

VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

March 2, 2015

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EA-12-049

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

Serial No.: 14-394B
NL&OS/MAE: R2
Docket No.: 50-338
License No.: NPF-4

VIRGINIA ELECTRIC AND POWER COMPANY
NORTH ANNA POWER STATION UNIT 1
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. Virginia Electric and Power Company'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. 12-162B.)
3. Virginia Electric and Power Company'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. 14-394).
4. Virginia Electric and Power Company's Status of Required Action for EA-12-049 Issuance of Order To Modify Licenses With Regard to Requirements For Mitigation Strategies For Beyond-Design-Basis External Events, dated December 8, 2014 (Serial No. 14-394A).

On March 12, 2012, the Nuclear Regulatory Commission (NRC) issued an order (Reference 1) to Virginia Electric and Power Company (Dominion). Reference 1 was immediately effective and directed Dominion 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.

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NLR

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Attachment

**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**

February 2015

**North Anna Power Station Unit 1
Virginia Electric and Power Company (Dominion)**

**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 developed an Overall Integrated Plan (OIP) (Reference 1) documenting the diverse and flexible strategies (FLEX) for North Anna Power Station (NAPS) 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 last status report (Reference 3), including any changes to the compliance method, schedule, or need for relief/relaxation and the basis, if any. This update is applicable to North Anna Unit 1 only. North Anna Unit 2 has completed the requirements of Order EA 12-049 and has reported compliance to the Commission (Reference 4).

2 Milestone Accomplishments

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

- Submit Integrated Plan
- Develop Strategies
- Develop Modifications
- Develop Training Plan
- Implement Training
- Issue FSGs and Associated Procedure Revisions
- 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. The table 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.

Milestone	Target Completion Date	Activity Status	Revised Target Completion Date
Submit Integrated Plan	February 2013	Complete	
Develop Strategies	October 2013	Complete	
Develop Modifications	July 2014	Complete	
Implement Unit 1 Modifications	April 2015	Started	March 2015*
Develop Training Plan	April 2014	Complete	
Implement Training	September 2014	Complete	
Issue FSGs and Associated Procedure Revisions	September 2014	Complete	
Develop Strategies/Contract with NSRC**	August 2014	Complete	
Purchase Equipment	February 2014	Complete***	
Receive Equipment	August 2014	Complete***	
Validation Walk-throughs or Demonstrations of FLEX Strategies and Procedures	September 2014	Complete	
Create Maintenance Procedures	August 2014	Complete	
Unit 1 Outage Implementation	April 2015	Started	March 2015*

* Refer to Section 8, Supplemental Information, for an explanation of Milestone changes

** NSRC is the National SAFER Response Center

*** The 'Purchase Equipment' and 'Receive Equipment' Milestones were completed in February 2014 and August 2014, respectively, for the equipment identified in Table 1 provided with the NAPS OIP (and subsequent Six-Month Status Reports). As discussed in Section 4a, a decision has been made to purchase an additional boric acid mixing tank (BAMT). This additional BAMT was not required for implementation of Unit 2 and will be available to meet the N+1 requirement prior to site implementation following the Unit 1 spring outage.

4 Changes to Compliance Method

By letter dated February 28, 2013, Dominion provided an OIP to address Beyond-Design-Basis (BDB) events at NAPS Units 1 and 2, as required by Order Number EA-12-049, dated March 12, 2012. The first, second, and third Six-Month Status Report of the OIP for NAPS were provided by letters dated August 23, 2013 (Reference 5), February 28, 2014 (Reference 6), and August 28, 2014 (Reference 3), respectively. Listed below are changes to the compliance method information provided in the North Anna OIP, which continue to meet NEI 12-06 (Reference 7):

- a) Boric Acid Mixing Tanks: Dominion has reevaluated the proposed number of Boric Acid Mixing Tanks (BAMTs) to support the RCS injection strategy in the unlikely event that both Refueling Water Storage Tanks are unavailable following a tornado event. Two BAMTs provide the ability to batch one tank while the other is being injected into the RCS. Since two tanks allow for nearly continuous operation of a single RCS Injection pump, a third tank is being procured to comply with the N+1 philosophy outlined in NEI 12-06. Table 1 from the Overall Integrated Plan (and subsequent Six-Month Status Reports) which list the required BDB Equipment is not provided with this update. However, the BDB Equipment table in the Final Implementation Plan (FIP) will identify that three BAMTs are required for North Anna and they will be stored in the BDB Storage Building.
- b) As a clarification, only one additional Flowserve seal will be installed during the upcoming spring 2015 Unit 1 Refueling Outage. Following installation, the Unit 1 RCP seal configuration will be the same seal configuration as NAPS Unit 2 (2 Flowserve seals/ 1 Westinghouse seal). This seal configuration limits the RCP seal leakage to quantities bounded by the extended loss of alternating current (ac) power (ELAP) analyses which demonstrate the effectiveness of the North Anna FLEX strategies required in Attachment 2 of the Order.

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

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

6 Open Items

6.1 Open Items from Overall Integrated Plan (Licensee Identified)

With the exception of Item #12, Licensee Identified Open Items have been completed as described in either the North Anna Final Audit Report (Reference 8) or the North Anna Unit 2 Compliance letter for Order EA-12-049 (Reference 4).

Licensee Identified Open Item # 12: "Plant modifications will be completed for permanent plant changes required for implementation of FLEX strategies." Per the Milestone Schedule in Section 3 above, the remaining modifications will be completed in the upcoming spring 2015 Unit 1 Refueling Outage, which is the compliance outage for Unit 1.

6.2 Open Items from the Interim Staff Evaluation

The Interim Staff Evaluation (ISE) Open Items have been completed for both North Anna Unit 1 and Unit 2 as described in the North Anna Unit 2 Compliance letter for Order EA-12-049 (Reference 4).

6.3 Confirmatory Items from Interim Staff Evaluation

The Interim Staff Evaluation (ISE) Confirmatory Items have been completed for both North Anna Unit 1 and Unit 2 as described in the North Anna Unit 2 Compliance letter for Order EA-12-049 (Reference 4).

6.4 Audit Question Reviewed During NAPS Onsite Audit

Various NAPS Audit Questions (AQs) were evaluated during the NAPS NRC Onsite Audit. Only AQ #44 was evaluated and remained "Open" per the North Anna Onsite Audit Report (Reference 8). AQ #44 has been completed as described in the North Anna Unit 2 Compliance letter for Order EA-12-049 (Reference 4).

6.5 Additional Items Reviewed During NAPS Onsite Audit

A list of the additional Safety Evaluation (SE) Review items identified in the North Anna Audit Plan (Reference 9) and several additional SE Review items identified during the NAPS NRC Onsite Audit were added in the North Anna Onsite Audit Report (Reference 8). The Open SE Review items have been completed as described in either the North Anna Final Audit Report or the North Anna Unit 2 Compliance letter for Order EA-12-049 (Reference 4).

7 Potential Safety Evaluation Impacts

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

Additionally, Dominion is participating in the ongoing industry effort to develop guidance for the Final Integrated Plan that will support NRC preparation of the Safety Evaluation documenting NAPS's compliance with Order EA-12-049. The format of the Final Integrated Plan is consistent with the Safety Evaluation Template provided with the July 1, 2014 Jack Davis memorandum (ML14161A643) (Reference 10).

8 Supplemental Information

This supplemental information provides details of the changes identified in the status updates above and addresses the following topics: a) the Milestone Task 'Implement Unit 1 Modifications,' and b) a revision to Milestone Task 'Unit 1 Outage Implementation.'

- a) **North Anna Unit 1, Milestone Task 'Implement Unit 1 Modifications'**: The updated completion schedules accurately reflect the current outage schedules. The revised Completion Schedule is as follows:

Milestone Task: Implement Unit 1 Modifications
Completion Schedule: March 2015

- b) **North Anna Unit 1, Milestone Task 'Unit 1 Outage Implementation'**: The Milestone Task date is revised to reflect the current outage schedule which has been moved to March 2015.

9 References

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

1. "Virginia Electric and Power Company'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. 12-162B).
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. "Virginia Electric and Power Company'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. 12-394).
4. "Virginia Electric and Power Company's Status of Required Action for EA-12-049, Issuance of Order To Modify Licenses With Regard to Requirements For Mitigation Strategies For Beyond-Design-Basis External Events," dated December 8, 2014 (Serial No. 14-394A).
5. "Virginia Electric and Power Company'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. 12-162D).

6. "Virginia Electric and Power Company'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. 12-162E).
7. NEI 12-06, "Diverse and Flexible Coping Strategies (FLEX) Implementation Guide," Revision 0, dated August 2012.
8. Letter from Mr. John Boska (NRC) to Mr. Dave Heacock (Dominion) titled "North Anna 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 September 24, 2014 (ML14259A458).
9. Letter from Mr. James Polickoski (NRC) to Mr. Dave Heacock (Dominion) titled "North Anna Power Station, Units 1 and 2 – Plan 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 April 24, 2014 (ML14112A302).
10. Memorandum from Jack R. Davis, JLD, Office of NRR, to Stewart N. Bailey, Sheena A. Whaley, and Jeremy S. Bowen, "Supplemental Staff Guidance for the Safety Evaluations for Order EA-12-049 on Mitigation Strategies for Beyond-Design-Basis External Events and Order EA-12-051 on Spent Fuel Pool Instrumentation," dated July 1, 2014 (ML14161A643).