

VIRGINIA ELECTRIC AND POWER COMPANY  
RICHMOND, VIRGINIA 23261

September 9, 2015

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

Serial No.: 15-245A  
NLOS/DEA: R1  
Docket No.: 50-338  
License No.: NPF-4

**VIRGINIA ELECTRIC AND POWER COMPANY (DOMINION)**  
**NORTH ANNA POWER STATION UNIT 1**  
**RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION**  
**PROPOSED INSERVICE INSPECTION ALTERNATIVE N1-I4-SPT-006**

In a May 19, 2015 letter (Serial No. 15-245) Dominion requested an inservice inspection (ISI) alternative, N1-I4-SPT-006, for North Anna Power Station (NAPS). The proposed alternative would allow system leakage testing per ASME Section XI, Table IWB-2500-1 and IWB-5221, with isolation valve 1-CH-HCV-1311 in the normally closed position, as an alternative to the system leakage test requirements of IWB-5222(b) for this piping segment.

In an email dated August 13, 2015, the Nuclear Regulatory Commission (NRC) transmitted a request for additional information (RAI) related to the proposed ISI alternative. The Dominion response to the RAI is provided in Attachment 1. In response to RAI 1, a copy of drawing 11715-CBM-095C-4, Sheet 1 of 2 is provided in Attachment 2.

Should you have any questions or require additional information, please contact Ms. Diane E. Aitken at (540) 894-2574.

Sincerely,



Mark Sartain  
Vice President Nuclear Engineering

Commitments contained in this letter: None

Attachments:

1. Response to Request for Additional Information
2. Drawing 11715-CBM-095C-4, Sheet 1 of 2

A-047  
NPR

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NRC Senior Resident Inspector  
North Anna Power Station

**Attachment 1**

**RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION**

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

**RAI 1**

Please provide a drawing of the auxiliary spray piping segment. The drawing is listed on the Relief Request as 11715-CBM-095C-4, Sheet 1 of 2, but was not included with the request.

**Dominion Response**

A copy of drawing 11715-CBM-095C-4, Sheet 1 of 2, ISI Classification Boundary Dwg Interval-4, Chemical and Volume Control System, North Anna Power Station Unit 1, is included as Attachment 2.

**RAI 2**

Please provide a list of materials for the auxiliary spray piping and discuss the pipe construction.

**Dominion Response**

The auxiliary spray piping is constructed of the materials indicated below and meets the design pressure and temperature ratings of 2735 psig and 650°F, respectively.

Component	Material
Piping 2" NPS	A376-TP316, S/160
Pipe Fittings (elbows/reducers)	A403-WP316, S/160,BW
1-CH-328	A182-F316,S/160
1-CH-HCV-1311	A351 GR CF8

**RAI 3**

Are there any welded connections (e.g., butt or socket) in the auxiliary spray piping? Discuss any industry or plant specific operating experience regarding potential degradation of the welded connections in the subject components by mechanism such as fatigue or stress corrosion cracking?

**Dominion Response**

There are 23 butt welded connections in the auxiliary spray piping, none of which have shown signs of degradation due to fatigue or stress corrosion cracking. The Risk-Informed ISI Program, Relief Request N1-I4-RI-001 (SER dated January 21, 2011, ADAMS ML110050003), and the supporting evaluations classify the subject auxiliary spray piping, with butt welded connections, as Code Case N-716 Item No. R1.20, Elements not subject to a Degradation Mechanism. No operating experience related to

degraded welded connections on this line was identified, partially due to the fact that because the potential for thermal shock during the performance of system pressure testing has been recognized and other utilities with similar configurations have been granted relief requests for this piping segment.

#### **RAI 4**

If there are welded connections in the subject piping segment, have they been volumetrically examined during current or past intervals?

#### **Dominion Response**

The butt-welded locations along the subject piping segment (line number 2"-CH-68-1502-Q1), which are considered high safety significant (HSS) and classified with no degradation mechanism (Item No. R1.20) in the Risk-Informed ISI Program, have not been selected for the Fourth Inspection Interval at this time. Prior to implementation of the Risk-Informed ISI Program, butt welds on line 2"-CH-68-1502-Q1 were examined per ASME Code Section XI, examination category B-J, Item No. B9.21, with selections subject only to surface examinations. On February 2, 1993, welds 20 and 21 on this same line were examined with a liquid penetrant (PT) examination with no recordable indications. On February 23, 1996, weld 26A on the subject line was also examined with a liquid penetrant (PT) examination with no recordable indications. On the corresponding Unit 2 Auxiliary Spray Line, covered by relief request N2-I4-SPT-006 (SER dated November 2, 2010, ADAMS ML102510218), PT examinations were performed on six welds from 1992 through 1999. No recordable indications were identified.

#### **RAI 5**

Is there any current or past history of leakage in the subject piping segment? If so, please discuss the leakage and what corrective actions were taken. What are the leakage detection capabilities at the plant?

#### **Dominion Response**

There has been no history of leakage identified in the subject piping segment between valves 1-CH-HCV-1311 and 1-CH-328. In addition to the performance of IWB-5222(a) exams, the body to bonnet fasteners for these valves are examined every refueling outage in accordance with the Boric Acid Corrosion Control Program. The Reactor Coolant System (RCS) leakage detection systems consist of containment sump monitors (2 trains) and the containment atmosphere radiation monitors (gaseous and particulate). Operability of these systems is maintained in accordance with Technical Specification (TS) 3.4.15, RCS Leakage Detection Instrumentation. In addition, the RCS leakrate is computed daily as required by TS 3.4.13, RCS Operational Leakage.

**RAI 6**

Are any segments of the auxiliary spray piping insulated or inaccessible in a manner that would prevent a complete VT-2 examination? If so, discuss methods planned to examine these sections.

**Dominion Response**

All of the auxiliary spray piping is insulated. Although no examination hold time is required for Category B-P components, a 4 hour hold time is used to meet the required IWA-5213 insulated component hold time requirements for the other Examination Categories.

**RAI 7**

Will there be any retained pressure in the pipe during the VT-2 Examinations? If so, provide the retained pressure values in the pipe and what will be in the pipe (i.e., RCS coolant or air?)

**Dominion Response**

The subject piping segment between 1-CH-HCV-1311 and 1-CH-328 is assumed to be pressurized to RCS pressure due to minor valve leakage. However, since no connection is available for mounting temporary instrumentation this assumption has not been validated.

**RAI 8**

Discuss whether or not it is possible to pressure test the auxiliary spray piping segment with an external pump.

**Dominion Response**

A plant modification would be required to install the appropriate vents/drains to facilitate use of an external pump to pressure test the auxiliary spray piping segment.

**RAI 9**

Are there any other factors such as excessive dosage that should be considered in this evaluation?

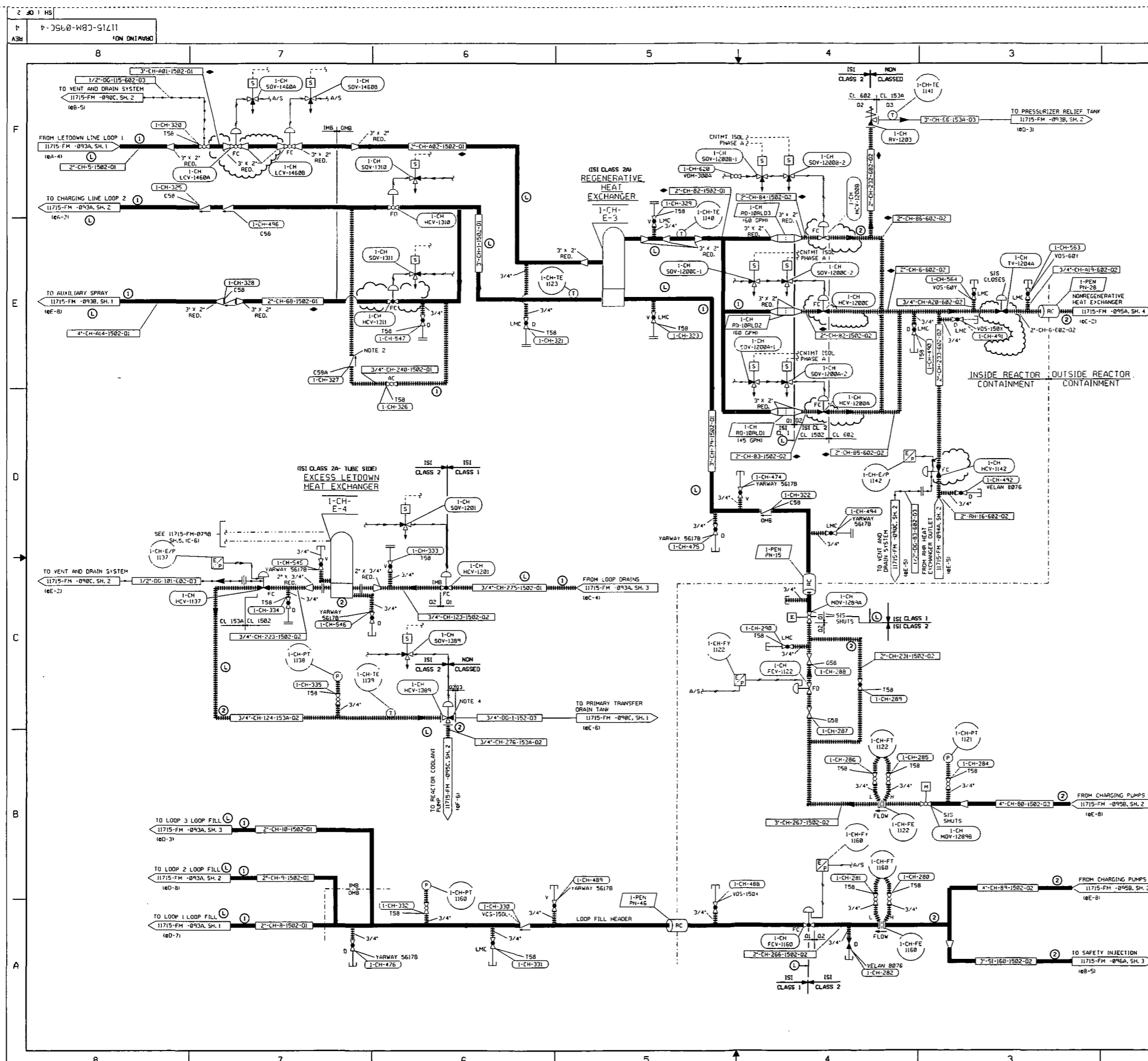
**Dominion Response**

Approval of the proposed Inservice Inspection Alternative N1-I4-SPT-006 would minimize the total dose received by craft personnel required to install test connections and examination personnel performing the inspections. Historically, the contact dose rates have been 400 – 1500 mrem/hr (1-CH-328) and 50 – 250 mrem/hr (1-CH-HCV-1311).

**Attachment 2**

**DRAWING 11715-CBM-095C-4, Sheet 1 of 2  
ISI CLASSIFICATION BOUNDARY DWG INTERVAL-4  
CHEMICAL AND VOLUME CONTROL SYSTEM  
NORTH ANNA POWER STATION UNIT 1**

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



NOTES

1. FOR NOTES, SEE SHEET 1 OF 11715-FM-095A.

NUMBER	TITLE
01.	FOR ADDITIONAL REFERENCE DRAWINGS, SEE SHEET 1 OF 11715-FM-095A.
02.	11715-FM-090C FLOW/VON DIAGRAM, REACTOR & DRAIN SYSTEM
03.	11715-FM-093A FLOW/VON DIAGRAM, REACTOR COOLANT SYSTEM
04.	11715-FM-093B FLOW/VON DIAGRAM, REACTOR COOLANT SYSTEM
05.	11715-FM-094A FLOW/VON DIAGRAM, RESIDUAL HEAT REMOVAL SYSTEM
06.	11715-FM-095B FLOW/VON DIAGRAM, CHEM & VOLUME CONTROL SYSTEM
07.	11715-FM-095C FLOW/VON DIAGRAM, CHEM & VOLUME CONTROL SYSTEM
08.	11715-FM-096A FLOW/VON DIAGRAM, SAFETY INJECTION SYSTEM
09.	11715-FM-095A FLOW/VON DIAGRAM, CHEM & VOLUME CONTROL SYSTEM

BYPRODUCT DRAWINGS	
1.	11715-CBM-095C, SH.1 ISI CLASSIFICATION BOUNDARY DRAWING
2.	11715-SPM-095C, SH.1 ISI SYSTEM PRESSURE TESTING DRAWING
3.	11715-LRM-095C, SH.1 LICENSE RENEWAL APPENDIX 'R' FLOWPATH
4.	11715-0AR-095C, SH.1

NOTE 1: DELETED

NOTE 2: (L) LOW SAFETY SIGNIFICANT PIPING

FOR ISI CLASSIFICATION BOUNDARY DRAWING LEGEND AND SYMBOLS, SEE 11715-CBM-L&S-4 THIS CLASSIFICATION BOUNDARY DRAWING IS TO BE USED FOR THE FOURTH TEN YEAR INSPECTION INTERVAL (05-01-2009 TO 04-30-2019)

CONTINUATION DRAWING NUMBERS REFER TO FM OR FB DRAWINGS. THE CORRESPONDING CLASSIFICATION BOUNDARY DRAWINGS (CBM OR CBB) CAN BE DETERMINED BY SUBSTITUTING CBM OR CBB FOR FM OR FB.

CAUTION: THE BACKGROUND PORTION OF THIS BYPRODUCT DRAWING IS FOR REFERENCE ONLY. THE BACKGROUND INFORMATION IS NOT CONTROLLED AND MAY NOT REFLECT THE ACTUAL PLANT CONFIGURATION. REFER TO THE LATEST FLOW/VALVE OPERATING NUMBERS DIAGRAM FOR CONTROLLED BACKGROUND INFORMATION.

REVISION DESCRIPTION	
REVISED PER MSOUR 13-700468/ DUR 13-701224 AND REV 33 OF THE FM. THIS DWG SUPERSEDES REV 3	REV 4

DESIGN	LV	SCALE:	NONE	UNLESS OTHERWISE NOTED	SH 1 OF 2
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THIS BYPRODUCT DWG ISSUED PER THE FOLLOWING FLOW/VON DIAGRAM

FLOW/VON DRAWING NO:	11715-FM-095C	REV:	33
			SH 1 OF 2

**Dominion**

**NUCLEAR ENGINEERING**  
RICHMOND, VIRGINIA

ISI CLASSIFICATION BOUNDARY DWG INTERVAL-4  
CHEMICAL AND VOLUME CONTROL SYSTEM  
NORTH ANNA POWER STATION UNIT 1  
VIRGINIA POWER

CAO NO:	N1095CIM.CB4
DRAWING NO:	11715-CBM-095C-4
REV	4

PC#F3