



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

August 22, 2014

Mr. David A. Heacock  
President and Chief Nuclear Officer  
Virginia Electric and Power Company  
Innsbrook Technical Center  
5000 Dominion Boulevard  
Glen Allen, VA 23060-6711

SUBJECT: NORTH ANNA POWER STATION, UNIT NOS. 1 AND 2 – AUDIT OF THE  
LICENSEE'S MANAGEMENT OF REGULATORY COMMITMENTS  
(TAC NO. MF4565 AND MF4566)

Dear Mr. Heacock:

In U.S. Nuclear Regulatory Commission (NRC) Regulatory Issue Summary 2000-17, "Managing Regulatory Commitments Made by Power Reactor Licensees to the NRC Staff," dated September 21, 2000, the NRC informed licensees that the Nuclear Energy Institute (NEI) document NEI 99-04, "Guidelines for Managing NRC Commitment Changes," contains acceptable guidance for controlling regulatory commitments and encouraged licensees to use the NEI guidance or similar administrative controls to ensure that regulatory commitments are implemented and that changes to the regulatory commitments are evaluated and, when appropriate, reported to the NRC.

The NRC Office of Nuclear Reactor Regulation has instructed its staff to perform an audit of licensees' commitment management programs once every 3 years to determine whether the licensees' programs are consistent with the industry guidance in NEI 99-04, and that the regulatory commitments are being effectively implemented.

An audit of the North Anna Power Station commitment management program was performed at the plant site on June 26, 2014. Based on the audit, the NRC staff concludes that Virginia Electric and Power Company (the licensee) has implemented NRC commitments on a timely basis and has implemented its program for managing NRC commitment changes. The details of the results of the audit are set forth in the enclosed audit report.

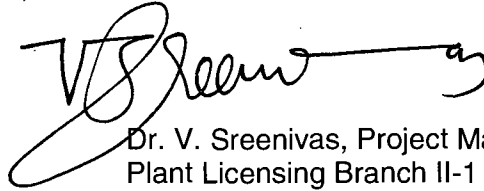
I appreciate the assistance and support provided by your licensing staff, particularly Mr. Jay Leberstien, Mr. Page Kemp and Mr. Tom Shaub.

D. A. Heacock

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If you have any questions, please contact me at 301-415-2597 or via e-mail at [v.sreenivas@nrc.gov](mailto:v.sreenivas@nrc.gov).

Sincerely,

A handwritten signature in black ink, appearing to read 'V. Sreenivas', with a long horizontal flourish extending to the right.

Dr. V. Sreenivas, Project Manager  
Plant Licensing Branch II-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-338 and 50-339

Enclosure:  
Commitment Audit Report

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**UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001**

**AUDIT REPORT BY THE OFFICE OF NUCLEAR REACTOR REGULATION**

**LICENSEE MANAGEMENT OF REGULATORY COMMITMENTS**

**NORTH ANNA POWER STATION, UNIT NOS. 1 AND 2**

**DOCKET NOS. 50-338 AND 50-339**

**1.0 INTRODUCTION AND BACKGROUND**

In Regulatory Issue Summary 2000-17, "Managing Regulatory Commitments Made by Power Reactor Licensees to the NRC [Nuclear Regulatory Commission] Staff," dated September 21, 2000, the NRC informed licensees that the Nuclear Energy Institute (NEI) document NEI 99-04, "Guidelines for Managing NRC Commitment Changes," contains acceptable guidance for controlling regulatory commitments and encouraged licensees to use the NEI guidance or similar administrative controls to ensure that regulatory commitments are implemented and that changes to the regulatory commitments are evaluated and, when appropriate, reported to the NRC.

The NRC Office of Nuclear Reactor Regulation (NRR) has instructed its staff to perform an audit of licensees' commitment management programs once every 3 years to determine whether the licensees' programs are consistent with the industry guidance in NEI 99-04, and that the regulatory commitments are being effectively implemented.

NEI-99-04 defines a regulatory commitment as an explicit statement to take a specific action agreed to, or volunteered by, a licensee and submitted in writing on the docket to the NRC. NRR guidelines direct the NRR Project Manager to audit the licensee's commitment management program by assessing the adequacy of the licensee's implementation of a sample of commitments made to the NRC in past licensing actions (amendments, reliefs, exemptions, etc.) and activities (bulletins, generic letters, etc.). The audit is to be performed every 3 years.

**2.0 AUDIT PROCEDURE AND RESULTS**

The regulatory commitment management audit was previously performed at North Anna Power Station, Unit Nos. 1 and 2 (NAPS) on August 8, 2011, covering the period of approximately 3 years. The current audit was performed at NAPS on June 26, 2014, verifying the regulatory commitments made by Virginia Electric and Power Company (the licensee) since the previous audit.

The audit consisted of two major parts: (1) verification of the licensee's implementation of NRC commitments that have been implemented and (2) verification of the licensee's program for managing changes to NRC commitments.

Enclosure

## 2.1 Verification of Licensee's Implementation of NRC Commitments

The primary focus of this part of the audit is to confirm that the licensee has implemented commitments made to the NRC as part of past licensing actions/activities. For commitments not yet implemented, the NRC staff determines whether they have been captured in an effective program for future implementation.

### 2.1.1 Audit Scope

The audit addressed a sample of commitments made during the review period. The audit focused on regulatory commitments (as defined above) made in writing to the NRC as a result of past licensing actions (amendments, exemptions, etc.) or licensing activities (bulletins, generic letters, etc.). Before the audit, the NRC staff searched ADAMS (Agencywide Documents Access and Management System) for the licensee's submittals since the last audit and selected a representative sample for verification.

The audit excluded the following types of commitments that are internal to licensee processes:

- (1) Commitments made on the licensee's own initiative among internal organizational components.
- (2) Commitments that pertain to milestones of licensing actions/activities (e.g., respond to an NRC request for additional information by a certain date). Fulfillment of these commitments was indicated by the fact that the subject licensing action/activity was completed.
- (3) Commitments made as an internal reminder to take actions to comply with existing regulatory requirements such as regulations, Technical Specifications (TSs), and Updated Final Safety Analysis Reports. Fulfillment of these commitments was indicated by the licensee having taken timely action in accordance with the subject requirements.

### 2.1.2 Audit Results

The attached Audit Summary provides details of the audit and its results.

The NRC staff reviewed documents generated by the licensee for the commitments listed in Table 1. After identification, most commitments were managed through the NAPS Central Reporting System. The NRC staff found that the licensee had properly addressed each regulatory commitment selected for this audit. As a result of reviewing the licensee's information, as well as information from other sources, the NRC staff found no reason to differ from the licensee's reported status of the audited commitments. Thus, the NRC staff concludes that the procedure used by the licensee to manage commitments is appropriate and effective.

## 2.2 Verification of the Licensee's Program for Managing NRC Commitment Changes

The primary focus of this part of the audit is to verify that the licensee has established administrative controls for modifying or deleting commitments made to the NRC. The NRC staff compared the licensee's process for controlling regulatory commitments to the guidelines in

NEI-99-04, which the NRC has found to be an acceptable guide for licensees to follow for managing and changing commitments. The process used at NAPS is contained in "Commitment Management," LI-AA-110, Revision 0. In general, LI-AA-110, Revision 0, follows the guidance of NEI-99-04; it sets forth the need for identifying, tracking, and reporting commitments, and it provides a mechanism for changing commitments. The audit reviewed a sample of commitment changes that included changes that were or will be reported to the NRC. The audit also verifies that the licensee's commitment management system includes a mechanism to ensure traceability of commitments following initial implementation. This ensures that licensee personnel are able to recognize that future proposed changes to the affected design features or operating practices require evaluation in accordance with the commitment change control process.

### 3.0 CONCLUSION

The NRC staff concludes, based on the above audit: (1) the licensee has generally implemented regulatory commitments on a timely basis, and (2) the licensee has implemented an effective program to manage regulatory commitment changes.

### 4.0 LICENSEE PERSONNEL CONTACTED FOR THIS AUDIT

Jay Leberstien, Technical Advisor, Station Licensing, North Anna Power Station, Mineral, VA  
Tom Shaub, Licensing Management Contact, Innsbrook Technical Center, Glen Allen, VA

Principal Contributor: V. Sreenivas

Attachment: Summary of Audit Results

**North Anna Power Station Commitments March 1, 2011 through June 26, 2014**

<b>Ltr No.</b>	<b>Date</b>	<b>Commitment</b>	<b>CA/LA Number</b>	<b>Status/Comments</b>
11-120	3/30/11	S/G Nozzle Weld Overlays- 1. Provide analysis summaries prior to Mode 4. 2. Provide exam results within 14 days of completion.	LA241, 244 & 245	12-308 12-326
11-083	4/27/11	GL 2004-02 - Recalculate debris generation after industry testing. Provide schedule for testing and or modifications, as necessary.	LA2536 & 2537	Closed to 13-325
11-236	4/25/11	ISFSI Cask misloading – Submit TS exemption to address existing loading configurations	CR419242 LA2520 & 2521	Completed on 7/21/11 (LTR 11-262)
10-448B	5/26/11	Fitness for Duty Exemption – build into program 1. Preplanned and consistent work shift start times and hours. 2. Require 10 hours of restorative rest when crews are off shift.	LA2398	Complete HRP-Nuclear p18 rev, 12
11-520*	9/17/11	Earthquake restoration plans – see attached enclosures 8 and 9	See Enclosures 8 & 9 (attached)	Enclosure 8 - Complete prior to restart Enclosure 9 - Long Term Actions Completed as part of CAL
11-566E	10/31/11	Submit evaluation of seismic event to LBB analysis of record by 3/21/13.	LA 2901	Complete 13-143
11-520B	10/31/11	Seismic event action plan – 1. Install upgraded MCR seismic instrumentation and power 2. Reevaluate SSC from IPEEE with HCLPF < 0.3g 3. Develop Rx Vessel Internal inspection plant (with vendor)	LA2898, 2899 & 2900	Complete 13-143
11-577A	10/18/11	Seismic long term actions- 1. Sample analysis of ASME Class 1, 2, & 3 piping systems IAW EPRI-6695. 2. Evaluate Aux Building for seismic effect 3. Incorporate results of RG 1.166/67 evaluation into UFSAR	LA2893 & 2897	Complete 13-143
11-577B	10/28/11	Seismic long term actions- 1. Update ground response motion effects	LA2895, 2896, 2907 & 2876	Complete 13-143

Ltr No.	Date	Commitment	CA/LA Number	Status/Comments
		2. Establish seismic margin management program (SMMP) 3. UFSAR updates – event, RG 1.167, SMMP, Incorporate UFSAR Sections RG 1.166 and 1.167		UFSAR Sections – 2.7, 3.7.7, and 3.7.4
11-520D *	11/7/11	Long Term commitment list Appendix 9 from 11-520 (became CAL - 10 items)	LC854 and associated LAs	--
11-577C	11/4/11	Seismic – 1. Implement SMMP 2. Notify NRC when discontinue using the SMMP	LA2890 & 2891	Complete UFSAR 3.7.7 Still in use
12-005	1/11/12	PAMS – Replace indicator for 2-CC-TV-204C during next outage of sufficient duration.	CR457575	Closed CA222901 and U2 Ops Log entry on 10/9/12 @ 0804
12-231	4/3/12	PAMS – Replace indicator for 2-CC-TV-202A during next outage of sufficient duration.	CR464068	Closed CA227860 and U2 Ops Log entry on 10/9/12 @ 0520
12-207B	5/9/12	BDB Emergency Preparedness requirements	LC795 and associated LAs	Closed
	6/18/12	Periodically verify the design bases capability of JOG Class D MOVs by 9/25/12.	LA1073	Closed
12-542	8/22/12	PAMS – Replace indicator for 1-CC-TV-102E during next outage of sufficient duration	CR481696	Complete. WO 59102493464 – cancelled. Completed tool pouch
12-609	9/27/12	Upgrade commitment to ANSI/ANI 3.5-2009 for simulator training	LA4032	Complete
12-692	11/14/12	PAMS – Replace indicator for 1-CC-TV-104B during next outage of sufficient duration.	CR489985 & 493908	Complete. WO 59102519969 – cancelled. Completed tool pouch. U1 Ops Log entry on 5/30/13 @ 0816
12-207H	11/27/12	BDB Seismic Walkdowns – Inaccessible walkdowns will be completed in the Spring or Fall of 2013.	LA4216 & 4217	Complete. MWO 59102498388 & MWO 59102547644
12-207G	11/27/12	Seal cover for Turbine Building manhole 1-EP-MH-16 and	LA4207	Complete.

Ltr No.	Date	Commitment	CA/LA Number	Status/Comments
		open conduit within manhole by 12/31/13.		WO59102604341 & DC-NA-13-00039
12-693	12/7/12	PAMS – Replace indicator for 2-CC-TV-202A during next outage of sufficient duration	CR493382	Complete. WO 59102530095 – cancelled. Completed tool pouch. U2 Ops Log entry dated 4/8/13 @ 0956
13-189	4/4/13	Submit exam results for U2 SG hot/cold leg nozzle to safe end weld performed during the spring 2013 RFO	LA4614	Complete
13-189A	4/13/13	RR N2-I4-LMT-001 Perform examination of SG hot/cold leg nozzle to safe end welds during the U2 fall RFO	LA4629	Open
13-234	05/15/13	1) 60 days after PWROG establishes new acceptance criteria – develop plan for compliance and communicate to NRC. 2) Remove fiber and install RMI in 2016 RFO for both units. 3) Update the UFSAR.	LA4779, 4780, 4781, 4782 & 4786	Open
13-499	8/30/13	PAMS - Replace indicator for 2-CC-TV-204A/B during plant condition of sufficient duration to permit repair.	CR521389 CR521390 CR523705 CR523707	Complete. WO 59102628249 WO 59102628290 – cancelled. U2 Ops Log entry dated 2/2/12@1521 and 1550.
14-005	1/10/14	PAMS - Replace indicator for 2-CC-TV-202A during plant condition of sufficient duration to permit repair.	CR534036 CR535963	Complete. WO 59102680516 – cancelled. U2 Ops Log entry dated 2/2/12@1521 and 1550.
14-033	1/30/14	PAMS - Replace indicator for 2-CC-TV-202F during plant condition of sufficient duration to permit repair.	CR535698 CR537506	Complete. WO 59102685457 cancelled. U2 Ops Log entry dated 2/2/12@1521 and 1550.
14-273	6/16/14	Schedule for Response to Request for Information Regarding Flooding Hazard Reevaluation Report. Provide final response to RAI 3.4-1 by November 15, 2014.	LA5477	Open

Enclosure 8 to 11-520



NEAR-TERM ACTIONS TO BE COMPLETED PRIOR TO UNIT RESTART			
Restart Activity		Comments	Status/Comments
<b>A. Seismic Monitoring and Design Basis</b>			
1	Provide temporary backup power to the Main Control Room Seismic Monitoring Panel.	Complete	Complete. See Attachment 4 of NRC Restart Readiness Inspection Report dated November 30, 2011
2	Install temporary free field seismic monitoring instrumentation.	Prior to Unit 1/2 Restart	Same as above
3	Revise Abnormal Procedure 0-AP-36 to improve procedural guidance for determining whether an onsite earthquake exceeds OBE and/or DBE peak acceleration criteria.	Prior to Unit 1/2 Restart	Same as above
<b>B. Nuclear Fuel</b>			
1. Unit 1 Core			
a	Perform hot rod drop testing.	Prior to Unit 1 entering Mode 2	Complete. LA2779
2. Unit 2 Core			
a	Perform RCCA drag testing.	Prior to Unit 2 onload	Complete. LA2780
b	Perform hot rod drop testing.	Prior to Unit 2 entering Mode 2	Complete. LA2781
c	Perform routine binocular visual inspection during core offload.	Prior to Unit 1 Restart	Complete. Refer to NRC Technical Audit Report dated October 25, 2011
d	Perform video inspections on 13 benchmark assemblies and additional vendor-recommended assemblies.	Prior to Unit 1 Restart	Same as above
e	Perform video inspection of RCCA hubs.	Prior to Unit 1 Restart	Same as above
f	Perform video inspections on assemblies with anomalies observed during binocular inspections.	Prior to Unit 1 Restart	Same as above
<b>C. Root Cause Evaluations</b>			
1	Reactor Trip	Prior to Unit 1/2 Restart	Complete. See RCE1061
2	Unit 2H Emergency Diesel Generator Coolant Leak	Prior to Unit 1/2 Restart	Complete. See RCE 1062

NEAR-TERM ACTIONS TO BE COMPLETED PRIOR TO UNIT RESTART			
Restart Activity		Comments	Status/Comments
			and LA2782
<b>D. Inspections</b>			
1	<u>Steam Generators</u> - Perform a 20% sample inspection of Unit 1 and Unit 2 steam generators.	Prior to Unit 1/2 Restart	Complete. LA2783
2	<u>Containment</u> - Perform containment inspections to identify and remove debris that may have resulted from the earthquake, as required.	Prior to Unit 1/2 Restart	Complete. LA2816, 2817 & 0-GOP-30 log
3	<u>Containment Sump Strainers</u> Perform a visual examination of the sump strainer gaps in accordance with the applicable periodic test.	Prior to Unit 1/2 Restart	Complete. LA2784
4	<u>Inservice Inspection</u> Perform sample weld inspections.	Prior to Unit 1/2 Restart	Complete. LA2820
5	<u>Buried Pipe Monitoring/Ground Water Monitoring Program</u> Perform buried pipe inspections of: <ul style="list-style-type: none"> <li>the two areas of buried fire protection pipe that are currently excavated,</li> <li>the Unit 2 circulating water discharge tunnel and associated liquid waste line, and</li> <li>the buried pipe between the Unit 1 auxiliary feedwater tunnel and the Unit 1 Quench Spray Pump House.</li> </ul>	Prior to Unit 1/2 Restart	Complete. LA2820 and ER-AA-BPM-101
<b>E. Testing</b>			
1	Complete Unit 1/2 Surveillance Periodic Tests as determined by the Seismic Event Response Team.	Prior to and during Unit 1/2 Startup per Technical Specifications (Unit specific tests will be completed prior to and during that Unit's startup)	Complete. LA2785 and 2796

Enclosure 9 from 11-520

LONG-TERM ACTIONS TO BE COMPLETED AFTER UNIT RESTART		
Activity		LA Number
<b>A. Seismic Monitoring and Evaluations</b>		
1	Provide permanent backup power to the Main Control Room Seismic Monitoring Panel.	Complete. 2743
2	Install permanent free field seismic monitoring instrumentation.	Complete. 2744
3	Reevaluate plant equipment identified in the IPEEE review with HCLPF capacity <0.3g.	Complete. 2899
4	Perform seismic evaluations in the context of EPRI NP-6695, NRC GI-199 and as an outcome of NRC Task Force recommendations identified in SECY-11-0124.	Complete. 2893 & 2894
<b>B. Reactor Vessel Internals</b>		
1	Develop a plan with the NSSS vendor consisting of additional evaluations or inspections, as warranted, to assure long term reliability of the reactor internals.	Complete. 2746 & 2900

Attachment to 11-520D

Long-Term Actions Commitment List North Anna Power Station Units 1 and 2			
Item No.	Commitment	Scheduled Completion Date	LA Number
1	Dominion will perform long-term evaluations of plant structures, systems and components in accordance with RG 1.167/EPRI NP-6695, Section 6.3. Any anomalies identified during the evaluations will be entered into the corrective action system and evaluated for extent of condition.	April 30, 2013	Complete. 2893 & 2894
2	Dominion will develop a plan to characterize the seismic source and any special ground motion effects due to the relative locations of the fault and the site and will update the NRC accordingly.	March 31, 2012	Complete. 2895
3	Dominion will revise the North Anna Updated Final Safety Analysis Report to document:		
	a. The recorded August 23, 2011 seismic event.	April 30, 2012	Complete. 2896
	b. A summary of the evaluation and results of the seismic analysis of the recorded event completed per RG 1.167/EPRI NP-6695.	April 30, 2013	Complete. 2907
	c. Design controls on seismic margin management (i.e., the Seismic Margin Management Plan).	April 30, 2012	Complete 2896
	d. Incorporation of Regulatory Guide (RG) 1.166, "Pre-Earthquake Planning and Immediate Nuclear Power Plant Operator Post-Earthquake Actions," and RG 1.167, "Restart of a Nuclear Power Plant Shut Down by a Seismic Event," into the North Anna licensing basis.	December 31, 2012	Complete. 2897
4	Dominion will implement a design change to replace the existing seismic equipment and Main Control Room indication with upgraded and enhanced seismic monitoring instrumentation equipment, which includes installation of a permanent, free field seismic monitor. Permanent, seismically qualified backup power to a new Seismic Monitoring Panel will also be installed including a backup battery power	December 31, 2012 (subject to receipt of seismic monitoring equipment and outage	Complete. 2898

Long-Term Actions Commitment List North Anna Power Station Units 1 and 2			
Item No.	Commitment	Scheduled Completion Date	LA Number
	supply. The seismic instrumentation will be installed and maintained in accordance with RG 1.12, Rev 2, <i>Nuclear Power Plant Instrumentation for Earthquakes</i> . The project will also install seismic recording instrumentation at the station Independent Spent Fuel Storage Installation (ISFSI) pad.	schedules)	
5	Dominion will perform a re-evaluation of the plant equipment identified in the IPEEE review with HCLPF capacity <0.3g, which will include an assessment of potential improvements.	March 31, 2013	Complete. 2899
6	Dominion will develop a plan with the NSSS vendor consisting of additional evaluations or inspections, as warranted, to assure long term reliability of the reactor internals.	February 29, 2012	Complete. 2900
7	Dominion will perform a comparison of the calculated load from the August 23, 2011 earthquake and the existing leak-before-break (LBB) analysis and submit the results.	March 31, 2013	Complete. 2901
8	Dominion will perform inspections at North Anna Power Station in accordance with the latest MRP-227 revision approved by the NRC.	In accordance with the MRP-227 inspection plan, which will be provided by March 31, 2013	2902 – Plan submitted for review. 2903 is tracking performance of inspections to be completed by end of 2020.
9	Dominion will re-evaluate the Time-Limiting Aging Analyses (TLAAs) that include seismic inputs to either: 1) quantitatively demonstrate that the TLAAs are still bounding, or 2) re-analyze the TLAAs, based on the August 23, 2011 earthquake.	March 31, <u>2013</u>	Complete. 2904
10	Dominion will implement a long term Seismic Margin Management Plan to address the impact of the August 23, 2011 earthquake. Specifically, to ensure adequate seismic margins are maintained for plant SSCs,	December 31, 2011	Complete. 2905

Long-Term Actions Commitment List North Anna Power Station Units 1 and 2			
Item No.	Commitment	Scheduled Completion Date	LA Number
	Dominion will revise the design change process for North Anna Power Station to require explicit evaluation of plant modifications for the effects of the August 23, 2011 earthquake using In-Structure Response Spectra (ISRS) for the event for the Containment, Auxiliary Building, and other buildings containing safety related SSCs developed based on actual time-histories recorded during the event. In support of future plant design changes, the evaluation of plant SSCs will require design verification and code compliance with the stresses, loads, accelerations, and displacements generated from the analysis with the design basis ISRS and the analysis with the ISRS for the August 23, 2011 earthquake, whichever are higher.		
	Dominion will provide 30-days prior written notification to the NRC if it determines the Seismic Margin Management Plan is no longer required based on the implementation of comparable actions as part of the resolution of the NRC's recommendations emanating from the Fukushima Daiichi Task Force and/or Generic Issue (GI)-199.	N/A	Complete. 2906

D. A. Heacock

- 2 -

If you have any questions, please contact me at 301-415-2597 or via e-mail at [v.sreenivas@nrc.gov](mailto:v.sreenivas@nrc.gov).

Sincerely,

**/RA/**

Dr. V. Sreenivas, Project Manager  
Plant Licensing Branch II-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-338 and 50-339

Enclosure:  
Commitment Audit Report

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