

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

Report No. 50-313/78-06

Docket No. 50-213

License No. DPR-51

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

Facility Name: Arkansas Nuclear One, Unit 1

Inspection At: Arkansas Nuclear One Site, Russellville, Arkansas

Inspection Conducted: February 28-March 3 and March 27-31, 1978

Inspectors:

T. F. Westerman
T. F. Westerman, Reactor Inspector

4-17-78
Date

R. G. Spangler
R. G. Spangler, Reactor Inspector (Intern)
(March 27-31, 1978 Inspection only)

4/17/78
Date

Approved By:

R. E. Hall
R. E. Hall, Acting Chief, Reactor Operations &
Nuclear Support Branch

4/18/78
Date

Inspection Summary

Inspection on February 28-March 3 and March 27-31, 1978 (Report No. 50-313/78-06)

Areas Inspected: Routine, Unannounced inspection of refueling maintenance and testing, surveillance testing, plant operations, event reports, IE Bulletins and Circulars and previous inspection findings. The inspection involved fifty-eight (58) inspector-hours on-site by two (2) NRC inspectors.

Results: Of the seven areas inspected, no items of noncompliance or deviations were noted in five areas. Two items of noncompliance (Infraction - failure to meet posting requirements of 10 CFR 20, paragraph 5.b(1); Infraction - failure to follow procedure, paragraph 7.b(4)) were identified in two areas.

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DETAILS

1. Persons Contacted

L. Alexander, QC Engineer
J. Anderson, Plant Superintendent
T. Cogburn, Nuclear Engineer
R. Elder, I&C Supervisor
C. Halbert, Technical Support Supervisor
J. McWilliams, Planning and Scheduling
H. Miller, Assistant Plant Superintendent
W. Moon, Shift Supervisor
P. Jones, Maintenance Supervisor
J. Lohman, I&C Supervisor
J. Robertson, Assistant Operations Supervisor
L. Humpherey, QA Manager

The inspectors also talked with and interviewed several other licensee employees during the inspection. These included reactor operators and office personnel.

2. Licensee Action on Previous Inspection Findings

(Closed) Noncompliance (50-313/77-21): Failure to maintain procedures current as required by Facility Technical Specification 6.8.1. The inspector verified that Plant Procedures 1102.04 and 1004.12 have been revised and that Plant Procedure 1004.22 has been revised to provide administrative controls to prevent recurrence. Review of this failure to meet Facility Technical Specification by the off-site Safety Review Committee had not yet occurred and this issue will be carried as an unresolved item. (UR 7806-12)

(Closed) Open Item (7719-16): Support bolt nut missing and two anchor bolts extended from containment concrete. On reinspection of this item, the inspector found that the support bolt nut and anchor bolts are only associated with the working platform in the vicinity of the main steam line penetration into the containment and are not associated with any safety related supports. RIV plans no further action with respect to this matter.

(Closed) Open Item (7719-17): Visual inspection of main steam line inside the containment. The inspector conducted a visual inspection of the main steam lines from their penetration into the reactor building to the steam generators. The inspector found no evidence of hanger or support damage and/or repairs. There was no evidence of line movement.

(Open) Open Item (7719-18): Engineering evaluation of main steam line movement. The licensee's engineering organizations are in the process of assembling the required information. The inspector will continue to follow this item.

(Closed) Unresolved Item (7711-21): Feedback for vendor appraisal. This item was closed out in ANO Unit 2 inspection report 50-368/78-01.

(Closed) Open Item (7725-28): Inspection of selected fuel assemblies. The inspector verified that inspection of selected Cycle 2 fuel assemblies had been carried out in accordance with Work Plan #46 (2/22/78) entitled, "Inspection of Fuel Assemblies During Second Refueling."

(Closed) Open Item (7725-32): Update of Plant Procedure 1502.04. The inspector verified that Plant Procedure 1502.04 had been revised to reflect Cycle 3 core load conditions.

(Closed) Unresolved Item (7804-01): Acceptance criteria for the fuel hoist overload trips. The inspector verified that the licensee had obtained acceptance criteria from the fuel contractor for the fuel hoist overload trips.

3. Refueling Maintenance

a. Scope of Inspection

During the Cycle 3 refueling outage, selected maintenance activities were inspected. These activities included Inservice Inspection (ISI) of the steam generators, replacement of loop A decay heat valve and visual inspection/functional testing of hydraulic snubbers. The ISI of the steam generators (S/G) and the replacement of the loop A decay heat valve were inspected during IE Inspection 50-313/78-07 for in-process maintenance activities, and the overall administrative controls, return to service and reporting of deficiencies identified in this maintenance outage were reviewed during this inspection. The visual inspection/functional testing of the safety related hydraulic snubbers as prescribed by the ANO Unit 1 Facility Technical Specifications, Section 4.16, was inspected for all the aspects identified above during this inspection.

b. Inspection Findings

- (1) Each of the activities were found by the inspector to have been performed in accordance with properly approved maintenance job order/work request permits and procedures.

- (2) Deficiencies identified during the visual/functional testing of the hydraulic snubber and Steam Generator Inservice Inspection are being reported as Reportable Occurrences in accordance with ANO Unit 1 Facility Technical Specifications, Section 6.12.3. This includes the necessity to plug five "A" steam generator tubes due to wall thickness indications less than 40% of nominal tube wall thickness (RO 50-313/78-05), and the failure of four hydraulic snubbers to pass visual inspection due to low hydraulic oil level (RO 50-313/78-04). Reportable Occurrence RO 50-313/78-04 is also to be supplemented with the results of the functional testing of the hydraulic snubbers. All 77 of the safety related hydraulic snubbers failed to meet the lock-up and/or bleed rates specified in the ITT Grinnel Procedure "ITT Grinnel Shock and Sway Suppressor Filling, Purging and Calibration Procedure," Revision 4 (2/3/77). All 77 of the safety related hydraulic snubbers were successfully calibrated and returned to service.
- (3) Three additional snubbers associated with the pressurizer were identified and are being added to the safety related snubber list.

No items of noncompliance or deviations were identified.

4. Surveillance

a. Scope of Inspection

The inspector selected six surveillance procedures and reviewed them to determine:

- (1) that the procedure format conforms to accepted standards such as ANSI N18.7;
- (2) that the technical content of the procedures is sufficient to achieve the desired results;
- (3) that the test records are sufficient to determine that the procedural requirements were met; and
- (4) that the test results are reviewed by an individual other than the tester or test director.

b. Findings

The following six activities were selected for review:

<u>Procedure</u>	<u>Title</u>	<u>Frequency</u>
1103.15	Reactivity Anomalies	10 EFPD
1304.34	Incore Detector Functional Checks	Monthly
1304.22	Pressurizer Level Channel Checks	Refueling
1104.04	LPI Pumps - Sup. I	Quarterly
1104.05	Reactor Building Spray Pumps - Sup. V	Quarterly
1304.90	Off-Site UV and Protective Relay Check	Weekly

The inspector was able to witness the performance of Procedure 1304.90. Within the areas noted in 'a' above, no discrepancies were found. In addition to the above, the inspector determined by comparing the tables from Procedure 1004.12, "Operational Control," to eight different surveillance schedules or log sheets that surveillance activities are apparently being scheduled as required by Technical Specifications.

No items of noncompliance or deviations were identified.

5. Review of Plant Operations

a. Scope of Inspection

The inspector reviewed the following shift logs and operating logs for completeness and staff review:

- . Station Log (3/8-29/78)
- . NSS and Safeguard Auxiliary Log (3/1-27/78)
- . ESAS Log (3/1-27/78)
- . Standing Orders
- . Jumper Bypass Log
- . Trouble Reports

The inspector conducted a tour of accessible areas, including observations (as appropriate) of the following:

- . Monitoring Instrumentation
- . Radiation Controls
- . Plant Housekeeping

- . Fluid Leaks
- . Piping Vibrations
- . Pipe Hanger/Seismic Restraint
- . Selected Valve Position and Equipment Control Switches
- . Lockout Tags
- . Lighted Annunciators
- . Plant Tours
- . Control Room Manning

b. Inspection Findings

- (1) The inspector identified one apparent item of noncompliance during the tour of accessible areas. The inspector found that the door into the lower north electrical penetration was not properly posted as a radiation area as required by 10 CFR 20.207. This room contained an irradiator with a 100 millicurie Cs¹³⁷ source which was in use at the time. The licensee stated that the radiation field was approximately 100 mRem at one foot. The inspector did find a radiation area sign posted on the inside of the closed door.
- (2) The licensee had taken steps within the reactor building to clean up the boric acid accumulation due to valve leaks. There are still areas in the auxiliary building such as the upper north piping penetration room where boric acid accumulation still is evident.
- (3) The inspector noted that numerous channels of system heat tracing were alarmed. The plant operator cleared all but one alarm by pushing the reset button. The inspector stated to licensee operations personnel that the practice of leaving this panel in an alarm condition is a questionable practice.
- (4) General housekeeping in the auxiliary building had improved from the previous inspection (IR 50-313/78-04). The cable spreading room contained a significant accumulation of trash from the refueling outage. The room was cleaned out prior to the completion of this inspection.
- (5) Two open barrels of boron were noted in the auxiliary building storage area. The licensee stated that the barrels would either be removed and/or sampled and resealed.

6. Refueling Outage Testing

a. Scope of Inspection

- (1) The inspector verified that plans existed to do the following tests following the refueling outage:

- . Primary Leak Test
 - . 1304.35 Control Rod Drive Trip Test (PC-2)
 - . 1304.36 Control Rod Drive Post Refueling Integrated Test
 - . 1302.03 Periodic Calibration of Incore Detectors
 - . 1304.48 Core Power Distribution
 - . 1302.05 Core Power Distribution
 - . 1302.04 Power Imbalance Detector Correlation Test
 - . 1304.32 Power Range Linear Amplifier Calibration at Power
 - . 1304.34 Incore Monitor Functional Check & Backup Recorder Calibration
 - . 1103.16 Heat Balance Calculation
 - . 1103.15 Reactivity Balance Calculation
 - . 1302.08 Control Rod Reactivity Measurements
 - . 1302.06 Determination of Reactivity Coefficients
 - . 1302.07 Determination of Critical Boron Concentration
 - . 1302.10 Ejected Rod Worth Measurement
 - . 1302.13 Sequence for Physics Testing Following Refueling
- (2) The inspector verified that Amendment 13 to the Facility Operating License, DRN-51, had been received on-site. This amendment authorizes and modifies the Technical Specifications for Core Load Cycle 3.

b. Inspection Findings

- (1) Procedure 1322.13, "Sequence of Physics Testing Following Refueling," was in the process of being updated for Cycle 3.
- (2) Procedure 1103.15, "Reactivity Balance Calculation," is to be incorporated into Procedure 1302.13.

- (3) The review of selected test results by the inspector will be conducted at subsequent inspections.

No items of noncompliance or deviations were identified.

7. Review of Event Reports

a. Scope of Inspection

The following 30-day Licensee Event Reports were reviewed in the Regional Office and no further questions remain at this time:

RO 50-313/77-17	RO 50-313/77-25
RO 50-313/77-18	RO 50-313/77-26
RO 50-313/77-20	RO 50-313/77-27
RO 50-313/77-21	RO 50-313/78-02
RO 50-313/77-23	RO 50-313/78-03
RO 50-313/77-24	RO 50-313/78-04

The following 14-day Licensee Event Reports were reviewed on-site for accuracy, safety significance, Facility Technical Specification reporting requirements, corrective action, generic implication, licensee review, and internal notification of licensee personnel.

RO 50-313/77-19
RO 50-313/77-22
RO 50-313/78-01

b. Inspection Findings

- (1) Thirty day Reportable Occurrences 50-313/77-21, 77-27 and 78-02 were submitted in excess of the 30 days specified in Facility Technical Specifications, Section 6.12.3.2. The licensee has identified the late reports (AP&L letter of 2/23/78 to RIV, and phone calls of 1/19/78 and 1/22/78 to RIV) and is initiating corrective action to prevent recurrence. The licensee's corrective action has been in the form of an in-plant memo to supervisory personnel and in better coordination between the plant and the Little Rock Home Office of AP&L. This issue will continue to be reviewed as a part of the ongoing RIV inspection activities.
- (2) The Off-Site Safety Review Committee (SRC) had not reviewed RO 50-313/77-22 at the time of this inspection. This item is considered unresolved. (UI 7806-12)

- (3) The licensee was informed by the inspector that RO 50-313/78-01 was incorrectly identified in the January 19, 1978 AP&L letter transmission and on the NRC Form 366 as RO 50-313/77-01. A corrected update has been requested by the inspector.
- (4) The inspector, in review of the licensee's commitment in RO 50-313/78-01 to maintain the Boric Acid Addition Tank (BAAT) at volume and concentration in excess of 756 cubic feet and 8700 ppm, found that on February 3, 1978 the BAAT was allowed to go below this volume and concentration. The NSS and Safeguard Auxiliary Log for February 3, 1978 indicated on February 3, 1978 on the 0800-1600 watch, that the BAAT was 44 inches with a 537°F average primary coolant temperature and on the 1600-2400 watch, the BAAT was 39 inches with a 285°F average primary coolant temperature. Plant Procedure 1104.03, "Chemical Addition," Revision 5 (January 6, 1978), Section 4.2, states in part, "The boric acid addition tank shall contain at least the equivalent of 756 ft³ (64") at 8700 ppm acid solution per Attachment 6," The last boric acid concentration in the BAAT was recorded on February 2, 1978 in the Reactor Coolant System Liquid Addition Data Sheet as 12,026 ppm. The equivalent tank level required per Attachment G was 47 inches for this concentration. The inspector noted that there was one other occasion, on March 24, 1978, when the BAAT level was recorded as 54 inches with an average primary coolant temperature of 288°F and a concentration of 9952 ppm acid concentration. The equivalent tank level required per Attachment G was 56 inches for this concentration. The licensee stated that the 44 inch level on February 3, 1978 and 54 inch level on March 24, 1978 was subject to some error in interpretation of the Attachment G curve. The 38 inch level on February 3, 1978 was clearly less than the level allowed by Plant Procedure 1104.03, Attachment G. The plant was cooled down at that time to 285°F and the shutdown margin was approximately 9%. The inspector stated that this was an item of noncompliance with the Facility Technical Specification, Section 6.8.1, which requires that, "Written procedures shall be . . . implemented"

Facility Technical Specifications have been proposed by the licensee to establish new limits for the BAAT (level and concentration) during core Cycle 3. In the interim, the

licensee is restricting BAAT level and concentration to the equivalent of 68"/8700 ppm for conditions greater than hot shutdown, and 47"/8700 ppm for hot shutdown and below. These levels and concentrations are consistent with the B&W calculations for Core Cycle 3.

- (5) The inspector verified that the Phase 2 ^{1/} corrective action associated with RO 50-313/77-19 had been completed. RO 50-313/77-19 was concerned with a ventilation inadequacy during accident conditions. Phase 3 (Permanent Corrective Actions) is still under discussion between AP&L and NRR. RIV will follow up on the Phase 3 corrective action during subsequent inspections.

8. IE Bulletins/Circulars

a. Scope of Inspection

- (1) The inspector reviewed recent IE Bulletins/Circulars for:

- . Proper dissemination and review for applicability
- . Completeness of reply (when required)
- . Corrective Action
- . Promptness of reply

b. Inspection Findings

- (1) The status of IE Bulletins reviewed is as follows:

IE Bulletin 77-04 (pH Control Following LOCA)

The information requested in this Bulletin has been submitted to NRR. Further RIV follow-up is pending NRR review.

IE Bulletin 77-05/05A (Electrical Connector Assemblies)

This Bulletin is considered closed. Plant protective systems at ANO Unit 1 are not of the pin and socket, metal shell, screwed type.

IE Bulletin 77-06 (Containment Electrical Penetrations)

This Bulletin is considered closed. Penetrations at ANO Unit 1 do not use an epoxy sealant.

^{1/} AP&L letter to NRR dated 12/21/77 outlines the Phase 2 corrective actions that have been taken.

IE Bulletin 78-01 (CR 120A GE Relays)

The licensee's response has been delayed until May 1, 1978.

IE Bulletin 78-02 (Terminal Block Qualification)

This Bulletin is considered closed. There are no unprotected terminal blocks in ANO, Unit 1.

IE Bulletin 78-04 (Environmental Qualification of Stem Mounted Limit Switches)

This Bulletin is considered closed. There are no NAMCO 02400X or EA-170-302 snap lock switches installed in ANO, Unit 1.

(2) The status of IE Circulars reviewed is as follows:

IE Circular 77-14 (Separations of Contaminated/Non-Contaminated Systems)

This Circular is still under internal licensee review.

IE Circular 77-15 (Emergency Diesel Fuel Oil Flow)

This Circular is considered closed. The operating capacity of fuel oil transfer pump has been verified during surveillance testing. Preventive maintenance has included cleaning of associated fuel filters.

IE Circular 77-16 (Emergency Diesel Trip Locked Out Features)

This Circular is still under internal licensee review.

There were no items of noncompliance or deviations identified.

9. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, items of noncompliance, or deviations. One Unresolved Item was identified during this inspection. (UR 7806-12 - See paragraph 7 of this report.)

10. Exit Interview

Exit interviews were conducted on March 3 and 27, 1978 with Mr. J. Anderson and other members of the plant staff. During these interviews, the inspector discussed the scope of the inspection and resultant findings, including the apparent items of noncompliance (paragraphs 5.b(1) and 7.b(4) of this report) and the unresolved item (7806-12, paragraph 7 of this report).