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Dominion®

August 23, 2013

10 CFR 2.202
EA-12-049

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

Serial No.: 12-161D
NL&OS/MAE: R0
Docket Nos.: 50-336/423
License Nos.: DPR-65
NPF-49

DOMINION NUCLEAR CONNECTICUT, INC.
MILLSTONE POWER STATION UNITS 2 AND 3
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. 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
3. NEI 12-06, Diverse and Flexible Coping Strategies (FLEX) Implementation Guide, Revision 0, dated August 2012
4. Dominion Nuclear Connecticut, Inc.'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 25, 2012 (Serial No. 12-161A)
5. Dominion Nuclear Connecticut, Inc.'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 28, 2013 (Serial No. 12-161B)
6. Dominion Nuclear Connecticut, Inc.'s Supplement to 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 April 30, 2013 (Serial No. 12-161C)

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 directs DNC 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 endorsed industry guidance document NEI 12-06, Revision 0

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(Reference 3) with clarifications and exceptions. Reference 4 provided DNC's initial status report regarding mitigation strategies, Reference 5 provided DNC's overall integrated plan, and Reference 6 provided a supplement to DNC's overall integrated plan.

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 six-month status reports (pursuant to Section IV, Condition C.2, of Reference 1), delineate the progress made in implementing the requirements of Reference 1 and are provided as Attachments 1 and 2 (for Millstone Units 2 and 3, respectively) to this letter. The attached reports also provide an update of milestone accomplishments since the supplement to the overall integrated plan (Reference 6), including any changes to the compliance method, schedule, or need for relief and the basis, if any.

If you have any questions, please contact Ms. Margaret Earle at (804) 273-2768.

Sincerely,

Eugene S. Grecheck
Vice President - Nuclear Engineering and Development
Dominion Nuclear Connecticut, Inc.

Attachments:
1. 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 – Millstone Power Station Unit 2
2. 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 – Millstone Power Station Unit 3

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 Eugene S. Grecheck who is Vice President - Nuclear Engineering and Development of Dominion Nuclear Connecticut, Inc. He has affirmed before me that he is duly authorized to execute and file the foregoing document in behalf of the Company, and that the statements in the document are true to the best of his knowledge and belief.

Acknowledged before me this 23rd day of August, 2013.

My Commission Expires: December 31, 2016.

Notary Public

CRAIG D SLY
Notary Public
Commonwealth of Virginia
Reg. # 7518653
My Commission Expires December 31, 2016

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NRC Senior Resident Inspector
Millstone Power Station

Attachment 1

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

Millstone Power Station Unit 2

Dominion Nuclear Connecticut, Inc. (DNC)

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 (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 NRC Order Number EA-12-049 (Reference 2). This attachment provides an update of milestone accomplishments and open items since submittal of the OIP, including any changes to the compliance method, schedule, or need for relief/relaxation and the basis, if any.

2 Milestone Accomplishments

The following milestone has been completed since the development of the OIP, and is current as of July 31, 2013.

- Submit Integrated Plan

3 Milestone Schedule Status

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

The revised milestone target completion date for 'Develop Strategies' does not impact the Order implementation date.

Milestone	Target Completion Date	Activity Status	Revised Target Completion Date
Submit Integrated Plan	Feb 2013	Complete	
Develop Strategies	July 2013	Started	October 2013
Develop Modifications	Feb 2014	Started	
Implement Modifications	Aug 2014	Started	
Develop Training Plan	Apr 2014	Started	
Implement Training	Aug 2014	Not Started	
Issue FLEX Support Guidelines (FSGs) and Associated Procedure Revisions	Sept 2014	Not Started	
Develop Strategies/Contract with Regional Response Center	Apr 2014	Started	

Milestone	Target Completion Date	Activity Status	Revised Target Completion Date
Purchase Equipment	Feb 2014	Started	
Procure Equipment *	Aug 2014	Not Started	
Validation Walk-throughs or Demonstrations of FLEX Strategies and Procedures*	Dec 2014	Not Started	
Create Maintenance Procedures	Aug 2014	Not Started	
Outage Implementation	Oct 2015	Not Started	

* Refer to Section 8 for an explanation of the change to this Milestone.

4 Changes to Compliance Method

By letter dated February 28, 2013, Serial No. 12-161B, DNC provided an OIP to address Beyond-Design-Basis (BDB) events at MPS2 and MPS3 as required by Order Number EA-12-049, dated March 12, 2012. The following are changes to the compliance method for MPS2 that meet NEI 12-06 (Reference 3), but are changes to the information provided in the OIP:

a) Details of the strategy for the portable diesel generators (DGs) used to re-power the 120VAC vital bus circuits, as described in Section F1.2 – PWR Portable Equipment Phase 2, have changed for MPS2. The primary and alternate strategies have been switched. The primary strategy is to deploy a 480VAC diesel generator (DG) from the BDB Storage Building to the location identified in OIP Figure 6. The generator will be used to power the "B" Battery Charger which in turn supplies power to the vital AC instrument panels VA20 and VA40. The 480VAC DG connection strategy is unchanged. As an alternate re-powering method for instrumentation, the 120/240VAC portable DGs will be used to power vital AC instrument panels, VA20 and VA40. These DGs will be stored in the BDB Storage Building. Deployment locations are unchanged.

   The kW rating of the 120/240VAC DGs, which are now the alternate re-powering strategy, has been increased such that a single DG can be used to re-power the 120VAC vital bus circuits. A second 120/240VAC DG of the same rating will be available as a full capacity backup. The connection strategy for the alternate re-powering supply is unchanged. OIP Figures 6 and 7 are not revised for the 120/240VAC DG strategy since the change to the figures would only reflect that the distribution panels are powered from one DG instead of two.

b) Changes to the timing of the RCS Injection strategy have been made. The details and descriptions provided in Section C.2 of the OIP for RCS injection are the same, including the time at which natural circulation capability is lost, i.e., approximately 32 hours based on WCAP-17601 (Reference 5) and ETE-NAF-2012-0150 (Reference 9). For conservatism and margin to account for uncertainty within the calculations and

unanticipated deployment issues, a time of 16 hours has been chosen which provides significant margin (by a factor of 2) prior to loss of natural circulation and the start of reflux boiling.

c) Details of the Phase 2 alternate strategy for RCS inventory control, as described in Section C.2 – PWR Portable Equipment Phase 2, have changed for MPS2. The BDB RCS Injection pump will continue to be the primary strategy to add water to the RCS during Phase 2, however, the back-up strategy has been revised and involves the use of an installed charging pump. As the alternate RCS injection strategy, the installed "B" or "C" charging pump will be used to add borated water from the Refueling Water Storage Tank (RWST) (primary water source) or the Boric Acid Storage tanks (alternate water source) to the RCS.

   Use of an installed charging pump as the alternate RCS injection strategy to support the start of RCS injection at 16 hours creates a new time constraint. In order for the charging pump to be available as an alternate, the 480VAC power supply must also be available. When supplemental staff arrives after 6 hours, the portable 480VAC generator will be deployed from the BDB Storage Building to provide power to vital 480VAC Bus 22F. The charging pumps will then be powered from Bus 22F to provide borated water to the RCS from either the primary or alternate water sources.

   The primary water supply, RWST, is already described in OIP Section C.2. The alternate water source, for use with an installed charging pump, is the Boric Acid Storage tanks (BASTs). These tanks are 6,600 gallon, insulated, temperature-controlled, storage tanks that store boric acid with an approximately 2.5 to 3.5 weight percent concentration. The BASTs are safety-related, seismically designed and located in the missile protected Auxiliary Building.

d) Details of the alternate connection strategy for RCS injection, as described in Section C.2 – PWR Portable Equipment Phase 2, for use with the BDB RCS Injection pump have changed for MPS2. The discharge crosstie valve between the "A" charging pump and the "B" and "C" charging pumps, 2-CH-338, will no longer be used as the alternate connection for the BDB RCS Injection pump. The piping upstream of this original alternate connection has been determined to not be designed to withstand the discharge pressure of the BDB RCS Injection pump. Consequently, the alternate RCS injection connection will use the hydrostatic test connection in the charging header. A revised Figure 4 showing the new alternate RCS injection connection is attached.

e) The quantities of BDB equipment stated in the OIP Table 1, PWR Portable Equipment Phase 2, have changed. Per Footnote 1 to Table 1, the quantities were based on the assumption that two storage buildings would be available to store BDB equipment pending completion of the study to determine the details of the BDB Storage Building(s). Open Item No. 4 has been completed and the decision to have one storage building is documented in Section 6 of this update. A revised Table 1 is attached.

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 from Overall Integrated Plan

The following table provides a summary of the open items documented in Attachment 2B of the Overall Integrated Plan and the status of each item.

Overall Integrated Plan Open Item		
OI #	**Description**	**Status**
1	Verify response times listed in timeline and perform staffing assessment.	Not started Scheduled completion date: December, 2014
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 4)
3	Analyses will be performed to develop fluid components performance requirements and confirm fluid hydraulic-related strategy objectives can be met.	Started. Scheduled completion date: September, 2013
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 will be constructed at Millstone Power Station for storage of BDB equipment. The building will be designed to meet the plant's design basis for the Safe Shutdown Earthquake, high wind hazards, snow, ice and cold conditions, and located above the flood elevation from the most recent site flood analysis. The BDB Storage Building will be sited north of the bridge near the salt shed. This update

Overall Integrated Plan Open Item		
OI #	**Description**	**Status**
		provides the supplemental information referred to in this open item.
5	FSGs will be developed in accordance with PWROG guidance. Existing procedures will be revised as necessary to implement FSGs.	Started. Scheduled completion date: September, 2014
6	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.	Not started. Scheduled completion date: December, 2014
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.	Started. Scheduled completion date: December, 2014
8	The Dominion 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).	Started. Scheduled completion date: December, 2014

Overall Integrated Plan Open Item		
OI #	**Description**	**Status**
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 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 will develop plant specific FSGs for MPS2 to address plant response for post-loss of all AC power. Specifically, depressurization of SGs to a plant specific value of either a target SG pressure to prevent Safety Injection Tank (SIT) nitrogen injection OR a minimum steam pressure to support continuous operation of the turbine driven (TD) AFW pump will be specified. (Reference 10)
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.	Started. Scheduled completion date is revised from December, 2013 to October, 2013 **
11	Plant modifications will be completed for permanent plant changes required for implementation of FLEX strategies.	Started. Scheduled completion date: See Milestone Schedule
12	Complete the engineering evaluation of the tornado missile protection of main steam atmospheric dump valve (MS ADV) outlet lines.	Started. Scheduled completion date: December, 2013

Overall Integrated Plan Open Item		
OI #	**Description**	**Status**
13	Complete the evaluation of TDAFW pump long term operation with ≤ 120 psig inlet steam pressure.	Complete. TDAFW pump operation and adequate AFW flow to the SGs at SG pressures < 120 psig has been confirmed. (References 6 and 7)
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.	Started. Scheduled completion date is revised from December, 2013 to October, 2013 **
15	Analyses will be performed to develop electrical components performance requirements and confirm electrical loading-related strategy objectives can be met.	Started. Scheduled completion date: September, 2013
16	An evaluation of all BDB equipment fuel consumption and required re-fill strategies will be developed.	Started. Scheduled completion date: June, 2014
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.	Started. Scheduled completion date: June, 2014
18	A communications study will be performed in accordance with the statements made in response to Recommendation 9.3 of the 10 CFR 50.54(f) letter dated March 12, 2012 in DNC letter S/N 12-208F dated October 29, 2012. **	Started. Scheduled completion date: Consistent with Rec 9.3 implementation dates
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.	Started. Scheduled completion date is revised from September, 2013 to October, 2013**
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.	Started. Scheduled completion date: June, 2014

Overall Integrated Plan Open Item		
OI #	**Description**	**Status**
21	The equipment listed in Table 1 will be procured. **	Not started. Scheduled completion date is revised from December, 2013 to August, 2014 **

- ** Refer to Section 8 for an explanation of the change to this Open Item.

7 Potential Draft Safety Evaluation Impacts

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

8 Supplemental Information

This supplemental information provides details of changes identified in the status updates above and addresses the following topics: a) a revision to Open Item No. 10, b) a revision to Open Item No. 14, c) a revision to Open Item No. 18, d) a revision to Open Item No. 19, e) a revision to Open Item No. 21, f) a revision to Milestone Task 'Procure Equipment', and g) the addition of Milestone "Validation Walk-throughs or Demonstration of FLEX Strategies and Procedures."

a) **MPS2, Open Item 10:** The Open Item completion date is revised to October 2013 to be consistent with the revised completion date for the Milestone "Develop Strategies."

b) **MPS2, Open Item 14:** The Open Item completion date is revised to October 2013 to be consistent with the revised completion date for the Milestone "Develop Strategies."

c) **MPS2, Open Item 18:** The revision to the wording more accurately reflects the planned activities to determine and validate that adequate communications are available to implement FLEX strategies in all phases of the response to an ELAP/LUHS event. The revised Open Item 18 is as follows:

> A comprehensive study of communication capabilities is being performed in accordance with the statements 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 Power Station. Validation of communications required to implement FLEX strategies will be performed as part of Open Item No. 1.

d) **MPS2, Open Item 19:** The Open Item completion date is revised to October, 2013. Additional time is required to complete the ventilation calculations needed to finalize the MPS2 ventilation strategy.

e) **MPS2, Open Item 21:** The revision to the wording more accurately reflects the equipment that will be purchased and delivered to the site consistent with the Milestone schedule. The updated completion schedule accurately reflects the Milestone schedule. The revised Open Item and revised completion schedule are as follows:

> Open Item 21: The equipment listed in Table 1 will be received on site.
> Completion Schedule: August 2014

f) **Milestone Task 'Procure Equipment':** The revision to the wording more accurately reflects the actual tasks as they occur in sequence. The revised milestone task is the successor to 'Purchase Equipment'. The revised Milestone Task is as follows:

> Milestone Task: Receive Equipment

g) **Milestone Task 'Validation Walk-throughs or Demonstration of FLEX Strategies and Procedures':** This milestone was added for consistency with template and industry formats. It corresponds to the activity previously identified in Open Item No. 1. The scheduled milestone date is the same as the open item completion date.

9 References

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

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.
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. NEI 12-06, "Diverse and Flexible Coping Strategies (FLEX) Implementation Guide," Revision 0, dated August 2012.
4. DNC letter 12-161C, "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.
5. WCAP-17601, "Reactor Coolant System Response to the Extended Loss of AC Power Event for Westinghouse, Combustion Engineering and Babcock & Wilcox NSSS Designs", August 2012.
6. Calculation 13-024, "Turbine Driven Auxiliary Feedwater (TDAFW) Pump Delivered Flow at Reduced Steam Generator Pressure," April 22, 2013.
7. Engineering Technical Evaluation ETE-MP-2013-1034, "MP2 Turbine Driven Aux Feedwater Pump Minimum Continuous Operating Speed," dated March 12, 2013.

8. Engineering Technical Evaluation, ETE-CPR-2012-0009, "Beyond Design Basis – FLEX Strategy Overall Integrated Plan Basis Document," Revision 1, August 2013.
9. Engineering Technical Evaluation, ETE-NAF-2012-0150, "Evaluation of Core Cooling Coping for Extended Loss of AC Power (ELAP) and Proposed Input for Dominion's Response to NRC Order EA-12-049 for Dominion Fleet," Revision 0.
10. PWROG letter, OG-13-197, Transmittal of PA-PSC-0965 Final CE-NSSS Specific ELAP Response (FLEX) Guidelines, May 17, 2013.

Table 1 - PWR Portable Equipment Phase 2[1] [Open Item 21]							
Use and (potential / flexibility) diverse uses						*Performance Criteria*	*Maintenance*
List portable equipment[2]	Core	Containment [Open Item 14]	SFP	Instrumentation	Accessibility		Maintenance / Preventive Maintenance requirements
BDB High Capacity pump (2) and associated hoses and fittings	X	X	X			1200 gpm[4]	Will follow EPRI template requirements
BDB AFW pump (3) and associated hoses and fittings[8]	X					300 gpm[4]	Will follow EPRI template requirements
BDB RCS Injection pump (2) and associated hoses and fittings	X					40 gpm[4]	Will follow EPRI template requirements
120 VAC generators (4) and associated cables, connectors and switchgear (to re-power Instrumentation)				X		15 kW[5]	Will follow EPRI template requirements
120 VAC generators (4) and associated cables, connectors and switchgear (to provide support equipment) [3]					X	10 kW[5]	Will follow EPRI template requirements

Table 1 - PWR Portable Equipment Phase 2[1] [Open Item 21]							
Use and (potential / flexibility) diverse uses						*Performance Criteria*	*Maintenance*
List portable equipment[2]	Core	Containment [Open Item 14]	SFP	Instrumentation	Accessibility		Maintenance / Preventive Maintenance requirements
480 VAC generators (3) and associated cables, connectors and switchgear (re-power battery chargers, inverters, vital buses, MPS2 Charging Pump, and MPS3 CAR Fans) [6]	X	X		X		300-350 kW[5]	Will follow EPRI template requirements
Cables for 4160 VAC generator connections (4 Sets)	X	X		X	X		
Portable boric acid batching tanks (2)	X						
Light plants (4) [3]					X		
Front end loader (2) [3]					X		
Tow vehicles – tractors (2)[3]					X		
Hose trailer or utility vehicle (2) [3]					X		
Fans / blowers/heaters (2 sets) [3]					X		
Air compressors (2) [3]					X		

Table 1 - PWR Portable Equipment Phase 2[1] [Open Item 21]							
Use and (potential / flexibility) diverse uses						*Performance Criteria*	*Maintenance*
List portable equipment[2]	Core	Containment [Open Item 14]	SFP	Instrumentation	Accessibility		Maintenance / Preventive Maintenance requirements
Fuel cart with pump [3]					X		
Communications Equipment [3,7]					X		
Misc. debris removal equip. (1 set) [3]					X		
Misc. Support Equipment (2 sets) [3]					X		

Notes:

1. This table is based on one BDB Storage Building.
2. Indicated quantities are station totals for both MPS2 and MPS3.
3. Support equipment. Not required to meet N+1.
4. Preliminary performance criteria. Final performance criteria will be determined by the hydraulic analysis performed in accordance with the design process. [Open Item 3]
5. Preliminary performance criteria. Final performance criteria will be determined by the electrical loading analysis performed in accordance with the design process. [Open Item 15]
6. 480 VAC generators are the alternate strategy to the 120/240 VAC generators at MPS3 and the primary strategy at MPS2. Therefore, N+1 are required.
7. Equipment purchase in response to the results of Recommendation 9.3 of the 10 CFR 50.54(f) letter dated March 12, 2012.
8. MPS2 will have one of the BDB AFW pumps pre-staged in the upper levels of the Turbine Building.

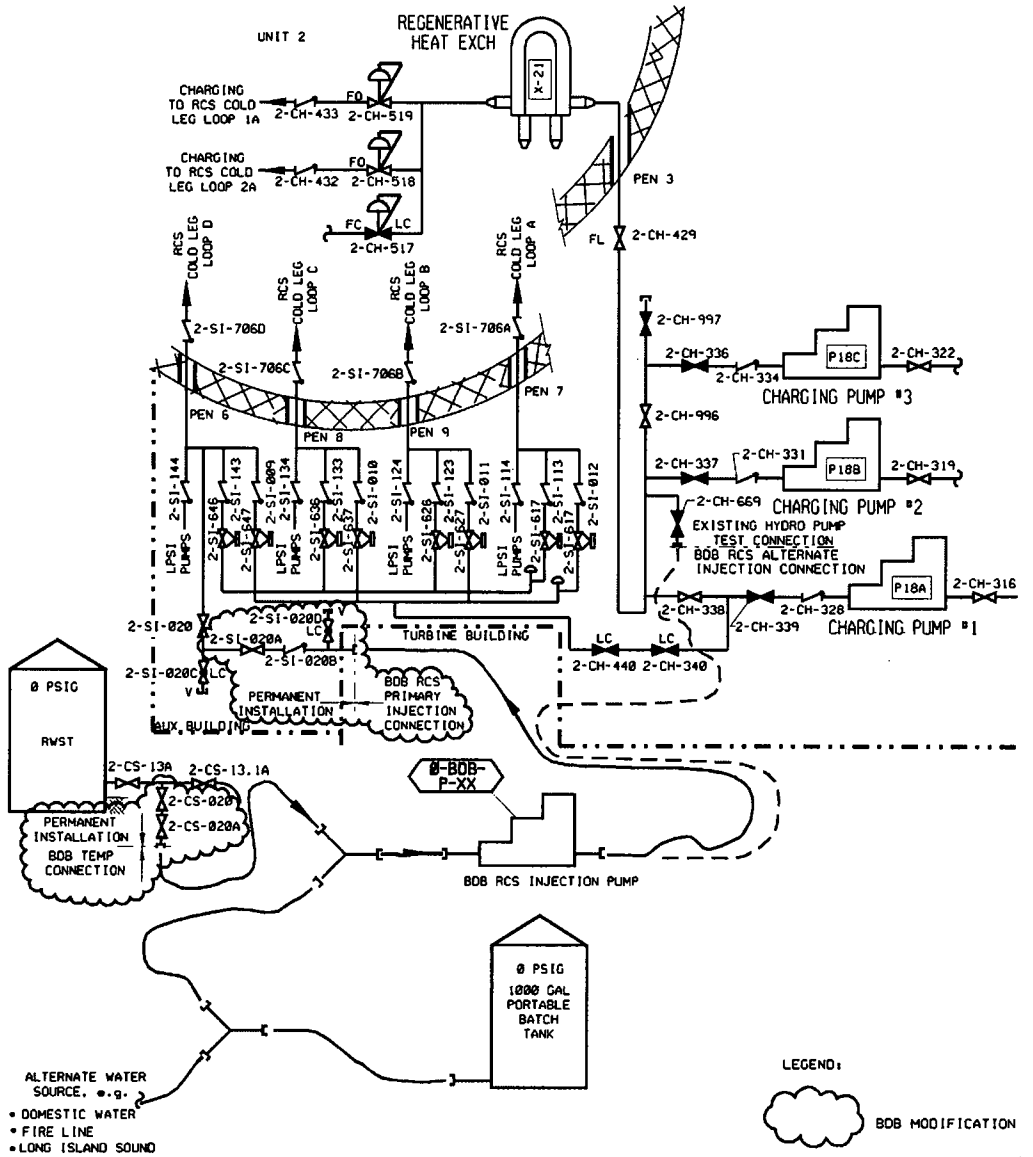

FIGURE 4 (AUGUST 2013 UPDATE)
RCS MAKEUP - MECHANICAL CONNECTIONS
MILLSTONE UNIT 2

Attachment 2

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

Millstone Power Station Unit 3

Dominion Nuclear Connecticut, Inc. (DNC)

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 (DNC) developed an Overall Integrated Plan (OIP) (Reference 1), documenting the diverse and flexible strategies (FLEX) for Millstone Power Station Unit 3 (MPS3), in response to NRC Order Number EA-12-049 (Reference 2). This attachment provides an update of milestone accomplishments and open items since submittal of the OIP, including any changes to the compliance method, schedule, or need for relief/relaxation and the basis, if any.

2 Milestone Accomplishments

The following milestone has been completed since the development of the OIP, and is current as of July 31, 2013.

- Submit Integrated Plan

3 Milestone Schedule Status

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

The revised milestone target completion date for 'Develop Strategies' does not impact the Order implementation date.

Milestone	Target Completion Date	Activity Status	Revised Target Completion Date
Submit Integrated Plan	Feb 2013	Complete	
Develop Strategies	July 2013	Started	October 2013
Develop Modifications	Feb 2014	Started	
Implement Modifications	Oct 2014	Started	
Develop Training Plan	Apr 2014	Started	
Implement Training	Sept 2014	Not Started	
Issue FSGs and Associated Procedure Revisions	Oct 2014	Not Started	
Develop Strategies / Contract with RRC	Apr 2014	Started	
Purchase Equipment	Feb 2014	Started	

Milestone	Target Completion Date	Activity Status	Revised Target Completion Date
Procure Equipment *	Aug 2014	Not Started	
Validation Walk-throughs or Demonstrations of FLEX Strategies and Procedures*	June 2014	Not Started	
Create Maintenance Procedures	Aug 2014	Not Started	
Outage Implementation	Oct 2014	Not Started	

* Refer to Section 8 for an explanation of the change to this Milestone.

4 Changes to Compliance Method

By letter dated February 28, 2013, Serial No. 12-161B, DNC provided an Overall Integrated Plan (OIP) to address Beyond-Design-Basis (BDB) events at MPS2 and MPS3 as required by Order Number EA-12-049, dated March 12, 2012. The following are changes to the compliance method for MPS3 that meet NEI 12-06 (Reference 3), but are changes to the information provided in the OIP:

a) Details of the strategy for the portable diesel generators (DGs) used to re-power the 120VAC vital bus circuits, as described in Section F1.2 – PWR Portable Equipment Phase 2, have changed for MPS3. The overall re-powering strategy has not changed, however, the storage and connection plans for the DGs have been revised to enhance the ease of implementation and timing of the strategy. Two 120/240VAC diesel generators (DGs) will be pre-staged in separate areas of an existing protected MPS3 building (identified as building 322 on OIP Figure 6). The DGs do not require transport to be placed in service. The previously submitted deployment positions for the 120/240VAC DG shown on OIP Figure 6 are no longer correct. Additionally, the kW rating for each of the 120/240VAC DGs have been increased such that either of the pre-staged DGs can be used to re-power the 120VAC vital bus circuits. The second DG is a full capacity backup.

   The connection strategy is changed in that permanently installed cables from receptacles located by the 120/240VAC DGs in Building 322 will be run to receptacles located in Switchgear Room "A." Additionally, receptacles will be permanently connected to the vital bus panels VIAC1 and VIAC3. Therefore, the connections between the DG and the nearby receptacles and between the Switchgear Room receptacles and the vital bus panels are made with plug-in "jumper cables". This configuration is shown on the revised OIP Figures 6 and 7 which are attached.

b) With the changes to the 120/240VAC re-powering strategy above, the deployment strategy for the 480VAC DG has changed. The 480VAC DG, which is the alternate approach to re-power the 120VAC vital buses, will no longer be pre-staged. It will be stored in the BDB Storage Building and transported to its deployment location shown in

Figure 6, when needed. The revised battery life estimate for MPS3 has determined that there is adequate time to transport the 480VAC DG as an alternate for the 120/240VAC DGs (See Open Item No. 2). The 480VAC DG will be connected directly to Bus 32T via an installed spare breaker cubicle. A revised OIP Figure 8 showing the 480VAC connection is attached.

c) Changes to the timing of the RCS Injection strategy have been made. The details and descriptions provided in Section C.2 of the OIP for RCS injection are the same, including the time at which natural circulation capability is lost, i.e., approximately 33 hours based on WCAP-17601 (Reference 6) and ETE-NAF-2012-0150 (Reference 10). For conservatism and margin to account for uncertainty within the calculations and unanticipated deployment issues, a time of 16 hours has been chosen which provides significant margin (by a factor of 2) prior to loss of natural circulation and the start of reflux boiling.

d) The quantities of BDB equipment stated in the OIP Table 1, PWR Portable Equipment Phase 2, have changed. Per Footnote 1 to Table 1, the quantities were based on the assumption that two storage buildings would be available to store BDB equipment pending completion of the study to determine the details of the BDB Storage Building(s). Open Item No. 6 has been completed and the decision to have one storage building is documented in Section 6 of this update. A revised Table 1 is attached.

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 from Overall Integrated Plan

The following table provides a summary of the open items documented in Attachment 2B of the OIP and the status of each item.

Overall Integrated Plan Open Item		
OI #	**Description**	**Status**
1	Verify response times listed in timeline and perform staffing assessment.	Not started. Scheduled completion date: June, 2014
2	Evaluation of extended battery life with load stripping of all non-essential loads.	Complete. In our February 28, 2013 OIP submittal for Millstone, the MPS3 Class 1E 125V battery life was "estimated" at between 2 and 5 hours assuming that load stripping would commence within 45 minutes and be completed

Overall Integrated Plan Open Item		
OI #	**Description**	**Status**
		within the following 30 minutes. The pending final evaluation of the extended Class 1E station emergency battery life was identified as Open Item No. 2. The calculation with the stated load stripping assumption has been completed. The evaluated time to battery depletion is 14.3 hours. The evaluation considered that the 301B battery was stripped of all loads by the assumed time frame and that the 301A battery would carry the necessary instrumentation loads until it reached the minimum voltage for reliable instrument readings in 7.8 hours. At that time, alternate instrument loads for plant monitoring from the 301B battery would be re-connected and would be available for an additional 6.5 hours. The combined time available by this approach (14.3 hours) is sufficient for the implementation of the re-powering strategy for the 120VAC systems as outlined in the OIP submittal, Section F1.2. (Reference 5)
3	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 useable volume of the demineralized water storage tank (DWST). The final durations will be provided when the analyses are completed.	Complete. (Reference 4)

Overall Integrated Plan Open Item		
OI #	**Description**	**Status**
4	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.	Started. Scheduled completion date is revised from December, 2013 to October, 2013 **
5	Analyses will be performed to develop fluid components performance requirements and confirm fluid hydraulic-related strategy objectives can be met.	Started. Scheduled completion date: September, 2013
6	A study is in progress to determine the design features, site location(s), and number of BDB Storage Building(s). The final design for BDB Storage Building(s) 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 will be constructed at Millstone Power Station for storage of BDB equipment. The building will be designed to meet the plant's design basis for the Safe Shutdown Earthquake, high wind hazards, snow, ice and cold conditions, and located above the flood elevation from the most recent site flood analysis. The BDB Storage Building will be sited north of the bridge near the salt shed. This update provides the supplemental information referred to in this open item.
7	FLEX Support Guidelines (FSGs) will be developed in accordance with PWROG guidance. Existing procedures will be revised as necessary to implement FSGs.	Started. Scheduled completion date: October, 2014
8	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.	Not started. Scheduled completion date: September, 2014
9	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.	Started. Scheduled completion date: September, 2014

Overall Integrated Plan Open Item		
OI #	**Description**	**Status**
10	The Dominion 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).	Started. Scheduled completion date: September, 2014
11	Complete the evaluation of turbine driven (TD)AFW pump long term operation with ≤ 290 psig inlet steam pressure.	Complete. TDAFW pump operation and adequate AFW flow to the SGs at SG pressures ≤ 290 psig has been confirmed. (References 7 and 8)
12	Plant modifications will be completed for permanent plant changes required for implementation of FLEX strategies.	Started. See Milestone Schedule
13	Analyses will be performed to develop electrical components performance requirements and confirm electrical loading-related strategy objectives can be met.	Started. Scheduled completion date: September, 2013
14	An evaluation of all BDB equipment fuel consumption and required re-fill strategies will be developed.	Not started. Scheduled completion date June, 2014
15	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.	Started. Scheduled completion date: June, 2014
16	A comprehensive communications study will be performed in accordance with the statements made in response to Recommendation 9.3 of the 10 CFR 50.54(f) letter dated March 12, 2012 in DNC letter S/N 12-205F dated October 29, 2012. **	Started. Scheduled completion date: Consistent with Rec 9.3 implementation dates
17	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.	Started. Scheduled completion date is revised from September, 2013 to October, 2013 **
18	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.	Not started. Scheduled completion date: June, 2014

Overall Integrated Plan Open Item		
OI #	**Description**	**Status**
19	The equipment listed in Table 1 will be procured. **	Not started. Scheduled completion date is revised from June, 2014 to August, 2014**

** Refer to Section 8 for change to this Open Item.

7 Potential Draft Safety Evaluation Impacts

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

8 Supplemental Information

This supplemental information provides details of changes identified in the status updates above and addresses the following topics: a) Revision to Open Item No. 4, b) Revision to Open Item No. 16, c) Revision to Open Item No. 17, d) revision to Open Item No. 19, e) Milestone 'Procure Equipment', and f) the addition of Milestone "Validation Walk-throughs or Demonstration of FLEX Strategies and Procedures."

a) **MPS3, Open Item 4:** The Open Item completion date is revised to October 2013 to be consistent with the revised completion date for the Milestone "Develop Strategies."

b) **MPS3, Open Item 16:** The revision to the wording more accurately reflects the planned activities to determine and validate that adequate communications are available to implement FLEX strategies in all phases of the response to a BDB event. The revised Open Item 16 is as follows:

> A comprehensive study of communication capabilities is being performed in accordance with the statements made in response to Recommendation 9.3 of the 10 CFR 50.54(f) letter dated March 12, 2012 in DNC letter S/N 12-205F dated October 29, 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 Power Station. Validation of communications required to implement FLEX strategies will be performed as part of Open Item No. 1.

c) **MPS3, Open Item 17:** The Open Item completion date is revised to October, 2013. Additional time is required to complete the ventilation calculations needed to finalize the MPS3 ventilation strategy.

d) **MPS3, Open Item 19:** The revision to the wording more accurately reflects the equipment that will be purchased and delivered to the site consistent with the Milestone schedule. The updated completion schedule accurately reflects the Milestone schedule. The revised Open Item and revised completion schedule are as follows:

Open Item 19: The equipment listed in Table 1 will be received on site.
Completion Schedule: August 2014

e) **Milestone 'Procure Equipment':** The revision to the wording more accurately reflects the actual tasks as they occur in sequence. The revised milestone task is the successor to 'Purchase Equipment'. The revised Milestone Task is as follows:

Milestone Task: Receive Equipment

f) **Milestone 'Validation Walk-throughs or Demonstration of FLEX Strategies and Procedures'**: This milestone was added for consistency with template and industry formats. It corresponds to the activity previously identified in Open Item No. 1. The scheduled milestone date is the same as the open item completion date. By this date, sufficient FLEX equipment will be available to perform the walk-throughs and procedures will be in a near final form and will rely on the walk-throughs for validation prior to final issuance.

9 References

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

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.
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. NEI 12-06, "Diverse and Flexible Coping Strategies (FLEX) Implementation Guide," Revision 0, dated August 2012.
4. DNC letter 12-161C, "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.
5. Calculation 2013-ENG-04501E3, MP3 BDB Battery Calculation, Rev. 0 dated May 29, 2013.
6. WCAP-17601, "Reactor Coolant System Response to the Extended Loss of AC Power Event for Westinghouse, Combustion Engineering and Babcock & Wilcox NSSS Designs", August 2012.
7. Calculation 97-014, "MP3 AFW System, Determination of AFW Turbine/Pump Speed and AFW System Flow for Steam Generator Pressures of 185 psig, 600 psig, and 125 psig, and Determination of the Turbine Exhaust Pressure," April 2, 1997 through Change Notice No. 3 dated January 28, 2002.

8. Engineering Technical Evaluation ETE-MP-2013-1037, "MP3 Turbine Driven Aux Feedwater Pump Minimum Continuous Operating Speed," dated March 12, 2013.
9. Engineering Technical Evaluation, ETE-CPR-2012-0008, "Beyond Design Basis – FLEX Strategy Overall Integrated Plan Basis Document," Revision 1, August 2013.
10. Engineering Technical Evaluation, ETE-NAF-2012-0150, "Evaluation of Core Cooling Coping for Extended Loss of AC Power (ELAP) and Proposed Input for Dominion's Response to NRC Order EA-12-049 for Dominion Fleet," Revision 0.

Table 1 - PWR Portable Equipment Phase 2[1] [Open Item 19]							
Use and (potential / flexibility) diverse uses						*Performance Criteria*	*Maintenance*
List portable equipment[2]	Core	Containment [Open Item 4]	SFP	Instrumentation	Accessibility		Maintenance/ Preventive Maintenance requirements
BDB High Capacity pump (2) and associated hoses and fittings	X	X	X			1200 gpm[4]	Will follow EPRI template requirements
BDB AFW pump (3) and associated hoses and fittings[8]	X					300 gpm[4]	Will follow EPRI template requirements
BDB RCS Injection pump (2) and associated hoses and fittings	X					40 gpm[4]	Will follow EPRI template requirements
120 VAC generators (4) and associated cables, connectors and switchgear (to re-power Instrumentation)				X		15 kW[5]	Will follow EPRI template requirements
120 VAC generators (4) and associated cables, connectors and switchgear (to provide support equipment) [3]					X	10 kW[5]	Will follow EPRI template requirements

Table 1 - PWR Portable Equipment Phase 2[1] [Open Item 19]							
Use and (potential / flexibility) diverse uses						*Performance Criteria*	*Maintenance*
List portable equipment[2]	Core	Containment [Open Item 4]	SFP	Instrumentation	Accessibility		Maintenance/ Preventive Maintenance requirements
480 VAC generators (3) and associated cables, connectors and switchgear (re-power battery chargers, inverters, vital buses, MPS2 Charging Pump, and MPS3 CAR Fans)[6]	X	X		X		300-350 kW[5]	Will follow EPRI template requirements
Cables for 4160 VAC generator connections (4 Sets)	X	X		X	X		
Portable boric acid batching tanks (2)	X						
Light plants (4)[3]					X		
Front end loader (2)[3]					X		
Tow vehicles – tractors (2)[3]					X		
Hose trailer or utility vehicle (2)[3]					X		
Fans / blowers/heaters (2 sets)[3]					X		
Air compressors (2)[3]					X		

Table 1 - PWR Portable Equipment Phase 2[1] [Open Item 19]							
Use and (potential / flexibility) diverse uses						*Performance Criteria*	*Maintenance*
List portable equipment[2]	Core	Containment [Open Item 4]	SFP	Instrumentation	Accessibility		Maintenance/ Preventive Maintenance requirements
Fuel cart with pump [3]					X		
Communications Equipment [3,7]					X		
Misc. debris removal equip. (1 set) [3]					X		
Misc. Support Equipment (2 sets) [3]					X		

Notes:

1. This table is based on one BDB Storage Building.
2. Indicated quantities are station totals for both MPS2 and MPS3.
3. Support equipment. Not required to meet N+1.
4. Preliminary performance criteria. Final performance criteria will be determined by the hydraulic analysis performed in accordance with the design process. [Open Item 5]
5. Preliminary performance criteria. Final performance criteria will be determined by the electrical loading analysis performed in accordance with the design process. [Open Item 13]
6. 480 VAC generators are the alternate strategy to the 120/240 VAC generators at MPS3 and the primary strategy at MPS2. Therefore, N+1 are required.
7. Equipment purchase in response to the results of Recommendation 9.3 of the 10 CFR50.54(f) letter dated March 12, 2012.
8. MPS2 will have one of the BDB AFW pumps pre-staged in the upper levels of the Turbine Building.

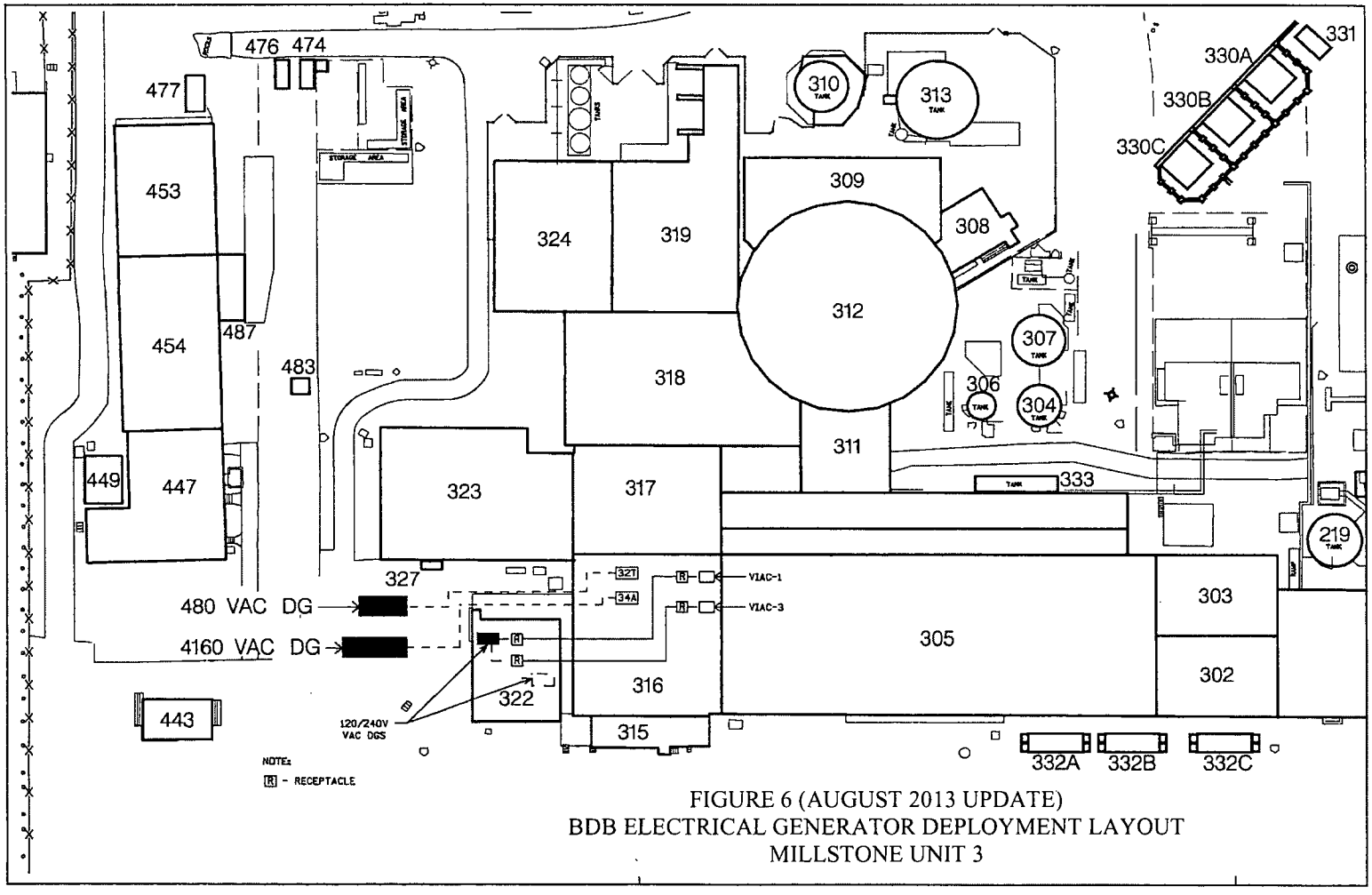

FIGURE 6 (AUGUST 2013 UPDATE)
BDB ELECTRICAL GENERATOR DEPLOYMENT LAYOUT
MILLSTONE UNIT 3

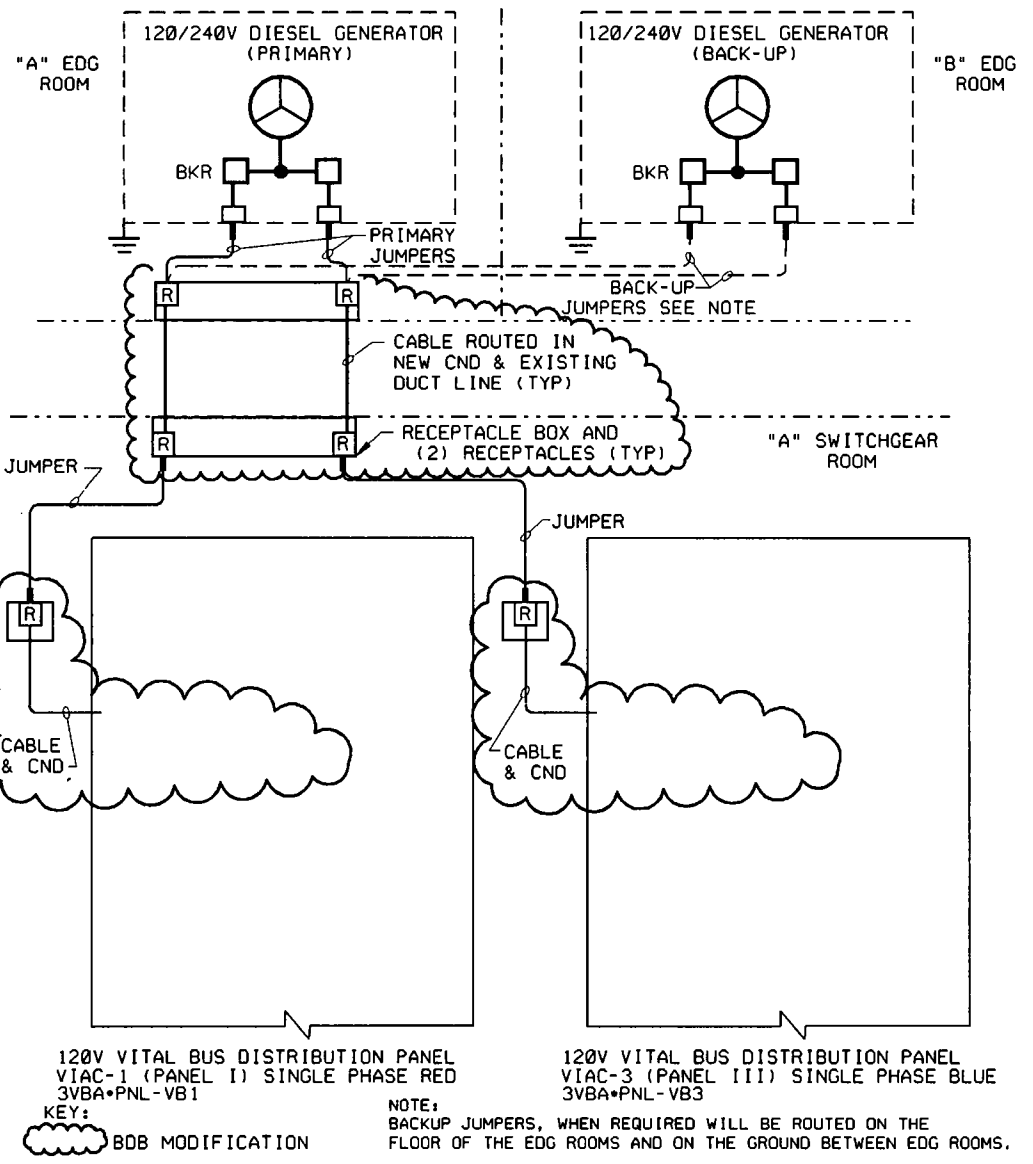

FIGURE 7 (AUGUST 2013 UPDATE)
120/240 VAC GENERATOR ELECTRICAL CONNECTIONS
MILLSTONE UNIT 3

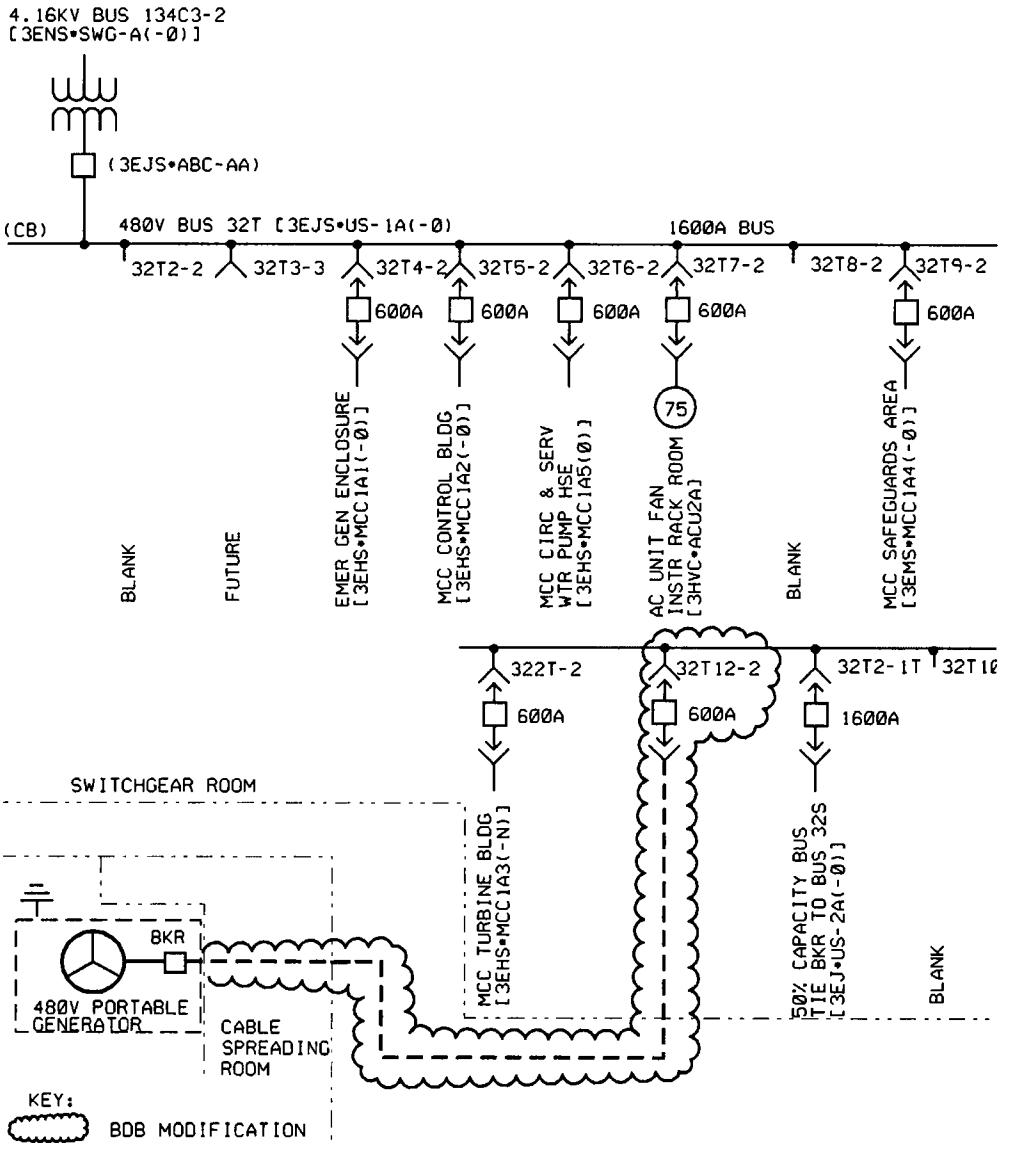

FIGURE 8 (AUGUST 2013 UPDATE)
480 VAC GENERATOR ELECTRICAL CONNECTIONS
MILLSTONE UNIT 3