

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

Report No. 50-313/80-05
50-368/80-05

License No. DPR-51
NPF-6

Licensee: Arkansas Power and Light Company
P. O. Box 551
Little Rock, Arkansas 72203

Facility Name: Arkansas Nuclear One (ANO), Units 1 and 2

Inspection at: ANO Site, Russellville, Arkansas

Inspection Conducted: February 22 - March 21, 1980

Inspectors:

W. D. Johnson for 4/14/80
W. D. Johnson, Senior Resident Inspector Date

L. J. Callan 4/14/80
L. J. Callan, Resident Reactor Inspector Date

R. Smith 4-14-80
R. Smith, Reactor Inspector Date

Approved:

T. F. Westerman 4-14-80
T. F. Westerman, Chief Date
Reactor Projects Sections

Inspection Summary

Inspection conducted during period of February 22 - March 21, 1980
(Report No. 50-313/80-05)

Areas Inspected: Routine, announced inspection including Surveillance Testing, Surveillance Test Witnessing, Follow-up on Previously Identified Items, and Follow-up on IE Bulletins. The inspection involved 61 inspector-hours on-site by three NRC inspectors.

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Results: Within the four areas inspected, two items of noncompliance and one deviation were identified (deficiency - unreviewed safety question evaluation, paragraph 2; infraction - leak tests of personnel air lock, paragraph 3; deviation - IE Bulletin commitment, paragraph 6f).

Inspection conducted during period of February 22 - March 21, 1980
(Report No. 50-368/80-05)

Areas Inspected: Routine, announced inspection including Surveillance Testing, Surveillance Test Witnessing, Integrated Safeguards Test Witnessing, Power Ascension Test Witnessing, Follow-up on IE Bulletins, and Follow-up on Previously Identified Items. The inspection involved 75 inspector-hours on-site by three NRC inspectors.

Results: Within the six areas inspected, two items of noncompliance and one deviation were identified (infraction - procedure adherence, paragraph 5; infraction - setting ESF time delay relays, paragraph 5; deviation - IE Bulletin commitments, paragraph 6f).

1. Persons ContactedArkansas Power and Light Company Employees

J. P. O'Hanlon, ANO General Manager
 G. H. Miller, Engineering & Technical Support Manager
 B. A. Baker, Operations Superintendent
 T. N. Cogburn, Plant Analysis Superintendent
 E. C. Ewing, Plant Engineering Superintendent
 P. Jones, Maintenance Superintendent
 F. Foster, Operations and Maintenance Manager
 J. McWilliams, Assistant Operations Superintendent
 J. Albers, Planning and Scheduling Supervisor
 D. D. Snellings, Technical Analysis Superintendent
 L. Schempp, Manager of Nuclear Quality Control
 R. Roderick, Human Resources Supervisor
 M. Bishop, Acting Plant Administrative Manager
 R. Elder, I&C Superintendent
 R. Tucker, I&C Supervisor
 C. Bean, Maintenance Supervisor
 L. Bell Assistant Operations Superintendent
 P. Kearney, Engineer
 J. Hebison, I&C Supervisor
 W. Poskey, Maintenance Supervisor
 L. Howard, Engineer
 J. Waxenfelter, I&C Supervisor
 B. Neal, I&C Supervisor
 J. Vandergrift, Training Supervisor
 G. Fiser, Radiochemistry Supervisor
 H. Roark, Maintenance Supervisor
 B. West, I&C Supervisor
 M. Stroud, Maintenance Supervisor

The inspectors also contacted other plant personnel, including operators, technicians and administrative personnel.

2. Follow-up on Previously Identified Items (Units 1 & 2)

(Closed) Open Item 313/77-09-15: Revise design change procedure to include provisions for procedure revisions.

The licensee has issued procedure 1000.13, Control of Station Modifications. This procedure requires the Operations, Maintenance, and Instrumentation and Control Superintendents to verify that procedures have been updated as required during closeout of a design change package.

(Open) Unresolved Item 313/78-04-03: Operability of the reactor building air particulate activity detector.

The Manager of Engineering and Technical Support stated that steps are being taken to make this detector operable. The inspector requested that this item receive higher priority.

(Closed) Open Item 313/78-21-05: Drawing revisions following design changes.

The licensee has issued Procedure 1032.03, Design Document/Drawing Control. This procedure provides for field revisions to drawings and for incorporation of field revisions into the drawing revisions issued by Little Rock Generation Engineering.

(Closed) Unresolved Item 313/79-02-03; 368/79-02-10: Shop supervisor understanding of QCP 1004.13, Nonconformance and Corrective Action.

The licensee held two training sessions on this subject for shop supervisors.

(Closed) Open Item 368/79-02-05: SRC Review of PSC minutes.

The Safety Review Committee reviewed the Plant Safety Committee meeting minutes in its meetings on July 16, 1979 and August 13, 1979.

(Closed) Open Item 368/79-02-08: Maintaining as-built drawings current.

The licensee's new engineering procedures provide for field revisions of all ANO drawings by the Plant Engineering Department. A review of completed design changes and as-built drawings is being conducted to identify drawings in need of revision.

(Closed) Open Item 313/79-07-04; 368/79-07-04: Pre-Fire Plans.

The pre-fire plans have been reviewed, revised, issued and posted. Pre-fire plans have been marked to identify fire zones which may contain toxic combustion products.

(Closed) Infraction 313/79-07-08; 368/79-07-06: Failure to follow procedures.

The inspector reviewed the licensee's corrective action on this item and had no further questions.

(Closed) Open Item 313/79-09-06: Low Pressure Injection Pump Δ P acceptance criteria.

The licensee has demonstrated that the current LPI pump Δ P acceptance criteria are conservative.

(Closed) Open Item 313/79-09-07: Testing CV 1401 and CV 1400.

These valves are stroked quarterly in accordance with Procedure 1304.70, Supplement 1.

(Closed) Infraction 313/79-16-02: Drawing not updated following a design change.

The inspector reviewed the licensee's corrective action and had no further questions.

(Closed) Unresolved Item 313/79-16-03: Written Safety Evaluations.

This item was identified in Inspection Report 79-16 and was forwarded to NRC management for resolution. The item has been determined to be an item of noncompliance with 10 CFR 50.59. (313/80-05-02). The licensee is required to perform an unreviewed safety question evaluation and to retain a record of this evaluation for any proposed change to a system or procedure as described in the SAR either by text or drawings. Changes may involve an unreviewed safety question even through they are beyond-the-second-isolation-valve or they are on systems or components which are not designated as safety-related if the changes could impact the safety of operations.

(Closed) Unresolved Item 368/79-14-02: Primary system chemical analysis.

The inspector has reviewed the primary system chemical analysis results for August 1, 1979 and determined that sampling requirements were being met.

(Closed) Unresolved Item 313/79-16-04; 368/79-14-03: Yellow lining of drawings during implementation of design changes.

Licensee Procedure 1004.01 has been superceded by new procedures 1000.13 and 1032.01. The new procedures do not require yellow lining of drawings.

(Closed) Deficiency 313/79-16-06; 368/79-14-05: 10 CFR 19.12 instructions.

The inspector reviewed the licensee's corrective action for this item and had no further questions.

(Closed) Infraction 313/79-16-07: Pressurizer code safety valve testing.

The inspector reviewed the retest of the safety valves performed on August 12, 1979 in accordance with Procedure 1401.03. This test had satisfactory results. The licensee has revised Procedure 1401.03, adding a provision for a review of test results.

(Closed) Infraction 313/79-16-08; 368/79-14-06: Independent Safety Review Committee reviews of safety evaluations for design changes.

The inspector reviewed the licensee's corrective action of this item and had no further questions.

(Closed) Infraction 313/79-16-09; 368/79-14-08: Plant Safety Committee evaluation of procedures and procedure changes for unreviewed safety question determination.

The licensee has issued new Procedure 1000.06. This procedure requires PSC review of a written safety evaluation prior to procedure or change approval.

(Closed) Unresolved Item 313/79-16-12; 368/79-14-11: Vendor Approval.

The licensee has demonstrated that the process used to place Lambda Electronics Corporation on their Qualified Vendors List was in accordance with the AP&L QA Topical Report, NRC Regulations and accepted industry standards. This item has been determined to be acceptable.

(Closed) Open Item 313/79-17-01: Sequence of events and alarm status log.

The licensee has corrected the problems identified in this item by performance of Job Orders 5651 and 5662-79-3.

(Closed) Open Item 313/79-17-02: Breaker status in alarm status log.

The licensee has corrected the problem identified in this item by performance of Job Orders 5651 and 5662-79-3.

(Closed) Open Item 313/79-17-04; 368/79-15-02: Response time to QA audit findings.

Proposed revision 5 to the AP&L Quality Assurance Manual for Operations includes commitments concerning the timeliness of written responses to QA audit findings.

(Closed) Unresolved Item 313/79-21-03: Review a sample of IE Bulletin 79-14 inspection packages.

The licensee's contractor performed a review as requested by letter ANO-2-1618 dated September 26, 1979. The results of the review were reported in a letter to the licensee dated December 4, 1979.

(Closed) Open Item 313/79-21-04; 368/79-20-02: Issuance of revised on-site design control procedure.

The licensee has issued new procedures 1032.01, 1032.03 and 1000.13 covering on-site design control.

(Closed) Unresolved Item 368/79-21-05: CPC Delta-T, CPC Nuclear and Linear Power Adjustments.

The licensee revised the test program to include calibration of these power indications each time power level was changed or CEA configuration was changed for more than a few hours.

(Closed) Unresolved Item 313/79-23-02; 368/79-22-02: Documentation of Preventive Maintenance.

Documentation of completion of three safety systems preventive maintenance items was not included in the computerized print out of accomplished preventive maintenance. The inspector held discussions with the licensee and performed a review of Job Orders which indicated these preventive maintenance items had been performed. Reviewed by the inspector during this inspection revealed that these items are now being documented in the computer printout system, and based on these reviews this item is closed.

(Closed) Infraction 368/79-24-01; Infraction 368/80-02-01: Failure to adhere to test procedure.

The inspector reviewed the licensee's corrective action for these items and had no further questions.

(Closed) Open Item 313/80-02-02: Decay Heat Removal Operating Procedure Revision.

The licensee has issued revision 7 to Procedure 1104.04.

3. Surveillance (Units 1 & 2)

The inspector reviewed a sample of procedures for Technical Specification surveillance tests relating to each of the following areas:

- a. Reactivity Control and Power Distribution
- b. Instrumentation
- c. Reactor Coolant System
- d. Emergency Core Cooling System
- e. Containment Systems
- f. Plant and Electrical Power Systems
- g. Fire Protection/Prevention Systems
- h. Each of the major systems identified in the inservice inspection (ISI) program for pumps and valves.

For each of the surveillance test procedures reviewed, the inspector ascertained whether the procedures included the following:

- a. Prerequisites and preparations for test specified
- b. Acceptance criteria for test specified
- c. Instructions to ensure systems or components are restored to operation following testing.

Additionally, the technical content of the procedures was reviewed by the inspector to assure compliance with the requirements in the Technical Specifications or ISI program.

During the review of surveillance test data for the Unit 1 containment personnel hatch, the inspector noted that the documentation specified by Procedure 1304.23 for local leak rate testing the personnel hatch after use, in compliance with Technical Specification 4.4.1.2.5, did not exist for a number of personnel entries into the reactor containment building during June and October 1979. Technical Specification 4.4.1.2.5 states in part:

"If a personnel hatch or emergency hatch door is opened when reactor building integrity is required, the affected door seal shall be tested."

Technical Specification 3.6.1 states:

"Reactor building integrity shall be maintained whenever all three (3) of the following conditions exist:

- a. Reactor coolant pressure is 300 psig or greater.
- b. Reactor coolant temperature is 200^oF or greater.
- c. Nuclear fuel is in the core."

Contrary to the above, on June 20, 21, 22, and October 20, 1979, personnel entries were made into the Unit 1 reactor containment building when all three conditions were met requiring reactor building integrity and no test was conducted of the affected personnel hatch door seal. This is an apparent item of noncompliance with Technical Specification 4.4.1.2.5 (313/80-05-03)

The inspector witnessed four surveillance tests that were being performed during the week of March 3, 1980. This inspection included the following items:

- a. A review of the surveillance procedure for conformance to technical specification requirements.
- b. Verification that the test instrumentation was calibrated.
- c. Observation of portions of the removal of the system from service and confirmation that limiting conditions for operation were met.
- d. Observation of portions of the conduct of the surveillance test.
- e. A review of the test data for accuracy and completeness.
- f. Confirmation that surveillance test documentation was reviewed and test discrepancies were rectified.
- g. Verification that the test results met technical specification requirements.
- h. Verification that the surveillance schedule for this test was met.

During the performance of Surveillance Procedure 2304.100, Ex-Core Instrumentation Channel A Test, the inspector observed that an electronic circuit board had to be replaced in the Ex-Core Nuclear Instrumentation Safety Channel Drawer. The inspector noted that the administrative controls

for corrective maintenance were observed for the circuit board replacement. Additionally, the inspector noted that the new circuit board was aligned in accordance with the appropriate technical manual and that the appropriate steps of surveillance test 2304.100 were repeated with the new circuit board installed.

The inspector also noted that during the performance of the surveillance test on fire system valves in Unit 2, that the drawing for the fire system was not current and in two location valves were not numbered correctly. The discussions with the licensee indicated that the construction drawings were correct and the inplant drawing and valve numbers would be corrected when the modification to the turbine building and fire main were completed. This item will remain open until this action is verified by NRC to have been completed. (Open Item 368/80-05-04)

4. Power Ascension Test Witnessing (Unit 2)

During this inspection, the inspector witnessed the performance of the Integrated Unit Load Transient Test (2.800.01, Appendix U, Attachment U-7). The following items were verified by the inspector during the performance of this test:

- . Latest procedure revision in use
- . Minimum crew requirements met
- . Test prerequisites and initial conditions met
- . Test equipment calibrated
- . Procedure is adequate
- . Crew actions correct and timely
- . Adequate test coordination
- . Test data assembled for analysis
- . Acceptance criteria met (preliminary)
- . Licensee's preliminary evaluation is adequate

No items of noncompliance or deviations were identified.

5. Integrated Safeguards Test (Unit 2)

The inspector witnessed the performance of the Integrated Safeguards Test, 2105.03. During the performance of this test the following items were verified:

- a. Minimum crew requirements were met.
- b. Test prerequisites were completed.
- c. Special test equipment required by procedure was in service.
- d. The required data was recorded for analysis.
- e. The procedure with the latest revision was used by test personnel.
- f. The test was performed by qualified personnel.

The deficiencies identified by the licensee in the performance of 2105.03 in February 1980, were addressed in Job Order 5804. This job order directed the performance of portions of surveillance procedure 2304.87, Testing of ESF Time Delay Relays. Step 6.3.2.6 and numerous other steps in this procedure state, "If any of the measured values is outside of this range, readjust and verify repeatability in accordance with Supplement I." This supplement gives instructions for adjusting and retesting the time delay relays and for data recording and calculation of Repeat Accuracy. The licensee failed to adhere to the procedural requirements relating to the use of Supplement I during the performance of Procedure 2304.87, performed under Job Order 5804 on March 13, 1980. This is an apparent item of noncompliance (368/80-05-02). No written response to this item is required since the licensee issued a procedure change to delete Supplement I from this procedure and conducted appropriate maintenance supervisor training during the period of this inspection.

The inspector reviewed the results of Procedures 2105.03 and 2304.87 and compared them to the requirements of the Technical Specifications. Technical Specification 4.8.1.1.2.c.2 requires that each diesel generator shall be verified operable at least once per 18 months by "Verifying that the automatic sequence time delay relays are OPERABLE with the interval between each load block within $\pm 10\%$ of its design interval." The load block design intervals are obtained from the component start times given in Table 8.3-1 of the Final Safety Analysis Report. This table lists component start times as 5 seconds for Service Water (SW) Pumps, 10 seconds for High Pressure Safety Injection (HPSI) Pumps, and

and 15 seconds for Low Pressure Safety Injection (LPSI) Pumps. Thus the design intervals are 5 seconds between the SW and HPSI pumps and 5 seconds between the HPSI and LPSI pumps.

The inspector found that the as-left data from the Integrated Safeguards Test, 2105.03, performed on February 21, 1980, and from the Testing of ESF Time Delay Relays, 2304.87, performed on March 13, 1980, indicate that the interval between 2P89C (HPSI) and 2P60B (LPSI) was 4.38 seconds and the interval between 2P4B (SW) and 2P89C (HPSI) was 4.23 seconds.

This is an apparent item of noncompliance. (368/80-05-03). The inspector stated that it did not appear that the requirements of TS 4.8.1.1.2.c.2 could be met using procedure 2105.03 with its present acceptance criteria. This procedure gives the following required times:

2P4B	5 ± 0.5 seconds
2P89C	10 ± 0.5 seconds
2P60B	15 ± 0.5 seconds

The Agastat 7012 series electro-pneumatic time delay relays used in the system have a stated accuracy of ± 5% of the setpoint. This accuracy does not appear to give assurance that the TS requirement on timing interval can be met.

6. Follow-up on IE Bulletins (Units 1 & 2)

a. IE Bulletins 78-12, 78-12A, 78-12B (Unit 2)

These bulletins were issued on September 29, 1978, November 24, 1978, and March 19, 1979, respectively, for the purpose of verifying that atypical weld material was not supplied to vessel manufacturers other than Babcock and Wilcox and used in reactor pressure vessel fabrication. The licensee's letter to the Commission dated June 27, 1979, referenced a June 8, 1979 submittal to the Commission from Combustion Engineering (CE). This CE report was entitled, "Atypical Weld Material in Reactor Pressure Vessel Welds." The licensee has certified that the CE report addresses all of the applicable materials used in the fabrication of the ANO-Unit 2 reactor vessel.

b. IE Bulletin 79-07 (Units 1 & 2)

This bulletin was issued on April 14, 1979, and was entitled, "Seismic Stress Analysis of Safety-Related Piping." The licensee's letter of April 24, 1979, provided the required response to this bulletin.

c. IE Bulletin 79-09 (Unit 2)

This bulletin was issued on April 17, 1979, and was entitled, "Failures of GE Type AK-2 Circuit Breakers in Safety Related Systems." The licensee's response of June 22, 1979, stated that nine locations had been identified in ANO-2 where GE type AK-2A-25-1 circuit breakers were installed. The licensee's inspection procedure for these circuit breakers, Maintenance Procedure 2405.17 Revision 1, was issued on November 28, 1979. This procedure, entitled, "Reactor Trip System Breaker Inspection," is to be performed every refueling outage.

d. IE Bulletin 79-13 (Unit 1 & 2)

This bulletin, entitled, "Cracking in Feedwater System Piping," was issued on June 25, 1979. Revisions 1 and 2 to this bulletin were issued on August 30, 1979, and October 16, 1979. The licensee's responses to this bulletin were dated July 12, 1979, August 21, 1979, September 14, 1979, October 18, 1979, and November 29, 1979. The licensee concluded that the volumetric inspection requirements of the bulletin did not apply to ANO-1.

e. IE Bulletin 79-18 (Units 1 & 2)

This bulletin, entitled, "Auditability Problems Encountered on Evacuation of Personnel From High-Noise Areas," was issued on August 6, 1980. The licensee's responses to this bulletin were dated September 19, 1979, and October 10, 1979. The inspector has reviewed the licensee's actions taken in response to this bulletin.

f. IE Bulletin 79-21 (Units 1 & 2)

This bulletin, entitled "Temperature Effects on Level Measurements," was issued on August 13, 1979, and addressed the effect of increased containment temperature on the accuracy of various water level measuring systems inside the containment. The licensee's response of September 24, 1979, addressed the bulletin requirements and stated that correction factors would be made readily available to the operators of ANO-1 and 2 by November 15, 1979. As of March 20, 1980, the curves or correction factors had not yet been supplied to the unit operators as committed. This is an apparent deviation from a written commitment to the Commission. (313/80-05-01; 368/80-05-01)

g. IE Bulletin 79-23 (Units 1 & 2)

This bulletin was issued on September 12, 1979, and was entitled, "Potential Failure of Emergency Diesel Generator Field Exciter"

Transformer." The licensee's response, dated October 5, 1979, outlined the drawing review, the physical inspection, and the sustained full-load operation test history for the Unit 1 and 2 emergency diesel generators.

h. IE Bulletin 79-25 (Units 1 & 2)

This bulletin, dated November 2, 1979, discussed failures of Westinghouse BFD relays in safety-related systems. The licensee's response of December 12, 1979, stated that this type of relay is not used or planned for use in safety-related systems at ANO-1 or 2.

i. IE Bulletin 79-28 (Units 1 & 2)

This bulletin, dated December 7, 1979, was entitled, "Possible Malfunction of NAMCO Modle EA180 Limit Switches at Elevated Temperatures." The licensee's response, dated January 11, 1980, stated that none of this type of switches were used or planned for use in safety-related systems at ANO-1 or 2.

7. Exit Interviews

The inspectors met with Mr. J. P. O'Hanlon (Plant General Manager) and other members of the AP&L staff at the end of various segments of this inspection. At these meetings, the inspectors summarized the scope of the inspection and the findings.