

U. S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

REGION IV

Report No. 50-313/78-03

Docket No. 50-313

License No. DPR-51

Licensee: Arkansas Power and Light Company
Post Office Box 551
Little Rock, Arkansas 72203

Facility Name: Arkansas Nuclear One, Unit 1

Inspection at: ANO, Unit 1 Site, Russellville, Arkansas

Inspection conducted: February 7-10, 1978

Inspectors: *R. A. Hermann* 2/23/78
for R. A. Hermann, Reactor Inspector, Engineering
Support Section (Paragraphs 1, 2, 3, 5, 6, & 7) Date

L. D. Gilbert 2/23/78
for L. D. Gilbert, Reactor Inspector, Engineering
Support Section (Paragraphs 4.b and 4.c) Date

R. E. Hall 2/23/78
R. E. Hall, Chief, Engineering Support Section
(Paragraph 4.a) Date

Other
Accompanying
Personnel: R. J. Garcia, Engineering Aide, Engineering Support Section

Reviewed: *T. F. Westerman* 2/23/78
T. F. Westerman, Principal Inspector, Reactor
Operations and Nuclear Support Branch Date

Approved: *R. E. Hall* 2/23/78
R. E. Hall, Chief, Engineering Support Section Date

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Inspection Summary:

Inspection on February 7-10, 1978 (Report No. 50-313/78-03)

Areas Inspected: Routine, announced inspection involving the inservice inspection activities; and the nondestructive examination program for surveillance of the decay heat and reactor building spray stainless steel schedule 10 piping. The inspection involved seventy-three hours by three NRC inspectors.

Results: Of the two areas inspected, one item of noncompliance (Infraction - failure to take corrective action for discrepant piping) was identified in one area. No items of noncompliance were identified in the remaining area.

DETAILS

1. Persons Contacted

Principal Licensee Employees

- *J. W. Anderson, Plant Manager
- *G. H. Miller, Assistant Plant Manager
- *L. Alexander, QC Supervisor
- *B. L. Bata, QA Engineer

Other Personnel

Factory Mutual Engineering

D. C. Brown, Resident Representative

B&W Construction Company

L. Syverson, Group Leader
C. Thompson, Assistant Group Leader
R. Nelson, QC Supervisor

*denotes those present at the exit interview.

2. Inservice Inspection Program Update

The Babcock and Wilcox (B&W) QA Manual for ISI, Rev. 3 was inspected for changes since the last outage. The inspector reviewed B&W personnel qualification procedure 9A-171, Rev. 5 and found it consistent with the requirements of SNT-TC-1A. The revision included qualification requirements of eddy current personnel and defined the duties of Level I limited personnel in all the NDE methods. The AP&L procedure 1304.58, Rev. 3, "Inservice Inspection," was inspected and found to provide definition of the methodology and provide administrative control for the examination planned for the current outage. The procedure defined applicable Technical Specification and ASME B&PV requirements and incorporates by reference the B&W Inservice Inspection Manual for this outage.

No items of noncompliance or deviations were identified.

3. Inservice Inspection Procedures Update

B&W procedure ISI-120, Rev. 5, "Ultrasonic Examination of Class 1 & 2 Piping Welds Joining Similar and Dissimilar Materials," was inspected

and found consistent with the requirements of the ASME B&PV Code, Section XI, 1971 edition including Summer 1972 Addenda. The inspector discussed the relief from the transfer method which was granted by approval of Code Case 1698 by NRR with the B&W Group Leader. In addition, the conditions regarding calibration blocks for exclusion of the transfer method in the NRR position were discussed with the B&W Group Leader. B&W procedure ISI-131, Rev. 3, "Remote Ultrasonic Examination of Reactor Vessel Weld Seams, Nozzle Seams and Inside Radius Sections, Ligament Areas, and Adjacent Piping Welds," was inspected and found consistent with the ASME B&PV Code requirements stated above.

No items of noncompliance or deviations were identified.

4. Inservice Inspection - Observation of Work Activities

a. Inspection Interval and Extent of Examination

The 1978 Inservice Inspection Plan for Arkansas Nuclear One, Unit No. 1, which was approved by AP&L on February 2, 1978, was inspected for conformance with the requirements of Technical Specification (T/S) 4.2.2. This T/S invokes Section XI-1971 of the ASME Boiler and Pressure Vessel Code, as updated to Summer 1972; and also provides specific inspection requirements for vessel to nozzle welds for eight RPV nozzles.

During review of a selection of weld examinations scheduled for the current outage (ISI Program Plan Outage No. 2) it was determined that examinations planned for category J-1, groups 4.1 and 4.4 were consistent with the requirements of table IS-251 of Section XI. Comparison of the inspection plans for category D, group 1.4 revealed that there were no plans to examine one Reactor Coolant Inlet nozzle, and one Core Flood nozzle. Section 4.2.2 of the Technical Specification requires examination of one of each of these nozzles after 3-1/3 years of the inspection interval (T/S 4. allows a $\pm 25\%$ tolerance on this surveillance interval). The currently approved ISI Plan schedules these inspections for Outage 8, which is near the end of the current ISI 10 year interval. It was also determined that the T/S specified that inspections of Reactor Coolant Outlet nozzles should have been scheduled at the 6-2/3 year point in the inspection interval. Instead these nozzles were scheduled for inspection at the 3-1/3 year point, and were not subsequently scheduled later in the inspection interval. By letter dated October 19, 1977, a change to the Technical

Specifications has been proposed by AP&L to the NRC; however, it has not been approved. This item is considered unresolved pending expiration of the tolerance on the surveillance interval, or approval of a T/S change to delete the current requirements.

A comparison of construction isometrics for the Low Pressure Injection System, Loop A, and High Pressure Injection line 1A1, with ISI Plan sampling confirmed that a 25% sample of each system was included in the ISI Plan schedule as required. All seventeen of the selected welds in these two systems had been examined during Outage 1 of the inspection interval.

The planned inspection of Vessel Studs and Nuts was found consistent with Section XI, Table IS-251, category G-1, group 1.8.

b. Review of Personnel Qualifications and Equipment Calibrations

The inspector reviewed the certification of personnel qualifications for a Level I, Level II and Level III examiner for each inspection method to be used during the inservice inspection (i.e., ultrasonic, liquid penetrant, and eddy current inspection). The nine personnel certifications examined complied with the requirements for qualification specified in SNT-TC-1A for each level of examination.

The equipment to be used for ultrasonic and eddy current inspections was selectively inspected for calibration. All instruments examined were within their calibration interval. Certifications for the liquid penetrant materials to be used were reviewed to verify that chlorine content was within the limitation specified in the ASME B&PV Code.

c. Observation of NDE Examinations

The inspector observed the liquid penetrant inspection performed on the high pressure injection system nozzle safe end weld identified 1B2 on Drawing 131996E for conformance to the requirements of Section XI of the ASME B&PV Code. After the B&W Level I examiner had completed the application of penetrant and developer, the B&W Level II examiner informed the inspector that the liquid penetrant inspection was considered invalid for interpretation and evaluation because the developer sprayed on blotchy and unevenly. Since a mist spray coming from overhead

may have contributed to the blotchy developer condition, the inspector suggested that the weld be shielded from the mist prior to reinspecting the weld. The examiner requested that shielding be installed and rescheduled the inspection.

Additional observation of NDE examinations will be performed during the current outage. The additional inspection is required since sufficient work was not in progress to provide a representative and meaningful assessment of the NDE activities.

The item regarding deviation from the 10 year plan in subparagraph a. is considered unresolved and will be examined during a subsequent inspection.

5. Surveillance of Decay Heat and Reactor Building Spray Piping

During a previous inspection (77-03), the inspector had discussed with licensee representatives the status of the surveillance program which the licensee had submitted as corrective action for Abnormal Occurrence Report No. 50-313/74-11c. At that time, baseline radiography of the affected piping was almost completed. No cracking of the sensitized piping had been identified, but a significant amount of pitting had been identified in the weld heat affected zones (HAZ). The licensee representatives stated segments of the cracked and pitted piping had been removed for analysis.

During this inspection, the radiographs and NDE reports for the following welds from these systems were reviewed: GCB-1-13; GCB-26B; JJJ-43A; GCB-1-4, and GCB-1-18A. The radiography was performed to Bechtel procedure RT-X6-2, Rev. 6 which incorporated the acceptance standards from the USA Standard Code for Pressure Piping, Nuclear Power Piping, USAS B31.7. This standard was applicable during plant construction. In a letter from AP&L to Bechtel, NDC 5601, dated February 7, 1977, AP&L requested that the radiography of the weldments be evaluated for cracking and pitting in the HAZ. The letter discounted the need for evaluation of slag and other similar discontinuities in the weld since the joints had been previously inspected for fabrication discontinuities and had been accepted. Since corrosive attack of piping in the HAZ (pitting) is not a problem related to fabrication of piping, no acceptance standards for these type discontinuities are included in B31.7. The inspector could not ascertain that quantitative acceptance criteria had been established for pitting in the weld HAZ's.

During the review of the above noted radiographs, the inspector noted that interval 17-25 on weld GCB-1-13 had been rejected for pitting as

noted in Peabody Testing RT Report 2105. Additionally, the inspector noted that several more welds evaluated on Peabody Testing RT Reports 2105, 2110, 2187 and 2113 were rejected for pitting. No corrective action for the rejected radiographs could be identified during the inspection.

The AP&L Quality Assurance Manual Operations, Rev. 4, Section 16, "Corrective Action," paragraph 16.2.1 states, "When deviations, deficiencies, malfunctions, or other abnormal occurrences or conditions are encountered, they shall be reported to responsible authorities for review and disposition in accordance with Section 15 of the Program." Section 15, paragraphs 15.2.1 and 15.2.2 state in part, "15.2.1 All nonconforming materials, parts, components, processes or documents shall be identified as such and reported to the cognizant supervisor(s) for disposition and corrective action. This rule shall apply no matter where or when the discrepant item is discovered (e.g. during vendor surveillance, receiving inspection, storage surveillance, installation, or operation). 15.2.2 Reports of nonconformance shall be prepared and circulated to the Quality Control Engineer, cognizant supervisors, and/or other individuals authorized to approve dispositions and corrective action"

Contrary to 10 CFR 50, Appendix B, Criterion V, the licensee failed to follow the procedures stated above in that nonconformance reports containing disposition and corrective action for the discrepant piping were not prepared and acted on.

The activities described above are considered in noncompliance with the requirements of 10 CFR 50, Appendix B.

6. Unresolved Item

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, items of noncompliance, or deviations. The following item was disclosed during this inspection regarding the scheduling of examinations for the Reactor Coolant Inlet and Core Flood nozzles.

<u>Identifier</u>	<u>Title</u>	<u>Reference</u>
78-03-1	Scheduling of Examinations for Reactor Vessel Nozzles	Paragraph 4.a.

7. Exit Interview

The IE inspectors met with the licensee representatives (denoted in paragraph 1.) at the site on February 10, 1978. The inspectors summarized the purpose and scope of the inspection. The findings, as detailed above, were discussed with the licensee representatives.