May 31, 2006

Mr. David A. Christian
Senior Vice President
and Chief Nuclear Officer
Virginia Electric and Power Company
Innsbrook Technical Center
5000 Dominion Boulevard
Glen Allen, VA 23060-6711

SUBJECT: SURRY POWER STATION, UNIT NO. 1 (SURRY 1) - CORRECTION TO RELIEF REQUESTS PRT-07 AND PRT-08 (TAC NOS. MC6690 AND MC6707)

Dear Mr. Christian:

On March 28, 2006, the Nuclear Regulatory Commission (NRC) issued Relief Requests PRT-07 and PRT-08 for Surry 1. These reliefs were in response to your application dated April 11, 2005.

By letter dated April 27, 2006, you informed the NRC that the safety evaluations (SEs) for both relief requests contained a discrepancy. Your letter stated that these SEs provided the dates for the third 10-year inservice inspection interval (ISI) at Surry 2, instead of the dates for the third 10-year ISI at Surry 1. The corrected pages for these SEs are enclosed with this letter. The revisions to the SEs are identified by lines in the margin.

Sincerely,

/RA/
Stephen R. Monarque, Project Manager
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-280

Enclosure: Safety Evaluation

cc w/encl: See next page

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listed therein. The ASME Code of record for the Surry 1 ISI program is the 1989 edition of ASME Code, Section XI. The licensee requested relief for the third 10-year ISI interval at Surry 1, which began on October 14, 1993, and ended on December 31, 2004.

3.0 TECHNICAL EVALUATION

3.1 ASME Code, Section XI Requirement

The 1989 edition of ASME Code, Section XI, Article IWB-2500 requires that components be examined and tested as specified in Table IWB-2500-1. Table IWB-2500-1, examination category B-A, item number B1.11 requires a volumetric examination of the RV circumferential shell welds once each 10-year ISI interval with essentially 100-percent volumetric coverage of the examination volume cross section specified in Figure IWB-2500-1 of ASME Code, Section XI, for essentially 100-percent of the weld length.

3.2 Component for Which Relief is Requested

Category	Item	Description
B-A	B1.11	RV Circumferential Shell Welds

The licensee has specifically requested relief for Circumferential Shell Weld 1-04 at Surry 1. This weld adjoins the RV shell with the lower vessel head.

3.3 Licensee's Basis for Relief Request

> The ultrasonic examination of the reactor pressure vessel circumferential shell weld is conducted in accordance with techniques qualified by demonstration for Appendix VIII, Supplements 4 and 6 of the 1995-96 Addenda of ASME [Code], Section XI.
>
> There are four core support lugs located at 0 degree, 90 degree, 180 degree, and 270 degree [azimuth] positions [at] the vessel inside surface just above the [circumferential shell] weld which restrict[s] complete coverage of the required examination volume. The ultrasonic examination of this weld was performed by scanning the accessible scan surfaces between the support lugs and below the support lugs. Figure 1 [in the licensee's submittal] shows the general configuration of the reactor vessel and location of weld 1-04. Figures 2 and 3 [in the licensee's submittal] show the ultrasonic scanning boundaries for this weld with the restrictions due to the core support lugs. The size of the ultrasonic manipulator end effector limits how close the individual transducers can be positioned to the support lugs while scanning. The proximity of the end effector to the support lugs limits the amount of coverage obtained with each of the qualified transducers. Table 1 [in the licensee's submittal] provides the breakdown of percent [of] coverage of the required examination volume by scan direction and transducer. The achieved coverage of the required examination volume applying the qualified techniques is 73.4 [percent].

subject to the limitations and modifications listed therein. The ASME Code of record for the Surry 1 ISI program is the 1989 edition of ASME Code, Section XI. The licensee requested relief for the third 10-year ISI interval at Surry 1, which began on October 14, 1993, and ended on December 31, 2004.

3.0 TECHNICAL EVALUATION

3.1 ASME Code, Section XI Requirement

The 1989 edition of ASME Code, Section XI, Article IWB-2500, requires that components be examined and tested as specified in Table IWB-2500-1. Table IWB-2500-1, examination category B-A, Item Number B1.30, requires a volumetric examination of the RV shell-to-flange weld once each 10-year ISI interval, with essentially 100-percent volumetric coverage of the examination volume specified in Figure IWB-2500-4 of ASME Code, Section XI.

3.2 Component for Which Relief is Requested

Category	Item	Description
B-A	B1.30	RV Shell-to-Flange Weld

3.3 Licensee's Basis for Relief Request

> The ultrasonic examination of the reactor vessel shell-to-flange weld was performed using a combination of manual and remote automated ultrasonic examination techniques. The manual examination was applied from the flange surface with techniques in accordance with the requirements of ASME Section V, Article 4. The remote automated ultrasonic examinations were performed from the vessel shell inside surface using techniques qualified by demonstration for Appendix VIII, Supplements 4 and 6 of the 1995-1996 Addenda of ASME Section XI as allowed by approved relief request SR-030 (NRC letter dated October 16, 2004). These automated techniques are noted to produce more accurate, reliable and repeatable procedures of examinations than the standard [ASME Code] Section V techniques previously used.
>
> Figure 1 [of the licensee's submittal] shows the reactor vessel and associated welds. Figures 2 and 3 [of the licensee's submittal] illustrate the weld profile and show scan orientation and directions. Coverage of the examination volume is obtained by combining the manual examination performed from the flange surface with the automated coverage obtained from the vessel shell surface. The examination performed from the flange surface provides examination coverage with the ultrasonic sound beam directed essentially normal to the weld axis. Coverage from the flange provides coverage of the examination volume in one beam direction, perpendicular to the weld axis. The ASME Section XI, Appendix VIII, Supplements 4 and 6 techniques are applied from the vessel inside surface, scanning in four directions to the extent possible. Due to the surface geometry of the flange, the ability to scan the necessary areas to provide complete coverage of the examination volume in four directions is limited. The examination tool end effector, which holds the ultrasonic transducers, is not able to maintain the necessary surface contact on the non-parallel surface of the

Surry Power Station, Units 1 & 2

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