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C. K. McCoy
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Georgia Power
the southern electric system

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LCV-0626-B

Docket Nos. 50-424
50-425

TAC Nos. M92286
M92287

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555

Gentlemen:

VOGTLE ELECTRIC GENERATING PLANT
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION
GENERIC LETTER 95-03
CIRCUMFERENTIAL CRACKING OF STEAM GENERATOR TUBES

Georgia Power Company's initial response to Generic Letter 95-03 was transmitted to the NRC by letter LCV-0626 dated June 27, 1995. The NRC's letter dated December 5, 1995, requested additional information concerning the initial response to the Generic Letter. Georgia Power Company's responses to the NRC's questions are attached.

Sincerely,

C. K. McCoy

Attachment

c(w): Georgia Power Company
Mr. J. B. Beasley, Jr.
Mr. M. Sheibani
NORMS

U. S. Nuclear Regulatory Commission
Mr. S. D. Ebneter, Regional Administrator
Mr. L. L. Wheeler, Licensing Project Manager, NRR
Mr. C. R. Ogle, Senior Resident Inspector, Vogtle

ATTACHMENT

1. Please clarify the expansion criteria to be used if a circumferential indication were detected at the expansion transition region.

Response:

Unit 1 steam generators No. 1 and No. 4 are scheduled for eddy current testing in the spring outage of 1996 and Unit 2 steam generators No. 1 and No. 4 in the fall outage of 1996. Concurrent with this testing, 1,125 tubes (this was originally 300 tubes per our letter LCV-0626 dated June 27, 1995) from each of Unit 1 steam generators No. 1 and No. 4 will be RPC tested for the circumferential cracks at the hot leg side of the tubesheet area. Unit 2 RPC testing will be in accordance with the approved EPRI guidelines or as outlined for Unit 1.

**Unit 1, Steam Generators No. 1 and No. 4**

The initial quantity of tubes for RPC will be comprised of 420 tubes in the kidney-shaped area, which is surrounded by column 50, column 70, row 1, and row 20, and 705 randomly selected tubes from the region outside the kidney area. The kidney area is derived from a sludge profile study conducted by Westinghouse. In result, a total of 1,125 tubes per steam generator, equivalent to 20 percent, will be RPC tested in order to comply with the intent of EPRI Draft Report NP-6201 dated September 26, 1995 titled as "PWR STEAM GENERATOR TUBE EXAMINATION GUIDELINES REVISION 4".

Situation 1

If none of tubes have circumferential cracks, no expansion and corrective action is required.

Situation 2

If one or more tubes from the kidney area have circumferential cracks:

Unscheduled steam generators No. 2 and No. 3: Test 420 tubes per steam generator in the kidney area.

Steam generator No. 1 (or No. 4): Test three columns and three rows of tubes outside the defined kidney area in that steam generator.

Subsequent testing: Continue to test additional three columns and three rows of tubes outside the kidney area until no cracked tubes are detected.

Corrective Action: Plug cracked tubes. Install stabilizers as necessary.

Situation 3

If one or more of the randomly selected tubes from the region outside the kidney area have circumferential cracks:

Test all of the remaining tubes in the affected steam generator.

Corrective Action: Plug cracked tubes. Install stabilizers as necessary.

**Unit 2, Steam Generators No. 1 and No. 4**

The sample size of Unit 2 RPC testing will be in accordance with the approved EPRI guidelines at the time of the Unit 2 testing or as outlined for Unit 1. The same expansion scheme of Unit 1 will be used for Unit 2 expansion.

2. Small radius U-bends and dented locations have been identified as being susceptible to circumferential cracking as evidenced by operating experience at plants with mill annealed Alloy 600 steam generators. If these locations are susceptible to circumferential cracking at Vogtle, please provide your inspection plans including expansion criteria, if applicable, for the next steam generator tube inspection outage per the guidance in GL 95-03.

   For dented locations, if applicable, the criteria for determining which dents, if any, are to be examined should be provided. If a dent voltage threshold is used for such a determination, a brief description of the calibration procedure should be provided (i.e., 2.75 volts peak-to-peak on 4-20% through-wall ASME holes at 550/130 mix).

   Response:

   This item is not applicable to VEGP because VEGP steam generator tubes were thermally treated during the manufacturing process as discussed in the response letter LCV-0626. It is believed that VEGP steam generators are not experiencing the aforementioned denting phenomenon at the support plates because the support plates are made of stainless steel with quatrefoil-shaped holes. Therefore, the dent voltage threshold criteria is not used for the RPC inspection.

3. During the Maine Yankee outage in July/August 1994, several weaknesses were identified in their eddy current program as detailed in NRC Information Notice 94-88, "Inservice Inspection Deficiencies Result in Severely Degraded Steam Generator Tubes". In Information Notice 94-88, the staff observed that several circumferential indications could be traced back to earlier inspections when the data was reanalyzed using terrain plots. These terrain plots had not been generated as part of the original field analysis for these tubes. For the rotating pancake coil (RPC) examinations performed at your plant at locations susceptible to circumferential cracking during the previous inspection (i.e., previous inspection per your Generic Letter 95-03 response), discuss the extent to which terrain plots were used to analyze the eddy current data. If terrain plots were not routinely used at locations susceptible to circumferential cracking, discuss whether or not the RPC eddy current data has been reanalyzed using terrain mapping of the data. If terrain plots were not routinely used during the outage and your data has not been reanalyzed with terrain mapping of the data, discuss your basis for not reanalyzing your RPC data in light of the findings at Maine Yankee.

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

Response:

No RPC testing was performed at VEGP to look for circumferential indications. When RPC was used to confirm indications discovered by bobbin coil testing, on a limited basis as discussed in LCV-0626, terrain plots were used. The RPC testing scheduled for the spring and fall outages of 1996 will include terrain plots.