

June 20, 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. 2 (SURRY 2) - REQUEST FOR
ADDITIONAL INFORMATION (RAI) REGARDING THE STEAM GENERATOR
TUBE INSERVICE INSPECTION REPORTS FOR THE 2005 REFUELING
OUTAGE (TAC NO. MD0267)

Dear Mr. Christian:

By letter dated May 31, 2005, Virginia Electric and Power Company (the licensee) submitted the steam generator tube plugging report for Surry 2 in accordance with Technical Specification (TS) Section 4.19.F.a. In addition, on February 28, 2006, the licensee submitted the annual SG inspection report for Surry 1/2 in accordance with TS Section 4.19.F.b. The Nuclear Regulatory Commission (NRC) staff is reviewing the submittal and has determined that additional information is required to complete its evaluation.

The NRC staff's RAI is enclosed. The licensee is requested to provide a response to the RAI within 45 days.

Sincerely,

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

Docket No. 50-281

Enclosure:
RAI

cc w/encl: See next page

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DATE	6/20/2006	6/20/2006	6/20/2006	6/19/2006	6/20/2006

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REQUEST FOR ADDITIONAL INFORMATION

STEAM GENERATOR TUBE INSERVICE INSPECTION REPORTS

FOR THE 2005 REFUELING OUTAGE

SURRY POWER STATION, UNIT NO. 2

DOCKET NUMBER 50-281

1. Six tubes in Steam Generator (SG) B were examined with a +Point™ probe as part of an emergent examination from secondary side inspection at the top of the tubesheet in SG C. A visible scratch (shallow volumetric flaw) was observed on Tube Row 1 Column 2 (R1C2) of SG B with a percent through-wall less than 5 percent. The licensee named three possible causes for the scratch: (1) presence of a possible foreign object, (2) fabrication process, or (3) wrapper plate cruciform removal. Please discuss how the wrapper plate cruciform removal program could have affected the tube in R1C2. In addition, it was indicated that this indication was not present in previous eddy current data most likely due to its small size. Please discuss whether past videos of visual inspections were reviewed and if this indication was present.
2. Results of the emergent examination in SG B were not discussed in the 15-day SG tube plugging report since no tubes were plugged as a result of the inspections. Therefore, provide the basis for the following statement made on page 4 of the annual SG inspection report, dated February 28, 2006.

“The required report on the plugged tubes was supplied in the 15-day plugging report previously submitted to the NRC, with the following conclusion: Minimal wall degradation was observed on the tube with the visible scratch on the “B” steam generator and none was observed on the surrounding tubes.”
3. Table 9 in Section 2.1.4 of the February 28, 2006, submittal, compared noise measurement values for SG B to the examination technical specification sheet (ETSS) noise measurement values. Please clarify whether this data is from SG C since most examinations during this outage were in SG C. If not, please discuss why a comparison of the noise values for SG C and the ETSS noise measurement values were not included in this section.
4. On Page 1 of the annual report it was indicated that Tube R25C9 in SG C had a measured wall penetration of 19 percent; however, as indicated in Table 3, Page 7 of the annual report, this tube was indicated to have a measured wall penetration of 12 percent. Please clarify this apparent discrepancy.
5. Given that most of the indications of imperfections detected listed in the table on Pages 1 and 2 of the annual report were not detected with a bobbin probe, why was a 100-percent top-of-tubesheet inspection not conducted? In addition, discuss how this was factored into the operational assessment.

6. On Page 9 of the annual report, it was indicated that the U-bend region of all tubes in Rows 8 and lower were evaluated for the unique "Seabrook" signature. Please discuss what evaluations, if any, were performed in the higher row tubes to identify tubes with potentially higher residual stresses.
7. It was reported on Page 10 of the annual report that a 0.720-inch bobbin probe would not pass through one of the Row 2 U-bends. Was this bobbin probe restriction service induced? In past inspections, was this Row 2 U-bend inspected with a larger probe?
8. Anomaly codes reported in 2000 and inspected in 2005 were presented in Table 5 on Page 10 of the annual report. Please provide more information regarding the nature and cause of these anomalies and the basis for the inspections performed.
9. On Page 11 of the annual report, it was indicated that data using sizing method ETSS 96910.1 was used in the condition monitoring assessment since it provided more realistic depth estimates. Please provide the basis for stating this sizing method is more realistic than the sizing method in ETSS 21998.1.
10. In Table 7, tube R31C28 was reported to have a wear indication with a measured wall penetration of 98 percent and Tube R32C28 was reported to have a wear indication with a measured wall penetration of 90 percent using the ETSS 21998.1 sizing method. The NRC staff is aware that the wear indications were attributed to a loose part which could not be removed and that the tubes were plugged and stabilized. Please discuss how the magnitude of these indications changed from past outages. In addition, were these tubes in-situ pressure tested? If so, discuss the results.
11. In Table 3 on Page 7 and 8 of the annual report, several indications are reported in 2000 but not in 2005 or vice versa. Please discuss why an indication that was reported in 2000 was not reported in 2005 or vice versa. In addition, Tube R37C30 was reported to have a through-wall depth of 41 percent and Tube R38C34 was reported to have a through-wall depth of 43 percent in 2000. Since a through-wall depth was not provided for these tubes for 2005, confirm that these tubes were plugged in 2000. If they were plugged, why were they included in this table?
12. Please discuss whether there is any other industry data to support the tube support plate wear assumptions made in Section 3.2 of the annual report. If there is no other data, discuss why the degradation was not assumed to initiate over the last cycle rather than the last three cycles.
13. The annual report dated February 23, 2004 (Agencywide Documents Access and Management System No. ML040630162), for the Surry 1/2 refueling outages in 2003, stated that a denting pattern on the peripheral tubes at the 6th and 7th tube support plates was found on both units. Inspections confirmed that these dents tend to be located near tube support wedge locations in upper elevations of periphery tubes. In addition, it was reported that these dent signals will continue to be monitored. For Surry 1/2, please discuss the results of any dent inspections performed during the 2005 refueling outages (e.g., were the results consistent with past inspection results, are the dent signals changing with time).

Surry Power Station, Units 1 & 2

cc:

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