

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-317/86-23

Docket No. 50-317

License No. DPR-53

Licensee: Baltimore Gas and Electric Company
P. O. Box 1475
Baltimore, Maryland 21203

Facility Name: Calvert Cliffs Nuclear Power Plant, Unit 1

Inspection At: King of Prussia, Pennsylvania and Lusby, Maryland

Inspection Conducted: November 17 - 21, 1986

Inspector: Robert A. Mc Brearty
R. A. Mc Brearty, Reactor Engineer

Dec. 15, 1986
date

Approved by: Jack Strosnider
J. R. Strosnider, Chief, Materials and
Processes Section, EB, DRS

12/22/86
date

Inspection Summary: Inspection on November 17 - 21, 1986
Report No. 50-317/86-23.

Areas Inspected: A routine, unannounced inspection of licensee actions on previous inspection findings and inspection of inservice inspection (ISI) activities was performed. The inspection included review of the ISI program, observations of ultrasonic and eddy current examinations in progress, review of NDE procedures and review of ISI data.

Results: No violations were identified.

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DETAILS

1. Persons Contacted

Baltimore Gas & Electric Company

S. Bauxbaum, ET Level III
*M. Bowman, General Supervisor, Technical Services Engineering
*J. Carroll, General Supervisor, Quality Assurance
*L. Larragoite, Licensing Engineer, NESD
*J. Lemons, Manager, Nuclear Operations Department
*W. Lippold, Manager, Nuclear Engineering Services
J. Pence, NDE Level III
*C. Quimby, Quality Assurance Auditor
*B. Rudell, Senior Engineer, Performance Engineering
*L. Russell, Manager Nuclear Maintenance
*A. Thornton, General Supervisor Plants & Projects Engineering
*A. Zimmerman, Quality Assurance Engineer

NDE Technologies

T. Byers, ET Data Analyst - Level III

Zetech

W. Gray, ET Data Analyst - Level IIA

U.S. Nuclear Regulatory Commission

T. Foley, Senior Resident Inspector
*L. Tripp, Chief, Projects Section 3A

*Denotes those present at the exit meeting.

2. Licensee Action on Previous Inspection Findings

(Closed) Violation (317/84-06-01): Failure to perform acceptance NDE in accordance with the applicable ASME Code Section. Fourteen Unit 1 pipe to penetration welds were re-examined ultrasonically by Southwest Research Institute personnel to meet acceptance requirements of ASME Section III Division 1, Subsection NE, Class MC Components, 1977 Edition through Winter 1977 Addenda. The inspector reviewed ultrasonic examination procedure 800-90, Revision 2, Deviation 1, data sheets associated with the fourteen welds, customer notification forms and indication resolution sheets which document the evaluation and disposition of examination results. The inspector's review indicated that the licensee's commitments were met and the welds were acceptable per ASME Section III.

Based on the above this item is closed.

(Closed) Unresolved Item (317/85-11-01): UT couplant not traceable to certification record. The licensee has verified that the glycerine used as an ultrasonic couplant at Calvert Cliffs was, in all cases, USP 99.5% grade glycerine. The licensee's Chemistry Laboratory has determined that USP 99.5% grade glycerine limits are below licensee contaminant level rejection limits and, therefore, that grade glycerine is acceptable for use as an ultrasonic couplant on a generic basis.

Based on the above this item is closed.

3. Inservice Inspection (ISI) Program Review

The inspector reviewed the licensee's ISI program to ascertain that ASME code and regulatory requirements are met, and that related ISI activities are properly controlled by the licensee.

The current outage is the last scheduled refueling outage in the first ten-year inspection interval, and the examinations scheduled for completion during the outage will complete the program requirements for the interval.

The inspector found that administrative procedures are in place, and that the program format provides for adequately tracking the various aspects of the program, and for determining examination status during the interval. Nondestructive examination implementing procedures are prepared by the licensee's ISI vendor, and are approved by the licensee prior to use. The ISI staff is adequate for the work load and is comprised of technically competent individuals.

No violations were identified.

4. Review of ISI Implementing Procedures

The following nondestructive examination procedures were reviewed by the inspector with regard to technical adequacy, and to ascertain compliance with applicable ASME Code and regulatory requirements.

- ° SwRI-NDT-300-1, Revision 26, "Dry Powder Magnetic Particle Examination"
- ° SwRI-NDT-600-3, Revision 62 "Manual Ultrasonic Examination of Pressure Piping Welds"
- ° SwRI-NDT-700-11, Revision 1, "Mechanized Ultrasonic Inside Surface Examination of Ferritic Vessels Greater than 2.5 Inches in Thickness"
- ° SwRI-NDT-700-11, Revision 2, "Mechanical Ultrasonic Inside Surface Examination of Ferritic Vessels Greater Than 2 Inches in Thickness"

The inspector's review indicated that the above listed procedures meet applicable code and regulatory requirements, and are technically acceptable for their intended use.

No violations were identified.

5. Observations of NDE In Progress

a. Ultrasonic Examination

The inspector observed the mechanical ultrasonic examination of the following reactor pressure vessel (RPV) welds:

- Middle Shell longitudinal weld 2-203A
- Middle Shell to Lower Shell circumferential weld 9-203

The inspector's observations were made to ascertain compliance with the implementing NDE procedure and with applicable code and regulatory requirements.

The inspector found that the examinations were performed by qualified examination personnel in accordance with the applicable NDE procedure, and in accordance with the appropriate scan plan as listed in the RPV examination program plan.

No violations were identified.

b. Eddy Current Examination of Steam Generator Tubes

The inspector observed the eddy current examination of tubes in steam generators 11 and 12 to ascertain compliance with the facility Technical Specification. The inspector's observations included examination of the following tubes:

Steam Generator No. 11

<u>ROW</u>	<u>LINE</u>
97	67
98	68
97	71
97	73
97	75

Steam Generator No. 12

<u>ROW</u>	<u>LINE</u>
128	78
128	82
127	83
127	81
127	79

The examinations which were observed by the inspector were performed by Zetech Corporation personnel qualified to ET Level IIA and ET Level I using the MIZ-18 system.

The system incorporates a computer controlled eddy current probe which does not require the use of templates for tube identification, therefore reducing radiation exposure to equipment installers. Additionally, an in-line calibration standard was used to facilitate initial system calibration and subsequent calibration checks.

No violations were identified.

6. Review of ISI Data

The inspector observed the review of ISI data to ascertain compliance with ASME Code and regulatory requirements, and that the evaluations were performed by qualified individuals.

Ultrasonic examination data consisted of video tape recordings of the ultrasonic instrument display and strip chart recordings made during each weld examination. Additionally, data were simultaneously collected with the Ultrasonic Data Recording and Processing System (UDRPS). At present the UDRPS is not permitted by the ASME code because it does not incorporate the use of a distance amplitude correction curve (DAC) for system calibration. System calibration is performed using the examination material to establish a noise level. The licensee used the system for informational purposes, and to provide baseline data for future RPV weld examinations in the event that the code permits its use. The information collected by UDRPS was from the ultrasonic transducer array from which SWRI gathered the official data. The effectiveness of the UDRPS system was dependent upon synchronization of the two collection methods, and this was controlled largely by SWRI personnel, therefore cooperation of the SWRI group and the licensee personnel operating UDRPS was necessary. The inspector found that the two groups worked closely together and lines of communication were maintained to provide the necessary coordination.

The Inspector visited the off site location where eddy current examination data were being interpreted independently by a Zetech Level IIA data analyst, and by an NDE Technologies Level III data analyst. The inspector interviewed the analysts with regard to system calibration techniques,

various aspects of the MIZ-18 system and the effect of copper on the eddy current examination results. The inspector was advised that copper produces a characteristic eddy current signal that is readily recognized. The inspector was further informed that copper was not detected in the Calvert Cliffs Unit 1 steam generator tubes. In the event that copper is present the MIZ-18 system is capable of mixing frequencies to eliminate or minimize the copper signal to display underlying defect signals.

The eddy current data analysis was done by qualified individuals using equipment that was identical to the equipment with which the data were collected.

No violations were identified.

7. Exit Meeting

The inspector met with licensee representatives (denoted in paragraph 1) at the conclusion of the inspection on November 21, 1986. The inspector summarized the purpose and the scope of the inspection and the findings. At no time during the inspection was material provided by the inspector to the licensee.