

RICHMOND, VIRGINIA 23261

February 11, 1977

Regulatory Docket File,

Mr. Benard C. RuscheDirector of Nuclear Reactor RegulationU. S. Nuclear Regulatory CommissionWashington, D. C. 20555

Attn: Mr. Robert W. Reid, Chief Operating Reactors Branch 4 Serial No. 353A/113076 PO&M/ALH:dgt

Docket Nos. 50-280 50-281 License Nos. DPR-32 DPR-37

Dear Mr. Rusche:

This is in response to your letter of November 26, 1976 wherein you requested information regarding our proposed inspection program for Surry Unit No. 2 steam generators. The details of this program are provided in the attachment to this letter. We intend to conduct this program within the 61 days of operation above 350 degrees F authorized in Technical Specification Amendment No. 26.

We believe that the inspection program will show that no cracking of U-bends has occurred in row 2 and beyond. The preventive plugging program which results in plugging all of rows 1, 2, and the most strained row 3 tubes, is conservative and should prevent future U-bend leaks. This conclusion is fully supported by data presented in our letter serial no. 260G/092276 of January 3, 1977 which shows that the total equivalent strain in row 2 and beyond at full flow slot closure is less than the equivalent manufacturing strain in row 1 tubes that had not developed flaw indications. Since all row 1 tubes are plugged, we believe that no further U-bend failures will occur.

Even though the special eddy current equipment required to detect flaws in dented regions may not be developed in time to be used during the scheduled outage period, we believe that the preventive plugging program presented in the attachment also adequately addresses leaky dent problems. This plugging program was developed as a result of field data and analytical work (Vepco serial nos. 260C/092276 and 260D/092276) and should result in minimizing the occurrence of leaky dents.

Our program for continued operation of Surry Unit No. 2 is also presented in the attachment to this letter. We have taken the same approach that was agreed upon for Surry Unit No. 1 by members of your staff during



VIRGINIA ELECTRIC AND POWER COMPANY TO

Page 2

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a meeting on February 8, 1977. We therefore request your approval to operate Surry Unit No. 2 as described herein.

Very truly yours,

Lo. M. Stallings

C. M. Stallings Vice President-Power Supply and Production Operations

Attachment

cc: Mr. Norman C. Moseley

## 1. Inspection of steam generator tubes and internals

- A. Steam generator tubes
  - U-bends: All available tubes in each steam generator, in rows

     through 5, will be inspected through the U-bend using the "540 beaded-flex" eddy current probe at 100 KHz. Any flaw indications found in the U-bends will be reinspected at 400 KHz with the
     "540 beaded-flex" probe.
  - 2. Leaky dents: A special eddy current probe designed to provide meaningful data in dented regions is not yet fully developed. The latest information from Westinghouse indicated the probe will not be developed in a field worthy form before the end of February 1977. Therefore, no eddy current inspection of dented tubes is planned. However, if a field worthy eddy current probe becomes available, tubes in known dented regions will be inspected.
- B. Steam generator internals
  - 1. <u>Tube support plates</u>: The flow slots in the lower tube support plate will be gauged. This information will be used to verify the tube support plate expansion rate.
  - Other internals: Detailed visual inspections will be conducted through the handholes of each steam generator to assess the general conditions of the steam generator internals. Photographic and video tape records of this inspection will be made if possible.

## 2. Preventive plugging

A. The preventive plugging program shown in figure 1 will be implemented in each steam generator. Since Unit No. 2 steam generators already have a significant number of tubes plugged, this program will result in all of row 1, 2, and the most strained tubes in row 3 being plugged. The program for leaky dents will be the same as as that performance on Unit No. 1.

## 3. Program for continued operation

- A. After completing 61 equivalent days and completion of the program described herein, we request approval for Surry Unit No. 2 to operate for 60 equivalent days at a reactor coolant temperature greater than 350 degrees
   F. The following restrictions on reactor operation apply:
  - Unit No. 2 shall be brought to the cold shutdown condition in order to perform an inspection of the steam generators within 60 equivalent days of operation from approval date. Nuclear Regulatory Commission approval shall be obtained before resuming power operation following this operating period.

For the purpose of this requirement, equivalent operation is defined as operation with a primary coolant temperature greater than 350 degrees F.

- 2. Total primary to secondary leakage shall be limited to 1.0 gpm<sup>3</sup> and primary to secondary leakage through each steam generator shall be limited to 0.3 gpm. With any steam generator tube leakage greater than this limit the reactor shall be brought to the cold shutdown condition within 24 hours.
- 3. Reactor operation will be terminated if primary to secondary leakage which is attributable to 2 or more tubes occurs during a 20 day period. Nuclear Regulatory Commission approval shall be obtained before resuming reactor operation.
- 4. The concentration of radioiodine in the primary coolant shall be limited to 1 microcurie per gram during normal operation and to 30 microcuries per gram during power transients as defined in the Safety Evaluation.

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