

VIRGINIA ELECTRIC AND POWER COMPANY  
RICHMOND, VIRGINIA 23261

June 13, 2002

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

Serial No.: 02-212  
NL&OS/GDM R0  
Docket Nos. 50-338/339  
50-280/281  
License Nos.: NPF-4/7  
DPR-32/37

Gentlemen:

**VIRGINIA ELECTRIC AND POWER COMPANY**  
**NORTH ANNA POWER STATION UNITS 1 AND 2**  
**SURRY POWER STATION UNITS 1 AND 2**  
**RISK-INFORMED ISI RELIEF REQUESTS R-1**

North Anna and Surry Power Stations, Units 1 and 2, are presently in their third ten-year inservice inspection intervals, and both stations have previously implemented Risk-Informed Inservice Inspection (RI-ISI) Programs for piping. North Anna Units 1 and 2 and Surry Unit 2 have partial scope, Class 1 RI-ISI programs which were approved by the NRC in letters dated September 18, 2001 and January 26, 2001, respectively. Surry Unit 1 has a full scope, Class 1, 2, 3 and non-class RI-ISI program approved by the NRC in a letter dated December 16, 1998.

Relief Request (R-1) was originally approved for North Anna Units 1 and 2 and Surry Unit 2 as part of the RI-ISI programs noted above. However, Surry Unit 1 did not request similar relief with the full scope RI-ISI program. The previously approved North Anna Units 1 and 2 and Surry Unit 2 relief requests address socket-welded connections and the difficulty in performing volumetric examinations on these type of connections. These relief requests are being revised to also include the branch connection welds. The same relief is also being requested for the first time for the Surry Unit 1 full scope RI-ISI program.

Performing a volumetric examination on these welds would result in unusual difficulty without a compensatory increase in the level of quality or safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(ii), Relief Request R-1 for Surry Unit 1 and the revised Relief Requests R-1 for North Anna Units 1 and 2 and Surry Unit 2 are being submitted for review and approval. Similar relief requests, including the branch connection relief, have been previously approved by the NRC for Sequoyah Units 1 and 2 and Watts Bar Unit 1. The Sequoyah Units 1 and 2 approval letters were dated October 19, 2001 and October 23, 2001 (TAC Nos. MB1566 and MB1567), respectively, and the Watts Bar Unit 1 approval letter was dated January 24, 2002 (TAC No. MB2082).

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Since the attached relief requests are similar for both Surry and North Anna, we request that the relief requests be reviewed and approved concurrently for efficiency.

If you have any questions or require additional information, please contact us.

Very truly yours,



Leslie N. Hartz  
Vice President – Nuclear Engineering

Attachments

Commitments made in this letter: None

cc: U.S. Nuclear Regulatory Commission  
Region II  
Sam Nunn Atlanta Federal Center  
61 Forsyth St., SW, Suite 23T85  
Atlanta, Georgia 30303-8931

Mr. R. A. Musser  
NRC Senior Resident Inspector  
Surry Power Station

Mr. M. J. Morgan  
NRC Senior Resident Inspector  
North Anna Power Station

Mr. J. E. Reasor, Jr.  
Old Dominion Electric Cooperative  
Innsbrook Corporate Center, Suite 300  
4201 Dominion Blvd.  
Glen Allen, Virginia 23060

Mr. R. A. Smith  
Authorized Nuclear Inspector  
Surry Power Station

Mr. M. M. Grace  
Authorized Nuclear Inspector  
North Anna Power Station

**Attachment 1**

**Relief Request R-1  
North Anna Units 1 and 2**

**Virginia Electric and Power Co.  
(Dominion)**

**Relief Request R-1 (Revision 1)**  
**NAPS Unit 1**

I. Identification of Components

ASME Class 1 socket weld connections and their branch connections, nominal pipe size 2 inches (NPS 2) and smaller, which are identified as being High Safety-Significant (HSS).

II. Impractical Code Requirements

North Anna Unit 1 has been approved to use a Risk-Informed Inservice Inspection (RI-ISI) program for the third inspection interval. Code Case N-577, Table 1 Examination Category R-A and WCAP-14572, Rev. 1-NP-A, Table 4.1-1, both require examination of HSS components based upon the postulated failure mechanism for the element of piping being examined. The requirement does not account for the geometric limitations imposed by socket welds and their branch connections, NPS 2 and smaller, when volumetric examinations are specified. Therefore, the current requirement is considered impractical.

III. Basis for Relief

Certain socket weld connections and their branch connections, NPS 2 and smaller, for North Anna Unit 1 have been identified as HSS and require volumetric examination for their postulated failure mechanism by WCAP-14572, Rev. 1-NP-A. These instances are associated with a potential thermal fatigue damage mechanism either caused by a snubber malfunction or as a default mechanism for segments selected for their consequence of failure with no assumed active mechanism occurring. Performing a volumetric examination on a socket weld connection or the branch connections, NPS 2 and smaller, provides little or no benefit, due to limitations imposed by the joint configuration and the smaller pipe size.

The ASME Code Committee recognized this problem and revised Code Case N-577 to allow substitution of the VT-2 examination method for all damage mechanisms on socket weld connections selected as HSS. The revised version is noted as Code Case N-577-1 and provides for the substitution in Note 12 of Table 1 in the revised Code Case. Incorporation of the branch connection, NPS 2 or smaller, into the Code Case is now under consideration by the committee for similar size and joint configuration limitation reasons.

Performing a volumetric examination on socket weld connections or their branch connections, NPS 2 or smaller, would result in unusual difficulty without providing any meaningful results, and thus no compensating increase in the level of quality and safety. As such, relief is requested per 10 CFR 50.55a(a)(3)(ii). Substituting

a VT-2 examination as an alternative on a refueling outage frequency for these locations ensures reasonable assurance of component integrity.

IV. Alternate Provisions

A VT-2 exam will be performed on the subject socket weld connections and their branch connections, NPS 2 and smaller, on a refueling outage frequency in conjunction with the system pressure test. These examinations will be tracked and reported by pressure test zone associated with the system pressure test program required by ASME Section XI.

**Relief Request R-1 (Revision 1)**  
**NAPS Unit 2**

I. Identification of Components

ASME Class 1 socket weld connections and their branch connections, nominal pipe size 2 inches (NPS 2) and smaller, which are identified as being High Safety-Significant (HSS).

II. Impractical Code Requirements

North Anna Unit 2 has been approved to use a Risk-Informed Inservice Inspection (RI-ISI) for the third inspection interval. Code Case N-577, Table 1 Examination Category R-A and WCAP-14572, Rev. 1-NP-A, Table 4.1-1, both require examination of HSS components based upon the postulated failure mechanism for the element of piping being examined. The requirement does not account for the geometric limitations imposed by socket welds and their branch connections, NPS 2 and smaller, when volumetric examinations are specified. Therefore, the current requirement is considered impractical.

III. Basis for Relief

Certain socket weld connections and their branch connections, NPS 2 and smaller, for North Anna Unit 2 have been identified as HSS and require volumetric examination for their postulated failure mechanism by WCAP-14572, Rev. 1-NP-A. These instances are associated with a potential thermal fatigue damage mechanism either caused by a snubber malfunction or as a default mechanism for segments selected for their consequence of failure with no assumed active mechanism occurring. Performing a volumetric examination on a socket weld connection or the branch connections, NPS 2 and smaller, provides little or no benefit, due to limitations imposed by the joint configuration and the smaller pipe size.

The ASME Code Committee recognized this problem and revised Code Case N-577 to allow substitution of the VT-2 examination method for all damage mechanisms on socket weld connections selected as HSS. The revised version is noted as Code Case N-577-1 and provides for the substitution in note 12 of Table 1 in the revised Code Case. Incorporation of the branch connection, NPS 2 or smaller, into the Code Case is now under consideration by the committee for similar size and joint configuration limitation reasons.

Performing a volumetric examination on socket weld connections or their branch connections, NPS 2 or smaller, would result in unusual difficulty without providing any meaningful results, and thus no compensating increase in the level of quality and safety. As such, relief is requested per 10 CFR 50.55a(a)(3)(ii). Substituting

a VT-2 examination as an alternative on a refueling outage frequency for these locations ensures reasonable assurance of component integrity.

IV. Alternate Provisions

A VT-2 exam will be performed on the subject socket weld connections and their branch connections, NPS 2 and smaller, on a refueling outage frequency in conjunction with the system pressure test. These examinations will be tracked and reported by pressure test zone associated with the system pressure test program required by ASME Section XI.

**Attachment 2**

**Relief Request R-1  
Surry Units 1 and 2**

**Virginia Electric and Power Co.  
(Dominion)**

## **Relief Request R-1 Surry Unit 1**

### I. Identification of Components

ASME Class 1, 2, 3 and nonclass socket weld connections and their branch connections, nominal pipe size 2 inches (NPS 2) and smaller, which are identified as being High Safety-Significant (HSS).

### II. Impractical Code Requirements

As a pilot application, Unit 1 was approved to use a Risk-Informed Inservice Inspection (RI-ISI) program on piping for the remainder of its operational life. It is currently in the third inspection interval. Code Case N-577, Table 1 Examination Category R-A and WCAP-14572, Rev. 1-NP-A, Table 4.1-1 both require examination of HSS components based upon the postulated failure mechanism for the element of piping being examined. The requirement does not account for the geometric limitations imposed by socket welds and their branch connections, NPS 2 and smaller, when volumetric examinations are specified. As such, the current requirement is considered impractical.

### III. Basis for Relief

Certain socket weld connections and their branch connections, NPS 2 and smaller, for Surry Unit 1 have been identified as HSS and require volumetric examination for their postulated failure mechanism by WCAP-14572, Rev. 1-NP-A. These instances are associated with a potential thermal fatigue damage mechanism either caused by a postulated temperature stratification or as a default mechanism for segments selected for their consequence of failure with no assumed active mechanism occurring. Performing a volumetric examination on a socket weld connection or the branch connection, NPS 2 and smaller, provides little or no benefit, due to limitations imposed by the joint configuration and the smaller pipe size.

The ASME Code Committee has recognized this problem and has revised Code Case N-577 to allow substitution of the VT-2 examination method for all damage mechanisms on socket weld connections selected as HSS. The revised version, N-577-1, has been issued and provides the substitution in note 12 of Table 1 of the Code Case. Incorporation of the branch connection, NPS 2 and smaller, into the Code Case is now under consideration by the committee for similar size and joint configuration limitation reasons.

Performing a volumetric examination on socket weld connections or their branch connections, NPS 2 and smaller, would result in unusual difficulty without providing any meaningful results, and thus no compensating increase in the level of quality and safety. As such, relief is requested per 10 CFR 50.55a(a)(3)(ii).

Substituting a VT-2 examination as an alternative on a refueling outage frequency for these locations ensures reasonable assurance of component integrity.

#### IV. Alternate Provisions

A VT-2 exam will be performed on the subject socket weld connections and their branch connections, NPS 2 and smaller, on a refueling outage frequency while the component is pressurized.

## **Relief Request R-1 (Revision 1) Surry Unit 2**

### **I. Identification of Components**

ASME Class 1 socket weld connections and their branch connections, nominal pipe size 2 inches (NPS 2) and smaller, identified as being High Safety-Significant (HSS).

### **II. Impractical Code Requirements**

Surry Unit 2 has been approved to use a Risk-Informed Inservice Inspection (RI-ISI) program for the third inspection interval. Code Case N-577, Table 1 Examination Category R-A and WCAP-14572, Rev. 1-NP-A, Table 4.1-1 both require examination of HSS components based upon the postulated failure mechanism for the element of piping being examined. The requirement does not account for the geometric limitations imposed by socket welds and their branch connections, NPS 2 and smaller, when volumetric examinations are specified. As such, the current requirement is considered impractical.

### **III. Basis for Relief**

Certain socket weld connections and their branch connections, NPS 2 and smaller, for Surry Unit 2 have been identified as HSS and require volumetric examination for their postulated failure mechanism by WCAP-14572, Rev. 1-NP-A. These instances are associated with a potential thermal fatigue damage mechanism either caused by a postulated temperature stratification or as a default mechanism for segments selected for their consequence of failure with no assumed active mechanism occurring. Performing a volumetric examination on a socket weld connection or the branch connection, NPS 2 and smaller, provides little or no benefit, due to limitations imposed by the joint configuration and the smaller pipe size.

The ASME Code Committee has recognized this problem and has revised Code Case N-577 to allow substitution of the VT-2 examination method for all damage mechanisms on socket weld connections selected as HSS. The revised version, N-577-1, has been issued and provides the substitution in note 12 of Table 1 of the Code Case. Incorporation of the branch connection, NPS 2 and smaller, into the Code Case is now under consideration by the committee for similar size and joint configuration limitation reasons.

Performing volumetric examination on socket weld connections or their branch connections, NPS 2 and smaller, would result in unusual difficulty without providing any meaningful results, and thus no compensating increase in the level of quality and safety. As such relief is requested per 10 CFR 50.55a(a)(3)(ii). Substituting a VT-2 examination as an alternative on a refueling outage

frequency for these locations ensures reasonable assurance of component integrity.

IV. Alternate Provisions

A VT-2 exam will be performed on the subject socket weld connections and their branch connections, NPS 2 and smaller, on a refueling outage frequency while the component is pressurized.