



UNITED STATES
NUCLEAR REGULATORY COMMISSION

REGION II
101 MARIETTA STREET, N.W.
ATLANTA, GEORGIA 30303

Report Nos.: 50-338/84-22 and 50-339/84-22

Licensee: Virginia Electric and Power Company
Richmond, VA 23261

Docket Nos.: 50-338 and 50-339

License Nos.: NPF-4 and NPF-7

Facility Name: North Anna 1 and 2

Inspection Dates: June 12-14, 1984

Inspection at North Anna site near Mineral, Virginia

Inspector: N. Economos

N. Economos

6/29/84
Date Signed

Approved by: J. J. Blake

J. J. Blake, Section Chief
Engineering Branch
Division of Reactor Safety

6/29/84
Date Signed

SUMMARY

Areas Inspected:

This routine unannounced inspection involved 27 inspector-hours on site in the areas of Inservice Inspection (ISI) procedure review, work observation and evaluation of quality records.

Results: No violations or deviations were identified.

REPORT DETAILS

1. Persons Contacted

- *M. L. Bowling, Assistant Station Manger
- *G. E. Kane, Assistant Station Manager
- *F. P. Miller, QC Supervisor
- J. C. Paul, NDE Supervisor

Other licensee employees contacted included technicians and office personnel.

Other Organization

Babcock and Wilcox - Utility Power Generation Division

- J. J. Navratil, Task Leader
- S. A. Redner, Shift Supervisor
- D. Weber, Eddy Current Analyst

NRC Resident Inspectors

- *M. W. Branch, Senior Resident Inspector
- *J. C. Luehman, Resident Inspector

*Attended exit interview.

2. Exit Interview

The inspection scope and findings were summarized on June 14, 1984, with those persons indicated in paragraph 1 above.

3. Licensee Action on Previous Enforcement Matters

Not inspected.

4. Unresolved items

Unresolved items were not identified during this inspection.

5. Inservice Inspection - Procedure Review, Unit 1 (73052)

This inspection was performed as a followup to the previous work effort documented in report No. 50-338, 339/83-17. At the time of this inspection, certain items earmarked for examination during this outage had been examined. These included some Category B component parts and weldments as well as various Category C items, including bolts and weldments in certain class 2 heat exchangers. Eddy current examination of steam generator "B" tubes was in progress also. This plant outage was identified as the second outage/second period, first interval, 1984.

The inspector reviewed aspects of the licensee's inservice inspection (ISI) program for completeness and conformance with regulatory requirements and the licensee's commitments. The ISI program, which identified items scheduled for examination and included copies of the applicable NDE procedures, had been reviewed and approved by the appropriate licensee representative. Based on the licensee's Technical Specification and 10 CFR 50.55a, the applicable code for ISI is currently ASME Section XI (74S75). Steam generator tube eddy current examinations are required to be in accordance with NRC Regulatory Guide 1.83 Rev. 1. Augmented ISI examinations are specified for the reactor coolant loop bypass lines and certain portion of the pressurizer spray lines. (Section 3.6.2 and comment C.2 of the FSAR identifies these lines as high energy piping.) Also, it requires increased inspection frequency such that each weld will be inspected three times during each ten-year inspection interval.

- a. The following procedures were reviewed in the areas of procedure approval, requirements for qualification of NDE personnel, and compilation of required records:

ISI-205, Rev. 2	Manual Ultrasonic Examination of Full Penetration Circumferential and Longitudinal Butt Welds
ISI-425, Rev. 6	Eddy Current Examination of Tubing by the Absolute Multicoil (8x1) Technique, (Supplementary)
ISI-428, Rev. 1	Multifrequency Eddy Current Examination of RSG Tubing in Series 51 Steam Generators at VEPCO - Field Change NA1-84-005 Applicable. ASME Section XI (SOW80) and RG 1.83 July 1975 Applicable.

Procedure Technical Content

The procedures listed below were reviewed for technical content:

- (1) Ultrasonic examination procedure ISI-205 was reviewed for adequacy and technical content relative to type of apparatus, extent of coverage, calibrations, size and frequencies of search units, beam angles, distance - amplitude corrections, transfer requirements, reference levels for scanning and monitoring discontinuities, demonstration of penetration, evaluation and recording levels for indications, method of reporting indications, and acceptance limits.
- (2) Eddy current examination procedure ISI-428 was reviewed for technical content relative to equipment, frequencies, calibration and reporting.

Within the areas inspected, no violations or deviations were identified.

6. Inservice Inspection-Observation of Work and Work Activities, Unit 1 (73753)

- a. Personnel qualification records for four Level II examiners were reviewed.
- b. Discussions with cognizant licensee personnel disclosed that inspection of the J-tubes was complete and radiographic examination of the HPI thermal sleeves was approximately 50% complete, with positive results. Selected welds in the mainsteam, feedwater, 8" \emptyset RC loop by-pass and pressurizer 4" \emptyset spray lines were being examined as part of a FSAR required augmented inservice inspection effort. Following the required training and fitup of a respirator mask, the inspector observed the ISI activities described below to determine whether these activities were being performed in accordance with regulatory requirements and licensee procedures. See Paragraph 5 above for the applicable code.

The inspector observed U/T inspection of selected augmented ISI welds W-4 and W-5 in Loop-2 by-pass, line 8"-RC-12-2501R-Q1. These inspections were compared with regards to procedural requirements in the following areas:

- (1) Availability of and compliance with approved NDE procedures
- (2) Use of knowledgeable NDE personnel
- (3) Use of NDE personnel qualified to the proper level
- (4) Recording of inspection results
- (5) Type of apparatus used
- (6) Extent of coverage of weldment
- (7) Calibration requirements
- (8) Search units
- (9) Beam angles
- (10) DAC curves
- (11) Reference level for monitoring discontinuities
- (12) Method for demonstrating penetration
- (13) Limits for evaluating and recording indications
- (14) Recording significant indications
- (15) Acceptance limits

Within the areas inspected, no violations or deviations were identified.

7. Review of Quality Records

The inspector reviewed equipment, and NDE material certifications and personnel qualifications to ascertain whether they were consistent with regulatory and code requirements. Records reviewed were as follows:

Ultrasonic (U/T) - testers

WEM #02619

#02612

(U/T) - Transducer

#P 45882, 3/4" \emptyset , 2.25 MHz

Magnetic Particle (M/T) - materials	#8A Red Dry Powder Batch #83L066 WEM #02724
U/T Couplant	Sonatrace 40, batch #8333, #8337
Liquid Penetrant (P/T) - materials	Spot-check Penet. #81L071 Devel. #83E004 Cleaner #83C002
U/T Calibration Block	S/N 788235

NDE Technicians

W. M. Blew
J. D. Funyak
W. G. Halley
T. A. Schaefer

Within the areas examined, no violations or deviations were identified.

8. Eddy Current (EC) Examination of Steam Generator (SG) Tubes, Unit 1 (73753)

ISI activities during this refueling outage included the eddy current (EC) examination of tubes in "A", "B" and "C" SGs. Data acquisition and analysis was being performed by B&W. The approved B&W procedures ISI-428, Rev. 1 (see paragraph 5), and related references are the governing documents. All accessible tubes in each of the three SGs were to be examined for tube degradation. Profilometry was scheduled for approximately 115 tubes.

Examination was being performed with a multifrequency technique to analyze tube integrity. Discussions with the licensee disclosed that out of the 1060 tubes examined and analyzed by June 14, 1984 in SG "B," there were no tubes that required plugging. The inspector observed the examination of the following tubes in SG "B": Tubes 02-24 through 20-24 and 02-25 through 22-25.

This work was observed to verify:

- (a) Use of approved procedure and equipment
- (b) Use of knowledgeable examination personnel with proper qualification levels
- (c) Proper recording of examination data
- (d) Proper frequencies
- (e) Calibration standard adequacy
- (f) Performance of calibration at proper intervals.

Calibration checks were performed with calibration standard S/N 49079. The inspector reviewed quality records of the above standards, equipment certifications and personnel qualifications. Technicians performing the examination appeared to be thoroughly familiar with procedural requirements and adequately qualified to perform their assigned tasks. The inspector observed system calibration performed on the morning of June 13, 1984, to verify compliance with procedural requirements.

The calibration was documented on magnetic tape wheel #15 and calibration sheet #13. Tube examination was in progress at the close of the inspection.

Within the areas inspected, no violations or deviations were identified.

9. Independent Inspection Effort (92706)

SG Tube-end Repairs

Tube-ends on the hot leg side of SGs "A" and "C" which had sustained some damage as a result of loose parts discovered during the Spring 1984 outage, reported in RII 82-19, were being inspected and repaired as necessary to facilitate E/C inspection with standard 0.700 \emptyset probes. Also, previously plugged tubes in rows one and two identified as probable leakers were scheduled for repair during this outage. B&W has been contracted to perform this work effort. ASME Section XI has been invoked by reference. The 1980 Edition with Winter 1981 addenda and 1983 Edition with latest addenda are applicable. The following VEPCO approved B&W procedures were reviewed for technical content.

1. Recirculating Steam Generator (RSG) Tube-End Repair Operating Procedure, 5/29/84
2. VEPCO Tube-End Repair Tooling, 5/14/84
3. Explosive Plug Repair Tooling 5/29/84, S/N1151429A
4. Visual Examination of Welds, 9-WG-106, Rev. 5
5. RSG Explosive Plug Preparation, Repair and Welded Plug Installation 5/31/84 S/N1151370 AO
6. PQR-5, Rev. 1, - Qualification for Plugging a Tubeshut Hole Using the GTAW Process

The contractor's repair effort includes roll expansion ID measurement for concentricity, removal of mechanical discontinuities (e.g., nicks, burrs, etc.), with a specially designed self centering end-mill type tool and remeasuring for size. QC inspections, as required, are performed by B&W and VEPCO. The licensee has incorporated QC hold points in procedure S/N 1151370 AO above. By the close of this inspection, approximately 1200 tubes had been worked on, in each of SGs "A" and "C." Certain phases of the

inspection/repair effort were observed via remote control video. Discussion with cognizant B&W personnel disclosed that no serious problems were encountered and none were anticipated. The repair program and work effort appeared to be well administered. Personnel performing the work appeared well qualified.

No deviations or violations were identified.