

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

REGION IV

Report No. 50-313/79-13

Docket No. 50-313

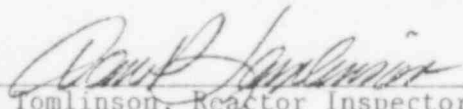
Licensee: Arkansas Power & Light Company
Post Office Box 608
Russellville, Arkansas 72801

Facility Name: Arkansas Nuclear One, Unit 1

Investigation at: ANO, Unit No. 1, Russellville, Arkansas


Investigation conducted: June 8, 1979

Inspector:


D. P. Tomlinson, Reactor Inspector, Engineering Support
Section

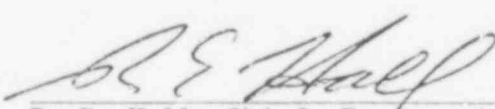
6-15-79
Date

Reviewed:


T. F. Westerman, Chief, Reactor Projects Section

6/15/79
Date

Approved:


R. E. Hall, Chief, Engineering Support Section

6/15/79
Date

Investigation Summary:

Investigation on June 8, 1979 (Report No. 50-313/79-13)

Areas Inspected: Special, unannounced investigation of allegations regarding nonconforming construction practices involved in construction at ANO, Unit No. 1 in the 1969 time period. The investigation involved six inspector-hours by one NRC inspector.

Results: Investigation of the allegation revealed no nonconforming conditions in the area under investigation. The allegation could not be substantiated.

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INTRODUCTION

The Arkansas Nuclear One Generating Station, Unit No. 1, is in operation in Russellville, Arkansas. Arkansas Power and Light Company (AP&L) is the owner and operator.

REASON FOR INVESTIGATION

The Region IV Director received a letter from the Director of Reactor Construction Inspection, Office of Inspection and Enforcement, stating that a former NRC/AEC employee had alleged irregularities in the welding of the containment liner plate.

SUMMARY OF FACTS

A memorandum dated March 19, 1979, reported the results of an interview with a former employee (regional inspector) regarding several alleged problem areas which had been identified by himself and others, which may never have been resolved.

The above memorandum discusses an alleged problem at ANO, Unit 1 which was identified in 1969 by a Region IV inspector during the time period when Region II was responsible for the inspection activities at this site. Since Region IV now has the responsibility for ANO, Unit 1 inspection activities, Region IV was requested to evaluate the allegation and assure that the issue has been completely resolved and documented.

ALLEGATION

The allegor stated that during an inspection in 1969 of ANO, Unit 1 he noted that the contractor was not using the backing strips required by PSAR Figure 11.2.25-1 for the knuckle to shell plate welds of the containment liner.

CONCLUSIONS

The allegation could not be substantiated. Review of as-built drawings, physical inspection, and ultrasonic examination all confirm that backing strips were used as specified.

DETAILS

1. Persons Contacted

Principal Licensee Employees

*J. O'Hanlon, Plant Manager
*J. Brown, QA Auditor
*L. Alexander, QC Engineer

Bechtel Employees

*R. Redford, Resident Engineer
W. Horn, Construction Manager
H. Miller, Manufacturing Engineer
C. Beardsley, Lead Mechanical Engineer
W. Proulx, Welding/QC Engineer during construction (by telephone)

*Denotes those attending the exit interview on June 8, 1979.

2. Investigation Details

Allegations: The contractor failed to use backing strips on the containment liner plate at the knuckle weld as specified in the PSAR.

Investigation Findings: The IE inspector reviewed Figure 11.2.25-1 of the PSAR referenced by the allegor as containing the requirement for the backing strip and found the drawing to be totally unrelated to the liner plate. While reviewing other portions of the microfiche PSAR, the IE inspector noted that Figure 5.1 showed the knuckle area but not in sufficient detail to confirm or deny the use of the backing strip.

Bechtel personnel on site contacted Mr. Walter Proulx by telephone in San Francisco. Mr. Proulx was the welding/QC engineer at ANO, Unit 1 during construction. After hearing the allegation, he stated emphatically that "No welds were made in the liner plate that did not incorporate a backing strip." He further stated that, as no radiography was required or performed, no film was available for viewing. Radiography was not required because, as is stated in 5.1.1.3.4 of the ANO, Unit 1 PSAR, "The design, construction, inspection and testing of the liner plate, which acts as a leak tight membrane and is not a pressure vessel, is not covered by any recognized code or specification."

A copy of Drawing No. C-109, Rev. 11 was located and reviewed. This Drawing, "Reactor building Liner Plate Typical Details," clearly shows in Section A that a backing strip is required in the knuckle area. Revision 12 of Drawing C-109 is the approved as-built drawing issued to AP&L by Bechtel. Again the backing strip is shown. Note 3 on both revisions states that all backing strips for welds at the 346' 6" elevation and above are to be shipped loose in 30' 0" lengths.

This is to allow for installation of the backing strips after placing and spacing of the individual plates but prior to welding.

As a final verification of placement of the backing strips, the IE inspector and two Bechtel engineers ultrasonically measured the material thickness through portions of the suspect weld. The liner plate is 0.250" thick and, allowing for weld reinforcement and paint thickness on the inspection surface, no ultrasonic readings would have been expected to exceed approximately 0.450" maximum thickness if the backing strip was not installed. However, if the backing strip was installed as shown on the as-built drawing, readings in excess of 0.550" would be expected as the ultrasonic beam would have to pass through not only the liner plate thickness and weld reinforcement but also through the 0.250" backing strip before being reflected. All readings taken by the IE inspector and verified by the Bechtel engineers ranged from 0.610" minimum to 0.870" maximum. This clearly indicates that the backing strip was installed and sufficient weld penetration was achieved to allow ultrasonic thickness measurement through the weld in all areas inspected.

It should be noted that ultrasonic verification was possible only in three circumferential areas of approximately 60° each. The remaining three 60° areas were inaccessible due to the placement of concrete on the inside surface of the liner plate. In the areas where the knuckle weld emerged from these concreted sections, a backing strip was observed to extend beyond the concrete on the inside surface of the liner plate. The length of this extension varied from approximately 1' 0" minimum to 2' 6" maximum, confirming that a backing strip was used in the areas inaccessible for ultrasonic inspection.

The liner plate serves as a leak tight membrane for the interior surface of the containment structure as stated above. Since the alleged observation of the former NRC/AEC employee, this vessel has been subjected to one proof pressure test and two measured leak rate tests. These tests yielded acceptable results.

This allegation was not substantiated.

3. Exit Interview

The IE inspector met with the licensee and Bechtel representatives (denoted in paragraph 1) at the conclusion of the investigation on June 8, 1979. The IE inspector summarized the purpose and scope of the investigation and reviewed the allegation and the findings.