VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

10 CFR 50.55a(a)(3)(ii)

May 8, 2009

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

Serial No. 09-306
SS&L/TJN R0
Docket Nos. 50-280
License Nos. DPR-32

VIRGINIA ELECTRIC AND POWER COMPANY
SURRY POWER STATION UNIT 1
ASME SECTION XI INSERVICE INSPECTION PROGRAM
PROPOSED ALTERNATIVE TO CODE REQUIREMENTS - SPT-008

Surry Power Station Unit 1 is currently in the fourth ten-year Inservice Inspection (ISI) Interval and uses the 1998 Edition of the ASME Section XI Code through the 2000 Addenda.

As part of the ongoing Surry Power Station Unit 1 refueling outage scope, Virginia Electric and Power Company (Dominion) performed internal inspections of Service Water (SW) System piping to confirm that the inspected pipe was in satisfactory condition. During the inspection, an indication requiring repair was identified in the inner diameter of the 30-inch SW piping that provides cooling water to two of the four Recirculation Spray Heat Exchangers (RSHXs). A weld repair was initiated which resulted in burn through of the pipe wall. A backing plate was installed, and the weld repair was successfully completed.

The ASME Section XI Code requires a system flow test to be performed following a weld repair to verify that SW pipe flow has not been impaired. The performance of the system flow test would require flowing SW through two of the RSHXs. However, the RSHXs are required to be maintained in a clean and dry condition during normal operation to ensure that they are capable of performing their design basis function in the event of a design basis accident. Consequently, if the SW system flow test is performed, the two RSHXs in the flowpath would have to be disassembled, cleaned, drained and reassembled, which would result in significant hardship without a compensating increase in the level of quality and safety.

As a result, a request has been prepared to propose an alternative to the system flow test to preclude the need to flow the RSHXs, and the consequent work and time required to return the RSHXs to a clean and dry condition, while maintaining the level of quality and safety. Dominion's request to use a proposed alternative, Alternative Request SPT-008, is provided in the attachment for NRC staff review.

Dominion hereby requests authorization of Alternative Request SPT-008 pursuant to 10 CFR 50.55a(a)(3)(ii) for Surry Power Station Unit 1 for the fourth 10-year inservice inspection interval. Dominion requests NRC authorization by 1730 hours on May 8, 2009 in support of the current Surry Unit 1 refueling outage. The Alternative Request has been approved by the Facility Safety Review Committee.

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

Very truly yours,

J. Alan Price
Vice President – Nuclear Engineering

Commitments made in this letter: None

Attachment

- Alternative Request SPT-008, Surry Unit 1

cc: U.S. Nuclear Regulatory Commission
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Attachment

Alternative Request SPT-008
Surry Unit 1

Virginia Electric and Power Company
(Dominion)
Surry Power Station

Surry Power Station (SPS) Unit 1 Alternative Request
SPT-008

Proposed Alternative
in Accordance with 10 CFR 50.55a(a)(3)(ii)

-Hardship without a Compensating Increase in the Level of Quality and Safety-

1.0 ASME CODE COMPONENTS AFFECTED:

Code Class: 3

System: Service Water System, Unit 1

Component	***Description***	***Drawing***
30-WS-24-10	Piping	11448-CBM-071A

2.0 APPLICABLE CODE REQUIREMENTS, EDITION AND ADDENDA:

Section XI of the ASME Boiler and Pressure Vessel Code, 1998 Edition with Addenda up to and including the 2000 Addenda, Section IWA-4540, requires the performance of either a system hydrostatic test per IWA-4540(a)(1) or a system leakage test per IWA-4540(a)(2) following a repair/replacement activity involving welding. Additionally, per IWA-5244, for buried components that are nonisolable, in lieu of a VT-2 examination the system pressure test shall consist of a test to confirm that flow during operation is not impaired. Surry Unit 1 is currently in the 4th inspection interval which will end on October 13, 2013.

3.0 REASON FOR REQUEST:

While performing a scheduled piping inspection during the ongoing Surry Unit 1 refueling outage, an unacceptable minimum wall condition was detected on the inside diameter of a 30 inch piping section of the Service Water (SW) System that provides cooling water to the Recirculation Spray Heat Exchangers (RSHXs). The condition was initially identified as a non-through-wall repair and was planned as a repair/replacement activity meeting the requirements of the Owner and the original construction code (details below). No pressure test was required since it was determined that the provisions of IWA-4540(b)(3) applied and would exempt the pressure test requirement of IWA-4540(a). Following the initial planning, the repair weld went through-wall on Friday, May 1st, 2009, and the repair/replacement plan was modified at that time to address the through-wall condition. The repair plan was developed, and a magnetic particle examination was specified to ensure the quality of the repair. This surface

examination was not required by the original Owner and construction code requirements. Personnel initially investigated how to perform the required system pressure test. After determining that the required test would result in a hardship (discussed below), the Corporate Engineering Organization was contacted to discuss the pressure testing options late Tuesday, May 5th, 2009, and conversation continued early Wednesday, May 6th, 2009, at which time engineering personnel determined a code alternative would be required. At that time, a draft alternative was started. On Thursday, May 7th, 2009, the NRC was notified verbally of our request.

Originally, a 3x5 inch pit was identified on the interior of the 30 inch diameter piping for the SW system. The depth of the pit was measured to be 3/16 of an inch. The failure mechanism was general corrosion caused by localized coating failure. The remaining portion of this piping was inspected by a qualified coating inspector according to the Preventive Maintenance Program. Other areas were repaired and coated appropriately.

The subject piping material is carbon steel with nominal wall thickness of 0.5 inch (minimum acceptable wall thickness is 0.25 inch). The operating pressure for this piping section is based upon the height of the canal water level (i.e., approximately 15 psig).

In the area for repair, concrete was exposed to approximately 1 1/2 inches in diameter. A backing plate (ASTM A36) was inserted into the cavity, and a full penetration weld was completed in accordance with the Corporate Welding Manual (see attached figure). A visual inspection was performed by a Quality Inspector (QI), and a final magnetic particle examination (MT) was performed satisfactorily following surface preparation. The weld repair was performed from inside the pipe and coated with ARC-855 (Epoxy coating) to prevent future degradation. The repaired area of the subject 30 inch service water piping component is encased in concrete and is nonisolable from the intake canal.

Following a repair by welding (through-wall for piping), ASME Section XI, IWA-4540(a), requires the performance of either: (a)(1) a hydrostatic test per IWA-5000, or (a)(2) a system leakage test per IWA-5000 provided the following two criteria are met:

a) Nondestructive examination methodology and acceptance criteria of the 1992 Edition or later of Section III are met prior to return to service, and

b) The Owner's requirements are met prior to return to service.

For Item (a) above, the requirements for NDE in Section III, ND (2004 Edition), found in ND-2550, Examination and Repair of Seamless and Welded (Without Filler Metal) Tubular Products and Fittings, and ND-2560, Examination and Repair of Tubular Products and Fittings Welded with Filler Metal, are the same for base metal repairs. Both sections refer to ND-2559, which requires repair of defects be performed to ND-2539. NDE-2539.4, Examination of Repair Welds, requires a magnetic particle examination or liquid penetrant examination. It also requires radiographic examination if the depth of the repair cavity exceeds the lesser of 3/8 inch or 10% of the section

thickness. The repair performed was through-wall with a 1/2 inch nominal thickness and would meet these criteria for a radiographic examination. As the repair area is concrete encased, a radiograph could not be performed. The base metal repair requirements do not allow substitution of ultrasonic examination for radiographic examination.

The repaired area is not accessible for the required post-repair visual VT-2 examination as it is encased in concrete. IWA-5000 provides alternative requirements when buried components are being tested in lieu of the VT-2 examination in IWA-5244. The area repaired is considered nonisolable having an isolation valve on only one end of the piping run. IWA-5244(b)(2) addresses this situation by requiring a test to confirm that flow during operation is not impaired. It should be noted that the hydrostatic test requirements found in IWD-5222(f) provide similar direction stating, "For open ended portions of discharge lines beyond the last shutoff valve in nonclosed systems (e.g., service water systems), confirmation of adequate flow during system operation shall be acceptable in lieu of system hydrostatic test."

When engineering personnel reviewed the pressure testing requirements of IWA-5000, it was determined that both IWA-4540(a)(1) and IWA-4540 (a)(2) would require the same confirmation of unimpaired flow type test due to the area being inaccessible for a VT-2 examination and considered buried. As a result, the requirements of IWA-4540(a)(2) and the enhanced Section III NDE requirements were not considered since IWA-4540(a)(2) is optional.

Performance of the required buried component pressure test to confirm unimpaired flow would result in flowing SW through two of the four RSHXs. The RSHXs are maintained clean and dry during normal operation to ensure the heat exchangers meet their design basis fouling factor requirement of 0.0005 at the beginning of an accident.

Flowing the RSHXs to satisfy the pressure test requirements would result in the following activities which, based on previous outages, would take approximately 96 hours to complete:

- Blowdown of piping and heat exchanger
- Tagout of RSHXs
- Installation of scaffolding
- Removal of both endbells
- Clean and flushing of RSHX tubes
- Re-installation of endbells
- Removal of scaffolding
- Pressure test the piping and RSHXs to ensure integrity of the closed system, and
- Re-fill SW lines to RSHX inlet valves with demineralized water.

The RSHXs are located in the containment basement where a majority of this work would occur. The general area dose rate is approximately 25 mR per hour.

Considering that the system operates at approximately 15 psig or less, performing the required system pressure test is considered a hardship and does not significantly increase the level of quality and safety.

Therefore, in accordance with 10 CFR 50.55a(a)(3)(ii), an alternative is provided because compliance with the specified code requirements in Section 2 of this document would result in a hardship without a compensating increase in the level of quality and safety.

4.0 PROPOSED ALTERNATIVE AND BASIS FOR USE:

The subject buried SW piping is encased in concrete. If leakage occurs, the concrete would act as a barrier to minimize leakage. The overall condition of the 48 and 30 inch service water piping was visually inspected during the current outage through a detailed internal inspection. Areas requiring weld or coating repair were identified and repaired. The repaired area was satisfactorily inspected by a QI and an MT examination was performed. The MT exam exceeds the original Construction Code requirements for this piping. The repaired area was also coated with ARC 855 (Epoxy coating) to prevent future degradation. Furthermore, Dominion's Foreign Material Exclusion Program was followed to ensure that pipe cleanliness was maintained. Also, the condition of the piping is monitored periodically as part of an approved Preventive Maintenance Program.

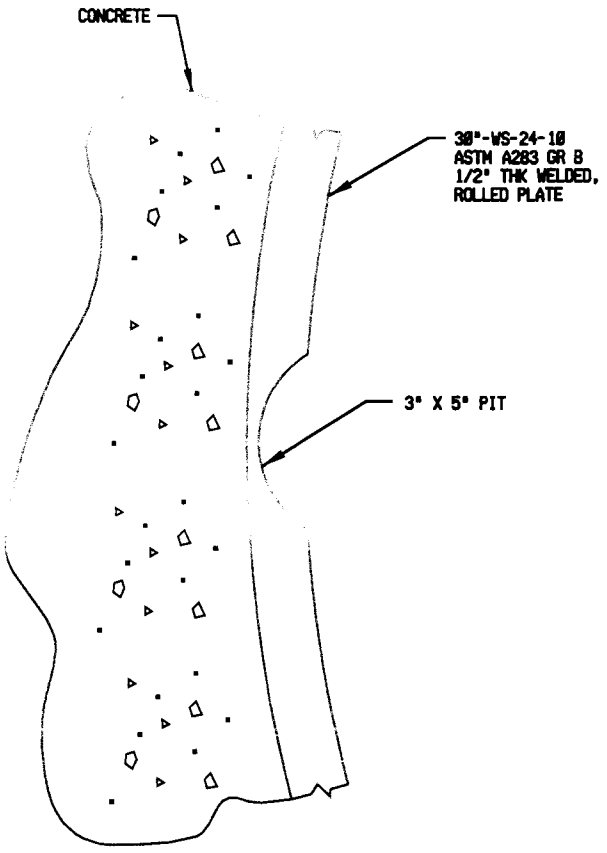
The Code required testing is considered unnecessary given the proposed alternative. Therefore, approval of this alternative is requested in accordance with 10 CFR 50.55a(a)(3)(ii).

5.0 DURATION OF PROPOSED ALTERNATIVE:

This request will be for the 4th inservice inspection interval.

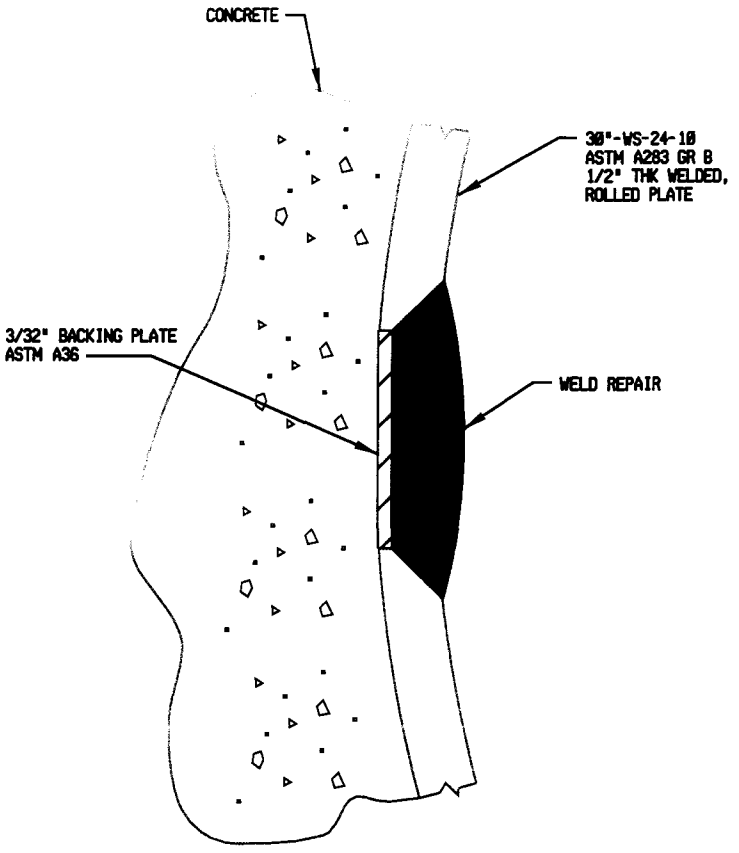
6.0 PRECEDENTS

Dominion is unaware of any other previous requests involving the use of this examination alternative.



SECTION

BEFORE PIPE WALL REPAIR



SECTION

AFTER PIPE WALL REPAIR

REVISION DESCRIPTION	Dominion	NUCLEAR ENGINEERING RICHMOND, VIRGINIA
	30" PIPE WELD REPAIR	
DSGN	CAD NO: MIKER.DGN	DRAWING NO:	SH 1 OF 1	REV 0

PC=EB1,EB2,MB1 & NB2 07-MAY-2009 17:38

PRIOR TO USING FOR DESIGN WORK CHECK DMIS FOR WORK PENDING