

Duquesne Light Company

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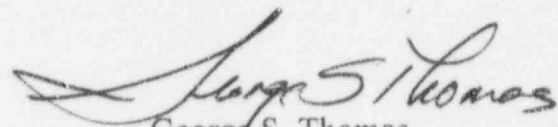
U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555-0001

**Subject: Beaver Valley Power Station, Unit No. 1 and No. 2
BV-1 Docket No. 50-334, License No. DPR-66
BV-2 Docket No. 50-412, License No. NPF-73
Response to Request for Additional Information Dated December 7, 1995**

The Duquesne Light Company response to Generic Letter 95-03, "Circumferential Cracking of Steam Generator Tubes," was provided by letter dated June 23, 1995. On December 7, 1995, the NRC staff issued a request for additional information (RAI) concerning three items needed to complete their review. The RAI response to each item is provided in Attachment A.

If you have any questions regarding the attached response, please contact Mr. G. A. Kammerdeiner at (412) 393-5677.

Sincerely,


George S. Thomas

Attachment

c: Mr. L. W. Rossbach, Sr. Resident Inspector
Mr. T. T. Martin, NRC Region I Administrator
Mr. D. S. Brinkman, Sr. Project Manager

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ATTACHMENT A

Beaver Valley Power Station, Unit Nos. 1 and 2
Response to Information Request Dated December 7, 1995,
Concerning Generic Letter 95-03

Item 1

Discuss the scope and results of the inspections performed at dented locations in Unit 2 during the prior inspection, if any. Discuss the criteria used for determining which dents were examined. If a voltage threshold was used for determining the threshold for examining dents, provide the calibration procedure used (e.g., 2.75 volts peak-to-peak on 4-20% through-wall ASME holes at 550/130 mix).

Response 1

During the Unit 2 5th refueling outage (April, 1995), a bobbin coil voltage threshold of 5.00 volts was used for *reporting* of dents (indications at/within tube support plate locations) and dings (indications in the free span area of the tube). The following table shows the distribution of these indications. It should be noted that based upon review of preservice eddy current data, the majority of these dent and ding indications were present prior to operation of Unit 2 suggesting that they are fabrication related and not attributable to corrosion related denting. The table indicates that 13 of 75 dents (17.3%) and 5 of 175 dings (2.8%) were examined with qualified Rotating Pancake Coil (RPC) probes.

	2RCS-SG21A	2RCS-SG21B	2RCS-SG21C	TOTALS
# of dents	13*	40	22	75
# of dents examined with RPC	7	6	0	13
# of dings	91	38*	46	175
# of dings examined with RPC	2	3	0	5

*This quantity includes two (2) dents and three (3) dings identified from the RPC examination plan for Rows 1 & 2 U-Bend regions and/or tube support plate (TSP). There was not a bobbin indication reported at these locations.

Dents located at or near the uppermost support plate on either the hot leg or cold leg side of the steam generators were selected for RPC examination to ensure the absence of cracking that could potentially be a contributor to high cycle fatigue failure (Reference I.E. Bulletin 88-02). No crack indications (axial or circumferential) were identified from the RPC examinations performed on the dents and dings identified above.

Although a voltage threshold was not utilized for selection of dents to be interrogated with RPC, for Unit 2, bobbin coil calibration is established by setting the voltage of the 4 x 20% through wall (TW) holes to 4.00 volts (± 0.1 volt peak-to-peak) for all channels

and mixes except the Anti-vibration Bar mix. For Unit 1, where an interim repair criteria is implemented, the voltage of the 4 x 20% TW holes is based on that of the transfer standard.

Item 2

DLC's June 23, 1995, response stated that for future inspections, the Electric Power Research Institute (EPRI) Steam Generator Inservice Inspection (ISI) Guidelines and the Westinghouse Owners Group (WOG) WEXTEx Inspection Guidelines will be followed. Please clarify the initial inspection scope and expansion criteria as they will be applied at Beaver Valley Power Station, Units 1 and 2 for all locations susceptible to circumferential cracking (e.g., expansion transition, U-bend portion of tubes with small radius U-bends, dented locations, etc.).

Response 2

For the Unit 1 11th refueling outage (scheduled to start during March, 1996), Duquesne Light Company has conservatively elected to examine 100% of the WEXTEx transition regions in each steam generator with a qualified RPC technique. Expansion of inspection plan criteria is, therefore, not applicable. In addition, 100% of all in-service Row 1 & 2 U-bend regions will be examined with qualified RPC techniques. Dents at Tube Support Plates (TSPs) with bobbin coil voltages 5.00 volts and greater will be examined with qualified RPC techniques. If circumferential cracking or primary water stress corrosion cracking indications are detected at dents greater than 5.00 volts, the dependence of these indications on dent voltage will be evaluated to assess the need to expand the RPC sampling plan to include dents less than 5.00 volts. This is consistent with the NRC requirements for implementation of an alternate repair criteria for cycle 12. Distorted signals at TSPs are examined with qualified RPC techniques as part of the normal inspection practice at Beaver Valley Power Station (BVPS).

For the Unit 2 6th refueling outage (scheduled to start during August, 1996), a 20% random sample of the top-of-tubesheet region (full depth mechanically rolled - shot peened expansion transitions) in each generator will be performed utilizing qualified RPC techniques. Expansion of this inspection program will follow the EPRI Steam Generator Examination Guideline recommendations which require expansion of sample size to 100% of the expansion transitions in the affected steam generator if one (1) crack-like indication is identified in the initial sample size. In addition, 100% of all in-service Row 1 & 2 U-bend regions will be examined with qualified RPC techniques. Dents at TSPs with bobbin coil voltages 5.00 volts and greater will be examined with qualified RPC techniques. If circumferential cracking or primary water stress corrosion cracking indications are detected at dents greater than 5.00 volts, the dependence of these indications on dent voltage will be evaluated to assess the need to expand the RPC

sampling plan to include dents less than 5.00 volts. Distorted signals at TSPs are examined with qualified RPC techniques as part of the normal inspection practice at BVPS.

Qualified RPC techniques are as delineated in Revision 4 of the EPRI Steam Generator Examination Guidelines.

Item 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 NRC 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 DLC's GL 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 DLC's data has not been reanalyzed with terrain mapping of the data, discuss DLC's basis for not reanalyzing DLC's previous 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 the next steam generator tube inspection (i.e., the next inspection per DLC's Generic Letter 95-03 response).

Response 3

Per the Duquesne Light Company Steam Generator Analysis Guidelines, terrain plots are required to be reviewed for examination regions that incorporate RPC probes. Terrain plots are generated (printed) for degradation at both detection and classification frequencies. It has been standard practice at Beaver Valley since 1986, when RPC techniques were first utilized at Unit 1, to generate and review terrain plots for examinations conducted with RPC probes.

Future outages at BVPS will continue to implement the use of terrain plots as part of the normal analysis process.