

VIRGINIA ELECTRIC AND POWER COMPANY  
RICHMOND, VIRGINIA 23261

December 3, 2014

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

Serial No.: 14-391A  
NLOS/ETS: R0  
Docket Nos.: 50-338/339  
License Nos.: NPF-4/7

**VIRGINIA ELECTRIC AND POWER COMPANY**  
**NORTH ANNA POWER STATION UNITS 1 AND 2**  
**STATUS OF REQUIRED ACTIONS FOR EA-12-051**  
**ORDER MODIFYING LICENSES WITH REGARD TO**  
**RELIABLE SPENT FUEL POOL INSTRUMENTATION**

On March 28, 2012 the NRC issued EA-12-051, "Order Modifying Licenses With Regard To Reliable Spent Fuel Pool Instrumentation," which required the installation of a reliable indication of the water level in associated spent fuel storage pools capable of supporting identification of the following pool water level conditions by trained personnel: (1) level that is adequate to support operation of the normal fuel pool cooling system, (2) level that is adequate to provide substantial radiation shielding for a person standing on the spent fuel pool operating deck, and (3) level where fuel remains covered and actions to implement make-up water addition should no longer be deferred. Condition C.3 of the Order required all Licensees to report to the Commission when full compliance with the requirements of the order is achieved.

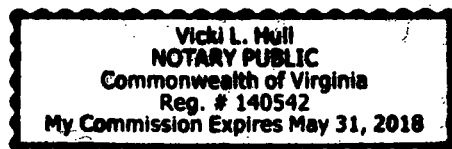
This letter provides notification that Dominion has completed the requirements of EA-12-051 and is in full compliance with the Order for North Anna Units 1 and 2. The attachments to this letter provide: 1) a summary of how the compliance requirements were met and 2) the response to SFPI RAIs and the Safety Evaluation Review Item 9 for Order EA-12-051.

Should you have any questions or require additional information, please contact Margaret Earle at (804) 273-2768.

Respectfully,



Mark Sartain  
Vice President – Nuclear Engineering



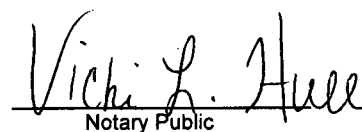
Commitment contained in this letter: None

COMMONWEALTH OF VIRGINIA )  
COUNTY OF HENRICO )

The foregoing document was acknowledged before me, in and for the County and Commonwealth aforesaid, today by Mr. Mark D. Sartain, who is Vice President – Nuclear Engineering, of Virginia Electric and Power Company. He has affirmed before me that he 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 his knowledge and belief.

Acknowledged before me this 3<sup>rd</sup> day of December, 2014.

My Commission Expires: 5-31-18

  
Notary Public

*4001  
NRR*

Attachments: 1. Order EA-12-051 Compliance Requirements Summary  
2. Response to SPFI RAIS and Safety Evaluation Review Item 9

Commitment contained in this letter: None

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NRC Senior Resident Inspector  
North Anna Power Station

**Attachment 1**

**Order EA-12-051 Compliance Requirements Summary**

**Virginia Electric and Power Company  
North Anna Power Station Units 1 And 2**

**North Anna Power Station, Units 1 and 2  
Order EA-12-051 Compliance Requirements Summary**

**BACKGROUND**

North Anna Power Station (NAPS) developed an Overall Integrated Plan (OIP) (Reference 1), documenting how the requirements for reliable spent fuel pool level instrumentation (SFPLI) would be achieved, in response to Order EA-12-051, "Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," (Reference 2). The North Anna Power Station Units 1 and 2 OIP was submitted to the NRC on February 28, 2013 and was supplemented by Six-Month Status Reports (References 3, 4, and 5), in accordance with Order EA-12-051 (the Order). By letter dated November 1, 2013, the NRC provided its Interim Staff Evaluation and Request for Additional Information Regarding Order EA-12-051 (Reference 6).

NAPS shares a common Spent Fuel Pool (SFP) between Units 1 and 2. Two independent SFP level measurement channels, supplied and qualified by Westinghouse, were installed in response to Reference 2.

On October 8, 2014 NAPS achieved full compliance with Order EA-12-051, prior to the end of the second refueling outage. Completion of the elements identified below for NAPS, as well as References 1, 3, 4, and 5, document full compliance with Order EA-12-051 for NAPS Units 1 and 2.

The design features identified in Attachment 2 of Reference 2 are summarized in Section 6.4 of ETE-CPR-2012-0012, Revision 5. This document has previously been provided to the NRC and is available for their review.

**COMPLIANCE SUMMARY**

**NRC RAI, ISE AND AUDIT ITEMS – STATUS: COMPLETE**

During the ongoing audit process (Reference 7), Dominion provided responses for the following items for NAPS:

- Request for Additional Information (RAI)
- Interim Staff Evaluation (ISE) Open Items
- ISE Confirmatory Items
- Licensee Identified Open Items
- Audit Questions
- Safety Evaluation Review Items

"The 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," (Reference 8) delineated the items reviewed during the North Anna onsite audit. Reference 8 identified one additional audit item related to SFPI, specified as Safety Evaluation Review Item 9. This item was added following the audit and required supplemental information.

As requested by the NRC, Dominion's responses, or references to the source document for the responses, to the SFPLI RAIs and Safety Evaluation Review Item 9 (SE 9) are provided in Attachment 2 of this letter. It is Dominion's position that no further actions related to the SFPLI RAIs or SE 9 are required.

**MILESTONE SCHEDULE ITEMS - STATUS: COMPLETE**

<b>North Anna Power Station Milestone</b>	<b>Completion Date</b>
Submit OIP	February 2013
Commence Engineering and Design	March 2013
Complete Engineering and Design	May 2014
Complete Procurement of SFP Instruments	August 2014
Commence Installation of SFP Instruments	June 2014
Level Measurement System Functional	October 2014

**IDENTIFICATION OF LEVELS OF REQUIRED MONITORING - COMPLETE**

North Anna Power Station has identified the three required levels for monitoring spent fuel pool (SFP) level in compliance with Order EA-12-051. These levels have been integrated into the site processes for monitoring level during events and responding to loss of SFP inventory.

**INSTRUMENT DESIGNED FEATURES - STATUS: COMPLETE**

The design of the SFP level measurement instrumentation system installed at NAPS complies with the requirements specified in Order EA-12-051 and described in NEI 12-02 "Industry Guidance for Compliance with NRC Order EA-12-051." The instrumentation system has been installed in accordance with the station design control process.

The instruments have been arranged to provide reasonable protection against missiles. The instruments have been mounted to retain design configuration during and following the maximum expected ground motion. The instruments will be reliable during expected environmental and radiological conditions when the SFP is at saturation for extended periods. The instruments are independent of each other and have separate and diverse power

supplies. The instruments will maintain their designed accuracy following a power interruption and are designed to allow for routine testing and calibration.

The instrument display is readily accessible during postulated events and allows for SFP level information to be promptly available to decision makers.

**PROGRAM FEATURES - STATUS: COMPLETE**

Training of personnel performing maintenance functions including calibration and surveillance associated with the SFP level instrument channels at NAPS has been completed in accordance with an accepted training process as recommended in NEI 12-02, Section 4.1.

Operating and maintenance procedures, for the NAPS SFP level instrument channels have been developed, and integrated with existing procedures. These procedures have been verified and are available for use in accordance with the site procedure control program.

Site processes have been established to ensure the instruments are maintained at their design accuracy.

## REFERENCES

The following references support the North Anna Power Station, Units 1 and 2 SFPLI Compliance Summary:

1. North Anna Power Station, Units 1 and 2 Overall Integrated Plan with regard to Reliable Spent Fuel Pool Implementation," February 28, 2013 (ML13063A017).
2. NRC Order Number EA-12-051, "Issuance of Order to Modify Licenses with Regard to Reliable Spent Fuel Pool Instrumentation," 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 Reliable Spent Fuel Pool Instrumentation (Order Number EA-12-051), dated August 23, 2013 (Serial No. 12-166D). (ML13242A015).
4. Virginia Electric and Power Company's Six-Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Reliable Spent Fuel Pool Instrumentation (Order Number EA-12-051), dated February 27, 2014 (Serial No. 12-166E). (ML14069A009).
5. Virginia Electric and Power Company's Six-Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Reliable Spent Fuel Pool Instrumentation (Order Number EA-12-051), dated August 26, 2014 (Serial No. 14-391). (ML14245A401).
6. North Anna Power Station, Units 1 and 2: NRC Interim Staff Evaluation and Request for Additional Information Regarding to Overall Integrated Plan for Implementation of Order EA-12-051, Reliable Spent Fuel Pool Instrumentation, dated November 1, 2013 (ML13281A648).
7. NRC letter to All Operating Reactor Licensees and Holders of Construction Permits, "Nuclear Regulatory Commission Audits of Licensee Responses to Mitigation Strategies Order EA-12-049," dated August 28, 2013 (ML13234A503).
8. The North Anna Power Station, Units 1 and 2 - Report for the Onsite Audit Regarding Implementation of Mitigating Strategies and Reliable Spent Fuel Instrumentation Related to Orders EA-12-049 and EA-12-051 (ML14259A458).

**Attachment 2**

**Order EA-12-051 Response to SFPI RAIs  
and Safety Evaluation Review Item 9**

**Virginia Electric and Power Company  
North Anna Power Station Units 1 And 2**



**Order EA-12-051 Response to SFPI RAIs  
and Safety Evaluation Review Item 9**

**Spent Fuel Pool Indication (SPFI) RAIs 1 through 18**

**Dominion Response**

On November 1, 2013, Dominion received an Interim Staff Evaluation (ISE) regarding the North Anna SFP Level Instrumentation system OIP in a letter from Dr. V. Sreenivas to Mr. David Heacock (Reference 1). Responses to the RAIs contained in the ISE were provided to the NRC in Attachment 2 to the second Six-Month Status Report in response to March 12, 2012 Commission Order Modifying Licenses with Regard to Reliable spent Fuel Pool Instrumentation, dated February 27, 2014 (ML14069A009).

**Safety Evaluation Review Item 9**

*EMC compliance for SFP level instruments*

**Dominion Response:**

The base configuration necessary to meet Criterion B (instrument will function before and after an Electro-Magnetic Compatibility (EMC) event) was confirmed during EMC qualification testing performed by Westinghouse. NRC representatives audited the Westinghouse test documents. As a result Westinghouse specified materials, installation, and grounding requirements necessary to ensure the installed SFP level measurement system meets the tested EMI/RFI qualifications. These requirements and characteristic are detailed in Westinghouse proprietary letter LTR-EQ-14-32, Rev. 2 dated August 1, 2014 (Reference 2), which is available for review upon request.

Attachment 5 in the NAPS Onsite Audit Report (Reference 3), requested Dominion to: "1) Provide confirmation that there are no major electrical noise sources near the probes in the SFP, and 2) provide actions taken by the licensee to address the possibility of electromagnetic interference." The response to this request is as follows:

- 1) The probe is located just above the pool surface in two locations at the North Anna SFP. Dominion has confirmed that there are no major electrical noise sources near the probes in the Spent Fuel Pool.
- 2) Placards have been installed in the Auxiliary Building and the Fuel Building. The placards read, "Be aware that use of hand-held radios within 3 ft. may cause interference with the SFP level channels. The reading returns to normal when radio usage is stopped."

**References:**

1. North Anna Power Station, Units 1 and 2: NRC Interim Staff Evaluation and Request for Additional Information Regarding to Overall Integrated Plan for Implementation of Order EA-12-051, Reliable Spent Fuel Pool Instrumentation, dated November 1, 2013 (ML13281A648).
2. Westinghouse letter LTR-EQ-14-32, Rev. 2, "Spent Fuel Instrumentation System – Hardware Configuration for EMC testing to satisfy Performance Criteria B," dated August 1, 2014.
3. The North Anna Power Station, Units 1 and 2 - Report for the Onsite Audit Regarding Implementation of Mitigating Strategies and Reliable Spent Fuel Instrumentation Related to Orders EA-12-049 and EA-12-051 (ML14259A458).