

VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

December 16, 2010

United States Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

Serial No. 10-743
NL&OS/GDM R1
Docket Nos. 50-280/281
License Nos. DPR-32/37

VIRGINIA ELECTRIC AND POWER COMPANY
SURRY POWER STATION UNITS 1 AND 2
ASME SECTION XI INSERVICE INSPECTION PROGRAM
RELIEF REQUESTS SPT-004 REVISION 2 AND SPT-003 REVISION 2
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

By letter dated October 27, 2009 (Serial No. 09-184; ML093000352), Virginia Electric and Power Company (Dominion) requested NRC approval for Relief Requests SPT-004, Revision 2, and SPT-003, Revision 2, for Surry Units 1 and 2, respectively. The requests were submitted to obtain relief from the Code examination requirements for the penetrations in the bottom head of the reactor pressure vessel (RPV) due to the difficulties involved with performing the examination. By letter dated October 26, 2010, the NRC approved the relief requests; however, the Safety Evaluation Report (SER) included in the NRC's letter stated that Dominion had requested, and the NRC approved, the performance of bare-metal VT-2 examinations of the RPV bottom-mounted instrumentation (BMI) penetrations. However, it was Dominion's intent to perform the VT-2 examinations on the exterior of the RPV bottom head insulation for indication of boric acid leakage as permitted by ASME Section XI. Bare-metal VE visual examinations of the RPV BMI penetrations will be performed every other refueling outage (RFO) in accordance with code requirements.


During a conference call between the NRC and Dominion on November 18, 2010, Dominion discussed the approved Surry Units 1 and 2 relief requests and the associated NRC SER. As a result of the discussion, the NRC requested additional information regarding the hardship associated with the removal of the RPV bottom head insulation to perform a bare metal VT-2 examination of RPV BMI penetrations. The NRC's questions were provided to Dominion in an email from the Surry NRC Project Manager Karen Cotton on November 19, 2010. Dominion provided the requested information to the NRC by e-mail later the same day. A subsequent conference call between the NRC and Dominion was held on November 23, 2010 in which the NRC verbally stated that performing a VT-2 examination every refueling outage on the bottom of the RPV with the insulation installed, in addition to a bare-metal VE examination performed on the bottom of the RPV every other refueling outage, provides reasonable assurance of RPV bottom head and BMI penetration area integrity. Therefore, the requests for relief, as originally written, were approved by the NRC. The NRC stated

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NRC stated that it would provide an updated SER and also requested that Dominion submit the information provided by email noted above in a docketed letter. Consequently, the requested information is provided in the attachment. The relief is requested for the fourth 10-year inservice inspection interval that began on October 14, 2003, and ends on December 13, 2013, for Unit 1 and began on May 10, 2004, and ends on May 9, 2014, for Unit 2.

If you have any questions or require additional information, please contact Mr. Gary D. Miller at (804) 273-2771.

Sincerely,



G. T. Bischof
Site Vice President
Surry Power Station

Attachment

- Response to NRC Request for Additional Information, Relief Request SPT-004, Revision 2, Surry Unit 1 and Relief Request SPT-003, Revision 2, Surry Unit 2

Commitments made in this letter: None

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Attachment

Response to NRC Request for Additional Information
Relief Request SPT-004, Revision 2, Surry Unit 1 and Relief Request SPT-003,
Revision 2, Surry Unit 2

Virginia Electric and Power Company
(Dominion)
Surry Power Station

Response to NRC Request for Additional Information

**Relief Request SPT-004, Revision 2, Surry Unit 1 and Relief Request SPT-003,
Revision 2, Surry Unit 2**

NRC Question No.1

Describe the insulation configuration and the ability to see the annulus region of the nozzles even with the insulation in place.

Dominion Response

The insulation at the bottom of the reactor vessel consists of reflective metal insulation (RMI) that conforms to the shape of the reactor vessel. The RMI has holes where each of the guide tubes exit the bottom of the reactor vessel. The insulation at the very bottom of the reactor vessel is one circular piece approximately six and half feet in diameter that can be dropped when a direct visual inspection of the reactor vessel bottom is required. The RMI is not a tight fit around each of the guide tubes and the size of the gaps around the guide tubes vary. (See Fig. 1 below.)

In accordance with ASME Section XI, IWA-5242 Insulated Components, which allows for the conduct of a pressure test inspection without removal of insulation, the VT-2 examiners inspect the accessible and exposed surfaces and joints of the RMI. Though a direct visual inspection of the bottom of the reactor vessel is not possible with the RMI in place, should any leakage have occurred at a bottom-mounted instrumentation (BMI) penetration during the operating cycle, the leakage would likely travel down the BMI guide tubes that extend through the insulation penetration gaps around the guide tubes, as well as to the low points of the insulation and through the insulation seams, where it would be identified by the examiners. (See Figs. 1 and 2 below.) The VT-2 examiners also thoroughly investigate surrounding areas around the bottom of the reactor vessel for evidence of leakage and other areas to which such leakage may be channeled. This VT-2 inspection, in conjunction with the bare-metal VE inspection of the Reactor Pressure Vessel (RPV) bottom head BMI penetrations that will be performed every other refueling outage (RFO) would provide adequate assurance that any leakage in this area would be identified.

In addition, the three previous bare metal VT-2 visual inspections that were performed on Surry Unit 1 in 2006, 2007 and 2009, and the four previous bare metal VT-2 visual inspections that were performed on Surry Unit 2 in 2005, 2006, 2008 and 2009 did not identify any BMI penetration area leakage.

NRC Question No.2

Explain the hardship associated with removing the insulation (i.e., dose, planning delays, etc.).

Dominion Response

Requiring the performance of a bare metal VT-2 inspection of the RPV BMI penetrations would require the removal and reinstallation of the RPV bottom head insulation. This effort incrementally increases the wear and tear on the RMI insulation, and would also result in the accumulation of additional personnel dose. The previously performed bare-metal inspections of the RPV BMI penetrations were reviewed to determine the dose that was incurred for the removal and reinstallation of the RPV bottom head insulation. It was determined that, on average, a dose of approximately 0.7 Rem was required to accomplish this task.

Therefore, pursuant to 10 CFR 50.55a(a)(3)(ii), the increased wear and tear on the RPV bottom head insulation and the additional personnel dose that would be incurred due to insulation removal and reinstallation is considered an unnecessary hardship without a compensating increase in the level of quality and safety because: 1) as noted in the response to Question 1 above, the RPV bottom head BMI penetration area can be adequately inspected for signs of boric acid leakage with the RPV bottom head insulation in place, and 2) a bare-metal VE visual inspection will be performed every other RFO pursuant to Code requirements.

Precedents

Pursuant to 10 CFR 50.55a(a)(3)(ii), similar alternatives, which did not include the performance of the VE bare-metal RPV bottom head BMI inspection every other RFO or require a bare-metal VT-2 inspection, were previously approved by the NRC for both North Anna and Surry Units 1 and 2 as listed below:

- North Anna Unit 1 (Relief Request SPT-1) for the third inspection interval by NRC letter dated April 25, 2000 (TAC No. MA5750) and for the fourth inspection interval by NRC letter dated April 14, 2009 (TAC NO. MD9956);
- North Anna Unit 2 (Relief Request SPT-005) for the third inspection interval by NRC letter dated June 12, 2002 (TAC NO. MB2280); and
- Surry Units 1 and 2 (Relief Requests RR-14 and RR18, respectively) for the third inspection interval by NRC letter dated August 1, 2001 (TAC NOS. MB1083 and MB1084).

Figure 1

Surry RPV Bottom Head Insulation

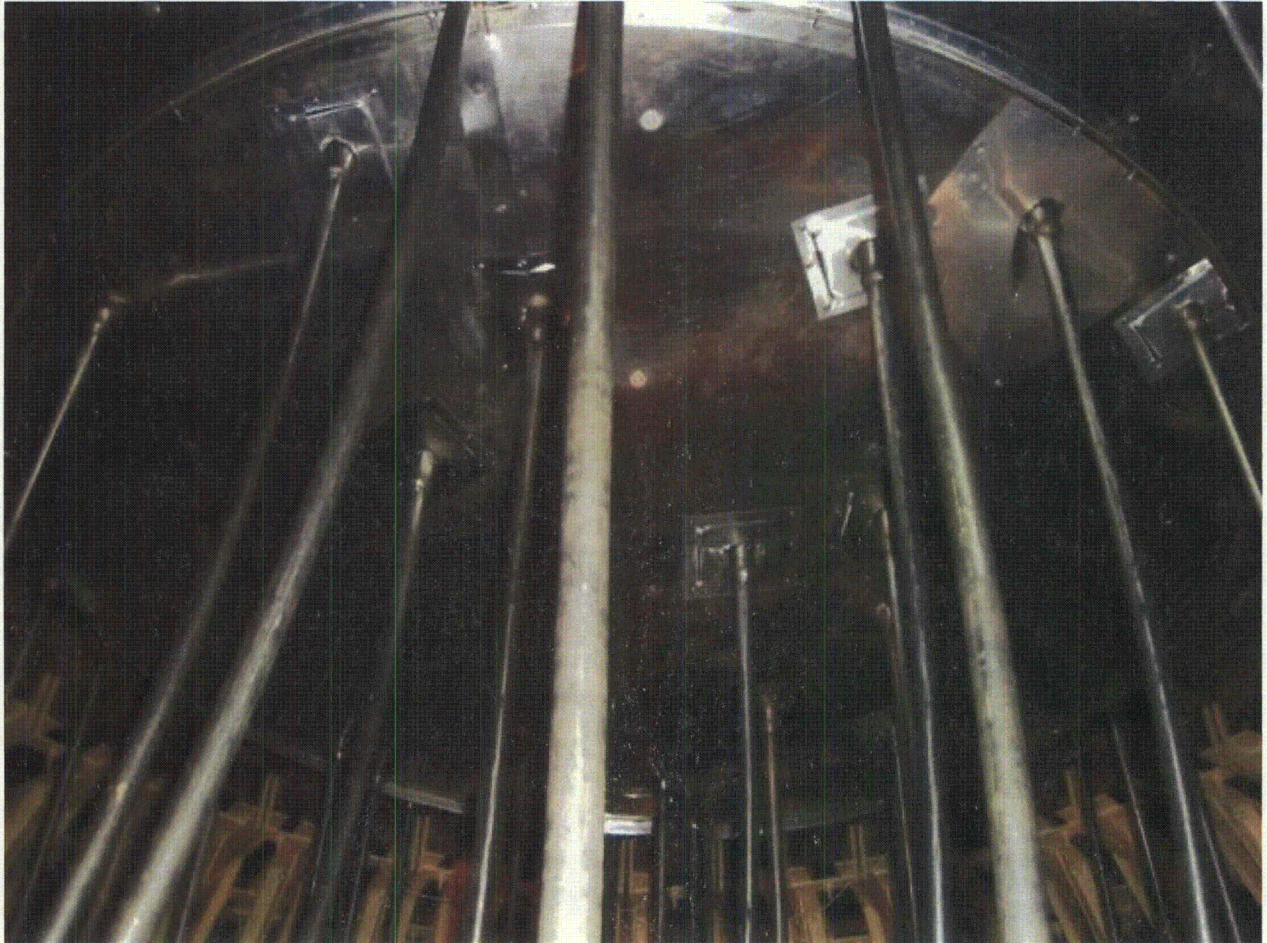


Figure 2

Surry RVH Bottom Head Showing BMI Penetrations and Guide Tubes

