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Document Control Desk  
U. S. Nuclear Regulatory Commission  
Washington, DC 20555

Gentlemen:

Subject: VIRGIL C. SUMMER NUCLEAR STATION  
DOCKET NO. 50/395  
OPERATING LICENSE NO. NPF-12  
"REQUEST FOR ADDITIONAL INFORMATION, GENERIC LETTER 95-03,  
CIRCUMFERENTIAL CRACKING OF STEAM GENERATOR TUBES"

South Carolina Electric & Gas Company, acting for itself and as agent for the South Carolina Public Service Authority, submits the following response to NRC Generic Letter 95-03, Request for Additional Information, dated 12/28/95 and received on 01/02/96. This request is for follow-up information to our letters dated June 27 and August 18, 1995, on the following items:

The following areas have been identified as being susceptible to circumferential cracking:

- a. Expansion transition circumferential cracking.
  - b. Small radius U-bend circumferential cracking.
  - c. Dented location (including dented TSP) circumferential cracking.
  - d. Sleeve joint circumferential cracking.
1. Clarify the original response relative to areas b, c, and d of the steam generator tube bundle examinations which were not specifically addressed.

The response should be in accordance with the guidance contained in GL 95-03 (i.e., scope, expansion criteria, probe type, etc.) and include discussion of the examination scope for the next steam generator tube inspection outage.

2. Discuss whether terrain plots will be used to analyze the RPC eddy current data at locations susceptible to circumferential cracking during our next steam generator tube inspection (i.e. the next inspection per our Generic Letter 95-03 response).

### General

Replacement steam generators of the Westinghouse D-75 design were installed in December 1994. The tube bundles consist of 6307 Thermally Treated Inconel 690 tubes. This material has been shown to be immune to PWSCC. SCE&G will continue to utilize new and "State of the Art" NDE techniques to assess the condition of the steam generators as was the practice with the retired units. As new NDE techniques are developed and can be implemented, they will be utilized in areas known to be susceptible to degradation in other units with similar materials and designs, (including, but not limited to, circumferential cracking at the tube sheet expansion transition region, small radius U-bends, and dented intersections) to detect degradation in the incipient stage.

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The methodology used during the baseline examination, (pre-service) was the same methodology used in each of the last several refueling outages on the model D-3 steam generators. This includes the use of MRPC 3 coil probe techniques in all tube sheet expansion transition locations. Probes utilized were the standard bobbin coil design (i.e. .060" coil width and .060" spacing between coils). The MRPC probes used were of a three coil type with a standard pancake coil, an axially wound coil sensitive to circumferentially oriented anomalies, and a circumferentially wound coil sensitive to axial anomalies.

Item 1b - Small radius U-bend circumferential cracking:

The small radius U-bend tubing in the replacement steam generators was stress relieved during manufacture. No U-bend anomalies were reported at the time of the baseline examination. Future examinations will include inspection through the U-bend section of the tubing and any anomalies detected will be further characterized using MRPC or similar techniques.

Item 1c - Dented Location (including dented TSP) circumferential cracking:

During the baseline examination no dented locations, including TSP intersections, were reported. Tube support plates for the D-75 replacement steam generators are of stainless steel tri-foil design, which are highly resistant to denting phenomena. Our current examination analysis guidelines include reporting criteria for dented intersections detected during the examination. When appropriate, these reported locations will be examined using MRPC or similar techniques to detect circumferential cracking.

Item 1d - Sleeve Joint Circumferential Cracking:

Currently no tubes contain sleeves, therefore there is no possibility of sleeve joint circumferential cracking occurring. Should it become necessary in the future to install sleeves as a repair option to degraded tubes, VCSNS will implement inspection and data analysis techniques and methodologies to provide reasonable assurance that the condition of each steam generator is safe and reliable prior to return to power.

Item 2 - Discuss Whether Terrain Plots are Utilized during Analysis of MRPC Test Data:

The use of terrain plot mapping for the analysis of MRPC data has been used at V C Summer Station since MRPC was first implemented at the site in Refueling Outage 3 (March 1987). Current data analysis guidelines utilize the terrain plotting methodology for analysis of MRPC data.

Examinations to be Performed at The Next Refueling Outage - Refuel 9, April 1996:

The objective of our inspection plan is to ensure that the condition of the tubing in the steam generator is known and that those tubes requiring repair are identified and repaired prior to return to power.

For Refuel 9 the scheduled scope of examination is as follows:

Approximately 10% of the tubes in two steam generators will be inspected using Bobbin Coil techniques - Full length examination of each tube.

This inspection plan will provide adequate assurance that tubes with active damage mechanisms are identified and such tubes will be dispositioned properly. Based on the initial scope results, if damage mechanisms could not be satisfactorily identified and justification for not expanding the scope could not be provided, an additional inspection scope would be implemented.

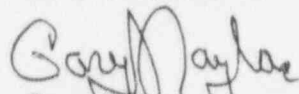
In addition, examination of 100 intersections (tube to tube support plate intersections, tube expansion transition regions, and small radius U-bend) utilizing 3 coil "plus point" MRPC technique will be performed in Refueling Outage 9.

Tubes selected for this sample set will be those which exhibit bobbin coil indications that may require further characterization for resolution or for information only. Where data is available the data sets will be compared to baseline data and results evaluated.

Consideration has been given to test methodologies and test parameters prior to implementation in order to effectively identify and quantify the degree of steam generator tube degradation. At Summer Nuclear station, cycle operating history, (transients, down power events, chemistry excursions etc.), as well as proper eddy current acquisition and data analysis guidelines, procedures, development and implementation of analyst training, have all been included in development of a comprehensive examination program. These considerations have been addressed procedurally and through training of inspection personnel. We will continue with the examination program for the replacement steam generators.

Should you have any questions regarding this submittal, please contact Mr. Michael Zaccone at (803) 345-4328.

Very truly yours,

  
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