

VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

October 12, 1999

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

Serial No. 99-381
NL&OS/GDM R1'
Docket Nos. 50-280, 281
50-338, 339
License Nos. DPR-32, 37
NPF-4, 7

Gentlemen:

VIRGINIA ELECTRIC AND POWER COMPANY
NORTH ANNA AND SURRY POWER STATIONS UNITS 1 AND 2
ASME SECTION XI INSERVICE INSPECTION PROGRAM
REQUEST FOR APPROVAL - CODE CASES N-532 AND N-619

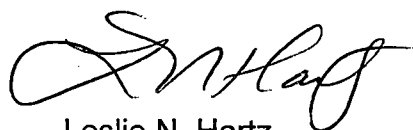
Pursuant to the provisions of 10CFR50.55a(a)(3), North Anna and Surry Power Stations Units 1 & 2 request the use of Code Cases N-532, "Alternative Requirements to Repair and Replacement Documentation Requirements and Inservice Summary Report Preparation and Submission as Required by IWA-4000 and IWA-6000," and N-619, "Alternative Requirements for Nozzle Inner Radius Inspections for Class 1 Pressurizer and Steam Generator Nozzles." Neither code case is currently endorsed by Regulatory Guide 1.147 (Revision 12), however, these two code cases will provide an acceptable level of quality and safety.

Attachments 1 and 2 provide detailed information supporting the request to use Code Cases N-532 and N-619, respectively. Attachment 2 also includes a technical white paper that provides further technical information for the elimination of pressurizer and steam generator nozzle inner radius inspections. Inspection data from both Surry and North Anna were included in the development of the white paper.

Approval to use Code Case N-532 is being requested as an alternative to Code requirements since it would provide an acceptable level of quality and safety consistent with 10 CFR 50.55a(a)(3)(i). The use of Code Case N-532 was previously approved by the NRC for Wolf Creek Generating Station in a letter dated February 9, 1996. Approval to use Code Case N-619 is being requested as compliance with the specified Code requirement would result in a hardship without a compensating increase in the level of quality and safety.

If you have any questions or comments, please contact us.

Very truly yours,



Leslie N. Hartz
Vice President - Nuclear Engineering and Services

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PDR ADOCK 05000280
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Commitments contained in this letter: None

Attachments

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

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

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

Mr. R. Smith
Authorized Nuclear Inspector
Surry Power Station

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

ATTACHMENT 1

REQUEST TO USE CODE CASE N-532 NORTH ANNA AND SURRY POWER STATIONS UNITS 1 AND 2

I. Identification of Components

Pressure retaining components that are Class 1, 2 or 3, and piping of high safety significance as defined in the Surry Unit 1 risk informed inservice inspection program.

II. Current Code Requirements

North Anna Unit 1 is currently completing the second inspection interval using the 1983 Edition with the Summer 1983 Addenda of ASME Section XI. It has started the third interval using the 1989 Edition of ASME Section XI. North Anna Unit 2 is currently completing the second inspection interval using the 1986 Edition of ASME Section XI. Surry Units 1 and 2 are currently in the second period of the third inspection interval and both are using the 1989 Edition of ASME Section XI. Surry Unit 1 has an approved risk informed inservice inspection program for piping, which has committed it to reporting high safety significant piping regardless of code classification in addition to the Code requirements. Each of these programs currently report ASME Section XI repairs, replacements, and inservice inspections in accordance with IWA-4000, IWA-6000 and IWA-7000 with the exception of the Surry Unit 1 risk informed program mentioned above.

III. Basis for Request

Code Case N-532 provides alternative reporting requirements that effectively reduce the administrative burden placed upon a nuclear unit by current Code requirements. These reports are currently required within 90 days following completion of a refueling outage. The alternative provided by Code Case N-532 extends reporting requirements to a period basis, or three times in ten years. Additionally, the alternative reporting only requires a summary of the interval inspection status and significant events to allow more effective reporting.

The use of Code Case N-532 was previously approved by the NRC for Wolf Creek Generating Station in a letter dated February 9, 1996. The safety evaluation included in the NRC approval letter noted a clarification to the term "corrective measures." It was noted that one use of the term involves Code required activities such as repair and replacement. The other use of the term involves maintenance activities such as tightening threaded fittings to eliminate leakage, torquing of fasteners to eliminate leakage at bolted connections,

replacing valve packing due to unacceptable packing leakage, tightening loosened mechanical connections on supports, adjustment and realignment of supports, cleanup of corrosion on components from leakage, etc. It is our intent to use the same clarification proposed and accepted for Wolf Creek Generating Station, that is, the above first use of the term "corrective measures," and not the second. Code required activities such as repair and replacement would be applicable to Code Case N-532 paragraph 2(c).

IV. Alternative Proposed

Apply Code Case N-532 with the corrective measure clarification to the North Anna Unit 1 second and third inspection intervals, the North Anna Unit 2 second inspection interval, the Surry Units 1 and 2 third inspection intervals and the Surry Unit 1 risk informed inservice inspection program for piping.

ATTACHMENT 2

REQUEST TO USE CODE CASE N-619 NORTH ANNA AND SURRY POWER STATIONS UNITS 1 AND 2

I. Identification of Components

Class 1 nozzle inside radius sections for the pressurizer and the steam generators.

II. Current Code Requirements

North Anna Unit 1 has started the third interval using the 1989 Edition of ASME Section XI. North Anna Unit 2 is currently completing the second inspection interval using the 1986 Edition of ASME Section XI. Surry Units 1 and 2 are currently in the second period of the third inspection interval and both use the 1989 Edition of ASME Section XI. The Code requires a volumetric examination each interval of each nozzle inside radius section (Category B-D, item numbers B3.120 and B3.140 Inspection Program B).

The Code requirements have been previously modified as follows:

North Anna Unit 1 Relief Request NDE-6 addressed the nozzle to vessel weld and the nozzle inside radius section of the pressurizer in the surge line area. It substituted a VT-2 examination during the normal system leakage test each refueling. Additionally, it noted the leakage monitoring and containment particulate radiation monitoring required by Technical Specifications. The relief request is still under NRC review for the third inspection interval, but a similar relief request was approved for the second interval by the NRC without conditions in a letter dated April 7, 1992. Note the code case only affects the nozzle inside radius section portion of the relief request.

North Anna Unit 2 Relief Request NDE-16 addressed the nozzle to vessel weld and the nozzle inside radius section of the pressurizer in the surge line area. It substituted a VT-2 examination during the normal system leakage test each refueling. Additionally, it noted the leakage monitoring and containment particulate radiation monitoring required by Technical Specifications. The NRC approved the relief request in a letter dated November 5, 1992 with the condition that a remote visual examination of the inner radius section (interior surface) be conducted in the same period that the ultrasonic inspection would be scheduled by the Code. Note the code case only affects the nozzle inside radius section portion of the relief request.

Surry Unit 1 Relief Request SR-002 addressed the nozzle inside radius section of the steam generators. It substituted the required volumetric examination with a VT-1 examination of the ID surface of the nozzle inside radius sections. The relief request was approved by the NRC in a letter dated July 19, 1995 with the condition that if a remote device is used that it have color capability. Relief Request SR-003 addressed the pressurizer nozzle inside radius section associated with the surge line area. It substituted the required volumetric examination with a VT-2 examination during the normally scheduled pressure test (Class 1) each refueling.

Surry Unit 2 Relief Request SR-002 addressed the nozzle inside radius sections of the steam generators. It substituted the required volumetric examination with a VT-1 examination of the ID surface of the nozzle inside radius sections. The relief request was approved by the NRC in a letter dated August 30, 1995 with the condition that if a remote device is used that it have color capability. Relief Request SR-003 addressed the pressurizer nozzle inside radius section associated with the surge line area. It substituted the required volumetric examination with a VT-2 examination during the normally scheduled pressure test (Class 1) each refueling.

III. Basis for Request

A technical white paper supporting the Code Case approval at ASME has been prepared and is attached herein. Inspection data from Surry and North Anna were used in the development of the technical paper. The paper notes the following points in support of the code case:

- 1) After 25 years of industry operation no cracking incidents of any kind in the steam generator and pressurizer nozzle inner radius regions have been found.
- 2) Industry inspections to date have not revealed any indications.
- 3) Deterministic and probabilistic calculations performed supported the conclusion that it was highly unlikely that failure would occur under any anticipated service conditions.
- 4) The inspection is very difficult to perform due to access constraints.
- 5) Many of the affected nozzles are in a high radiation environment.
- 6) Elimination of the inservice inspections of the PWR pressurizer and steam generator nozzle inside radius sections were recommended for economic and health reasons, without any risk to structural integrity.

A radiation exposure estimate was developed at North Anna Power Station for a ten-year interval requirement. The estimate assumes the current relief requests discussed above are in place and assumes the associated visual examinations result in negligible dose (remote device used). The estimate follows:

**NORTH ANNA UNIT 2
MAN-REM ESTIMATE FOR
ONE STEAM GENERATOR NOZZLE INNER RADIUS EXAMINATIONS**

Work Task	Man- Hours (hrs)	Dose Rate (R/hr)	Man-Rem
Insulation Remove/Install	20	0.017	0.340
Weld Prep.	0.5	0.150	0.075
HP Coverage	2.5	0.008	0.020
Nozzle Inner Radius Inspection (UT) (Welds 11NIR and 12NIR)	2.0	0.085	0.170

Total Estimate = 0.605

**NORTH ANNA UNIT 1
MAN-REM ESTIMATE FOR
PRESSURIZER UPPER NOZZLE INNER RADIUS EXAMINATIONS**

Work Task	Man- Hours (hrs)	Dose Rate (R/hr)	Man-Rem
Insulation Remove/Install	24	0.009	0.224
Weld Prep.	1.0	0.050	0.050
HP Coverage	2.5	0.004	0.010
Nozzle Inner Radius Inspection (UT) (Welds 10NIR, 11NIR, 12NIR, 13NIR, 14NIR)	4.0	0.022	0.090

Total Estimate = 0.374

Over ten years the North Anna steam generator exposure estimate would be multiplied by (3) generators and (2) units or 3.63 man-rem. The pressurizer exposure estimate would be multiplied by (2) units or 0.748 man-rem. The total exposure estimate at North Anna (both units) would then be 4.378 man-rem in ten

years. The Surry estimated dose savings would be lower due to their plant specific steam generator relief requests.

Considering the resultant exposure in performing the examinations and the technical justification supporting the Code Case approval by ASME, performing the required Code inspections would be considered a hardship without a compensating increase in the level of quality or safety.

IV. Alternative Proposed

Apply Code Case N-619 for the North Anna and Surry steam generators and pressurizers. Approval of the code case would supercede previous relief requests substituting visual examinations for the nozzle inside radius sections. It would not affect Code required pressure testing and VT-2 examinations.