M2, Revision 0, identified that the Phase 2 restoration of 480 VAC results in a significant increase in the Control Room heat load which is accommodated by the restoration of Control Room HVAC soon after restoration of 480 VAC.

Repowering of Control Room HVAC will ensure that the area temperatures remain well below the habitability temperature limit of 110°F for the duration of the ELAP/LUHS scenario.

The documents referenced in the above response have previously been provided to the NRC staff and are available for review.

ISE CI 3.2.4.7.A:

Westinghouse is currently performing an analysis to determine the consequences of usage of impure water sources in the steam generators. The results of the analysis are expected to provide the allowed time limits on usage of these sources. The NSRC will provide equipment to initiate residual heat removal and water treatment equipment such that heat removal can be ensured for extended durations. Confirm that the analysis results and resultant strategies are acceptable.

DNC Response:

The onsite water sources have a wide range of associated chemical compositions. Therefore, extended periods of operation with the addition of these various onsite water sources to the Steam Generators (SGs) have been evaluated by Westinghouse for impact on long term SG performance (heat transfer) and SG material (e.g., tube) degradation. The analysis provides guidance for times that the various onsite water sources can be used for the core cooling/decay heat removal, but does not define failure limits for BDB event response or for the SGs.

The SG design corrosion limit corresponds to operating temperatures and pressures and is a conservative approach to the evaluation. Exceeding the expected time to reach the SG design corrosion limit would have an insignificant impact on the ability of the SG to remove core decay heat from the RCS due to the significantly lower than design SG temperature/pressure conditions. However, continued corrosion could become a tube integrity concern.

Reaching the limiting SG precipitation levels could potentially impact/reduce SG heat transfer capability. The accumulation of precipitates in the SG may eventually block flow through the SG. Precipitation accumulation is conservatively evaluated using a Total Suspended Solids (TSS) value of 500 ppm.

The onsite freshwater pond can be credited for all site hazards except for flooding. This water source could be used for approximately 237 hours after Condensate Storage tank (CST) depletion before the SG design corrosion limit is reached. The corrosion evaluation is bounding since the precipitation evaluation becomes limiting at approximately 376 hours. In the event of flooding, several onsite tanks containing clean water suitable for use in the SGs for extended periods of time are available.

In addition to the onsite tanks, the city water supply would be available as a clean water source for the SGs. The analyses show that the city water could be used for approximately 444 hours after CST depletion before the SG design corrosion limit would be expected to be reached. However, using the conservative TSS level of 500 ppm, the analyses for precipitation show that the city water could be used for approximately 387 hours after CST depletion before the limiting SG precipitation level

would be expected to be reached. This evaluation also applies to the site fire systems since their water source is from the city water supply.

The Refueling Water Storage Tanks (RWST) could be used for approximately 116 hours after CST depletion before the SG design corrosion limit is reached. However, it is noted the minimum usable inventory of the RWST is only expected to last 66 hours after CST depletion. Also, once the borated RWST is introduced into the SGs, the pH of the SG fluid is lowered, causing active corrosion. Thus, the SG corrosion rates would not decrease until the concentration of boric acid is reduced by a method such as feed and bleed. Boric acid precipitation is not a concern based on the more limiting corrosion evaluation and elevated SG temperatures (the analyses were performed at a SG temperature of 341°F).

Due to the fact that the water from Long Island Sound (LIS) is seawater, its use should only be considered as a last resort in either the SGs, the Reactor Coolant System, or in the Spent Fuel Pool.

During Phase 3, Reverse Osmosis (RO) / Ion Exchange (IX) equipment (up to 300 gpm capacity) is delivered from the NSRC and deployed to the site to remove impurities from the onsite water sources. Once the RO/IX equipment is in operation, the onsite water sources can provide for an indefinite supply of purified water without dependence on water from LIS.

ISE CI 3.2.4.9.A:

A secondary source for fuel oil will be the MPS3 Diesel Fuel Oil Storage Tanks. These underground tanks contain a minimum of 32,670 gallons of fuel oil. They are seismic and missile protected. Confirm the ability to transfer this fuel, and complete an evaluation of all BDB equipment fuel consumption and required re-fill strategies, including any gasoline required for small miscellaneous equipment.

DNC Response:

The BDB equipment includes a refueling tank truck. This refueling tank truck is stored in the fully protected FLEX Storage Building and will be used to refuel the diesel fueled BDB event response equipment. This refueling tank truck has a capacity of 1100 gallons. The tank truck is equipped with necessary pumps, hoses, meters and valves to fill the truck and refuel the BDB equipment. The re-fueling strategy (sources, frequencies, locations, etc.) is directed as part of the FSGs.

All of the key BDB equipment (generators, pumps, vehicles etc) are maintained with sufficient fuel to protect the equipment from moisture accumulation in the fuel and corrosion of the fuel tanks. In addition, this strategy facilitates the prompt deployment

and placing in service of BDB equipment following a BDB external event. Preventative Maintenance is performed to sample, condition and/or replace the fuel in all of the BDB equipment to insure proper fuel conditions are maintained for equipment operation.

The refueling tank truck is equipped with an on-board Blackmere TDA 2A pump driven from the truck's PTO (Power Take-Off). This pump is used for filling the truck as well as refueling the BDB equipment. The pump has a variable flow rate adjustment with a max capacity of >50 GPM. The refueling tank truck is also equipped with 125 ft. of 1" discharge hose and line nozzle for refueling operations. Based on the pump capacity, the refueling tank truck's 1100 gallon tank can be filled in approximately 20 minutes. The refueling tank truck can be refilled from the diesel fuel sources identified in section 10.7.1 of ETE-CPR-2012-0009 "Beyond Design Basis Overall Integrated Plan Basis Document" using the refueling tank truck's on-board fuel oil pump.

It is highly unlikely that all of the BDB equipment listed below would be required and be operating simultaneously and at full load. However, using a conservative fuel consumption rate of 120 Gal/hr, the refueling tank truck has sufficient capacity to support continuous operation of the major BDB equipment expected to be deployed and placed into service following a BDB external event. At this conservative fuel consumption rate, the two 13,000 gallon Diesel Fuel Oil Day Tanks at MPS2 and the two 32,760 gallon underground fuel oil storage tanks at MPS3, which are all protected from BDB hazards, have adequate capacity to provide the major onsite BDB equipment with diesel fuel for >30 days. This fuel can be transferred from the fuel oil storage tanks using the suction hose from the refueling tank truck's installed pump. The NSRC can also provide diesel fuel for diesel operated equipment thus providing additional margin.

The diesel fuel consumption information above does not include the large 4Kv generators to be received from the NSRC. Although diesel fuel oil is available from the NSRC, provisions for an ongoing receipt of diesel fuel from offsite sources are in place to support continued implementation of the Phase 3 re-powering strategy with the 4Kv diesel generators.

The BDB external event response strategy includes a very limited number of small support equipment that is powered by gasoline engines (chain saws, chop saws and small electrical generator units). These components will be re-fueled using portable containers of fuel. Gasoline fuel will be obtained from private vehicles onsite, or the above ground gasoline storage tank if it survives. Gasoline Fuel sources are discussed further in Section 10.7.1 of ETE CPR-2012-0009 "Beyond Design Basis Overall Integrated Plan Basis Document".

MPS BDB Equipment Fuel Tank Evaluation

Component	Tank Capacity	Fuel Usage Rate	Run Time w/Full Tank	Tank Construction
AFW Pump #1 AFW Pump #2 AFW Pump #3	275 Gal	10.9 Gal / Hr	24 Hr	Double Wall
RCS Injection Pump #1 RCS Injection Pump #2	300 Gal	7.75 Gal / Hr	24 Hr	Double Wall
High Capacity Pump #1 (H130M) High Capacity Pump #2 (H130M)	500 Gal	14.3 Gal / Hr	24 Hr	Double Wall
480 VAC Gen #1 480 VAC Gen #2 480 VAC Gen #3	500 Gal	28.1 Gal / Hr	17 Hr	Double Wall
120 VAC Gen #1 120 VAC Gen #2 120 VAC Gen #3	80 Gal	3.3 Gal / Hr*	24 Hr	Double Wall
John Deere M6125 Tractor John Deere M6125 Tractor	58 Gal	Varies	Varies	Single Wall
John Deere Utility Vehicle (Gator)	6 Gal	Varies	Varies	Single Wall
Caterpillar 924 loader	60 Gal	Varies	Varies	Single Wall
Fuel Truck	40 Gal	Varies	Varies	Single Wall
Fuel Truck Tank	880 Gal	N/A	N/A	Single Wall
Light Plant #1 Light Plant #1	30 Gal	0.3 Gal/Hr	> 3 days	Single Wall
Sullair 375H Compressor #1 Sullair 375H Compressor #2	56 Gal	7.0 Gal / Hr	8 Hrs	Single Wall
Communications on Wheels (COW)	32 Gal	0.4 Gal / Hr*	80 Hrs	Single Wall
120 VAC 5.5kw Gen #1 120 VAC 5.5kw Gen #2 120 VAC 5.5kw Gen #3	5 Gal	0.4 Gal / Hr*	12.5 Hrs	Single Wall

Component	Tank Capacity	Fuel Usage Rate	Run Time w/Full Tank	Tank Construction
120 VAC 5.5kw Gen #4 120 VAC 5.5kw Gen #5 120 VAC 5.5kw Gen #6 120 VAC 5.5kw Gen #7 120 VAC 5.5kw Gen #8	3.6 Gal	0.4 Gal / Hr*	9 Hrs	Single Wall
* Estimated from run time specification.				

ISE CI 3.2.4.10.A:

The licensee has completed an analysis of the battery capability regarding expected time available with ac power. Site specific procedural guidance governing load stripping will be developed. Confirm electrical components performance requirements and electrical loading-related strategy objectives can be met.

DNC Response:

The timing sequence for DC Load Shed is documented in ETE-CPR-2012-0009, Revision 2 (Chapter 7 & 10). Calculation No. 2013-ENG-04408E2, Revision 0, "MPS2 BDB Battery Calculation" has been prepared that documents a battery life of approximately 29 hours with the DC load stripping as described below with no AC charging and the battery performance requirements maintained to ensure adequate DC voltage is supplied to the required BDB equipment prior to loss of battery capacity:

- At 45 minutes into the event the process of de-energizing non-BDB required DC loads from batteries 201A and 201B begins. DC loads to be de-energized are documented in ETE-CPR-2012-0009, Revision 2 (Appendix 7A).

- At 75 minutes into the event, the cross-tie between batteries 201A and 201B is established and the process of de-energizing non-BDB required DC loads from batteries 201A and 201B is complete.

FSG-4, "ELAP DC Load Shed/Management" contains the procedural guidance to implement load shedding in order to prolong the battery life until power can be restored using the BDB portable diesel generators.

The load stripping of non-critical DC and Vital AC loads within 30 minutes is considered a Time Sensitive Operator Action and has been added to ETE-CPR-2012-0009, Table 9.1-1, "FLEX Overall Timeline." Performance of the above listed Time Sensitive Operator actions has been validated during the validation of the FSG procedures.

Additionally, in response to specific questions received during the July 2014 NRC Onsite Audit, the following information is provided:

a) Battery busses 201A and 201B cross-ties: The installed DC cross-tie at MPS2 is part of the original plant design basis and utilizes General Electric (GE) breakers that are 1600 amp frame breakers with an 800 amp trip coil rating. These breakers are designed for switching loads up to 800 amps and quench a fault current up to 50,000 amps without causing any arc flashes outside the switchgear assembly. Therefore, as long as the circulating current is less than 800 amps, the breaker will close and the battery voltage will equalize without any cause for personnel safety concerns. The MPS2 DC battery cross-tie is implemented each refueling outage in Mode 5 with a slight voltage differential between the DC buses with no issues having occurred to date. Vital batteries 201A and 201B are the same size and made by the same manufacturer. The battery duty cycles for these batteries are almost identical as verified by comparing the battery terminal voltage at 75 minutes after a loss of AC charging. The design basis calculations indicated that the battery terminal voltages track together throughout the battery cycle and that the terminal battery voltage difference is minimal.

b) C&D batteries duty cycle greater than 8 hours: The run-time for the MPS2 DC battery busses 201A and 201B was calculated in accordance with the Institute of Electrical and Electronic Engineers Standard No. 485 (IEEE 485) methodology using manufacturer discharge test data applicable to the MPS2 FLEX strategy as outlined in the NEI position paper, "EA-12-049 Mitigating Strategies Resolution of Extended Battery Duty Cycles Generic Concerns," (ADAMS Accession No. ML13241A186). Calculation No. 2013-ENG-04408E2, Revision 0, documented a battery life of approximately 29 hours with the DC load stripping as described above. The MPS2 vital batteries are C&D Technologies LCR-33. The batteries have 60 cells and a capacity of 2320 ampere-hour (A-H). These batteries are calculated to function for a 29 hour duration. NUREG/CR-7188, "Testing to Evaluate Extended Battery Operation in Nuclear Power Plants," provides a basis to demonstrate the capability of the MPS2 C&D batteries to function as calculated following an ELAP event.

ISE CI 3.4.A:

The licensee's plans for the use of off-site resources conform to the minimum capabilities specified in NEI 12-06 Section 12.2, with regard to the capability to obtain equipment and commodities to sustain and backup the site's coping strategies (item 1).

Confirm the licensee addresses the remaining items (2 through 10), or provides an appropriate alternative.

DNC Response:

Considerations 2 through 10 in Section 12.2 of NEI 12-06 are, in general, considerations applicable to the third party organization handling the Phase 3 portion of the FLEX Mitigating Strategies. This organization, SAFER, has prepared a White Paper addressing these nine considerations. This White Paper was formally transmitted to the NRC for endorsement on September 11, 2014, (ADAMS Accession No. ML 14259A222), and endorsed by the NRC in a letter dated September 26, 2014 (ADAMS Accession No.ML 14265A107).

The documents referenced in the above response have previously been provided to the NRC staff and are available for their review.