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July 6, 2009

U. S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
One White Flint North  
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Serial No: 09-328  
NLOS/GDM R2  
Docket No.: 50-280  
License No.: DPR-32

**VIRGINIA ELECTRIC AND POWER COMPANY (DOMINION)**  
**SURRY POWER STATION UNIT 1**  
**SUPPLEMENTAL RESPONSE TO NRC GENERIC LETTER 2008-01, MANAGING**  
**GAS ACCUMULATION IN EMERGENCY CORE COOLING, DECAY HEAT**  
**REMOVAL, AND CONTAINMENT SPRAY SYSTEMS**

The Nuclear Regulatory Commission (NRC) issued Generic Letter (GL) 2008-01 on January 11, 2008, requesting each licensee to evaluate the licensing basis, design, testing, and corrective action programs for the Emergency Core Cooling Systems (ECCS), Residual Heat Removal (RHR) System, and Containment Spray (CS) System to ensure that gas accumulation is maintained less than the amount that could challenge the operability of those systems and to ensure that appropriate action is taken when conditions adverse to quality are identified.

In an October 14, 2008 letter (Serial No. 08-0013B), Dominion provided the information requested in GL 2008-01 for Surry and North Anna Power Stations. However, as identified in our May 8, 2008 letter (Serial No. 08-0013A), Dominion provided an alternate schedule for the completion of the walkdowns and evaluations of the inaccessible portions of the ECCS and Spray Systems inside containment. Specifically, Dominion committed to provide this information by July 15, 2009 for Surry Unit 1. The NRC approved the completion schedule in a letter dated July 23, 2008. The attachment to this letter provides the results of the walkdown and evaluations of the inaccessible portion of the ECCS inside containment for Surry Unit 1.

In summary, Dominion has completed the walkdowns and evaluations of the previously inaccessible portions of the applicable systems at Surry Power Station Unit 1 that perform the functions described in GL 2008-01 and has concluded that these systems are operable. Furthermore, the original conclusions documented in Dominion's October 14, 2008 response remain valid: 1) the ECCS, RHR and Containment Spray systems at Surry Power Station are in compliance with their TS definitions of operability, i.e., capable of performing their intended safety functions, and 2) Surry Power Station is in compliance with 10 CFR 50, Appendix B, Criterion III, V, XI, XVI, and XVII, with respect to the concerns outlined in GL 2008-01 regarding gas accumulation in the applicable systems.



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**ATTACHMENT**

**SUPPLEMENTAL RESPONSE TO GL 2008-01**

**SURRY POWER STATION UNIT 1**

**VIRGINIA ELECTRIC AND POWER COMPANY  
(DOMINION)**

## **Supplemental Response to NRC Generic Letter 2008-01**

### **Surry Power Station Unit 1**

This attachment provides Dominion's supplemental response to Generic Letter (GL) 2008-01 for actions that were deferred until the next refueling outage for Surry Unit 1 as requested in a May 8, 2008 letter (Serial No. 08-0013A) and approved by the NRC in a July 23, 2008 letter. This supplemental response provides the results of the design evaluation reviews conducted during the recent Unit 1 refueling outage associated with walkdowns of previously inaccessible systems.

#### **A. EVALUATION RESULTS**

##### **1. Design Basis Documents**

No changes to the licensing or design bases have been identified as a result of the confirmatory inspections and walkdowns performed during the Surry Unit 1 spring refueling outage.

##### **2. Confirmatory Walkdowns**

- a) The Low Head Safety Injection (LHSI) pump discharge piping to the Reactor Coolant System (RCS) cold leg piping inside containment was laser scanned, and detailed isometrics were prepared. A slope report was developed to identify high points in the piping, and each identified high point irregularity of greater than one degree was evaluated for potential gas accumulation. The evaluation determined that the irregular high points did not exceed previously determined acceptance criteria developed for the LHSI pump discharge piping.
- b) Full flow testing and system flow sweeping was performed in accordance with existing station procedures to provide dynamic venting of the system high points both outside and inside containment for each Emergency Core Cooling System (ECCS) piping train. Static venting was performed at the system piping high points outside of containment in accordance with existing station procedures for each ECCS subsystem piping train upon return to service. The vented system local high points were previously confirmed to be located correctly. Ultrasonic testing (UT) was then utilized to confirm the effectiveness of static venting procedures.

##### **3. Vent Valves**

The confirmatory inspection identified four (4) new high point vent valve locations in the LHSI discharge piping to the RCS cold leg piping that would aid operators in more efficiently venting the system inside containment following testing. Vent valves were installed to allow the LHSI discharge piping to the RCS cold leg

piping to be drained and refilled following testing without the use of dynamic venting.

#### **4. Procedures**

Procedure revisions were completed to incorporate the new vent valves into the station procedure for returning the LHSI discharge piping to the RCS cold legs to service following leak testing of the RCS pressure isolation valves. In addition, a new administrative procedure was developed to perform confirmatory inspections of unvented high points in the LHSI system. This procedure will be used to monitor and trend the performance of ECCS systems by providing guidance on gas accumulation indicators and ways to detect and mitigate the accumulation of gas.

#### **5. Inspections**

UT inspections were conducted at nineteen (19) vented high points in the accessible sections of the suction piping to the ECCS pumps and on the LHSI discharge piping to confirm the effectiveness of venting procedures. UT was performed at each location prior to venting activities and was then re-performed to quantify any possible as-left volume. The inspections revealed only small volumes of gas at four locations in piping areas not impacted by the dynamic venting procedures. These high points were successfully vented using the existing vent valves to less than 0.030 ft<sup>3</sup> of total system gas volume.

### **B. DESCRIPTION OF NECESSARY ADDITIONAL CORRECTIVE ACTIONS**

#### **1. Additional Corrective Actions**

As noted above, four additional vents valves were installed to allow the LHSI discharge piping to the RCS cold leg to be drained and refilled following testing, and associated procedure revisions were implemented to use the new vent valves.

A new administrative procedure was developed to perform confirmatory inspections of unvented high points in the LHSI system. The procedure will also be used to monitor and trend the performance of ECCS systems by providing guidance on gas accumulation indicators and ways to detect and mitigate the accumulation of gas.

#### **2. Corrective Action Updates**

No additional corrective actions are anticipated beyond those specified in Item B.1 above.

## **CONCLUSION**

Dominion has completed the walkdowns and evaluations of the previously inaccessible portions of the applicable systems at Surry Power Station Unit 1 that perform the functions described in GL 2008-01 and has concluded that these systems are operable. Furthermore, the original conclusions documented in Dominion's October 14, 2008 response remain valid: 1) the ECCS, RHR and Containment Spray systems at Surry Power Station are in compliance with their TS definitions of operability, i.e., capable of performing their intended safety functions, and 2) Surry Power Station is in compliance with 10 CFR 50, Appendix B, Criterion III, V, XI, XVI, and XVII, with respect to the concerns outlined in GL 2008-01 regarding gas accumulation in the applicable systems.