

APPENDIX B

U. S. NUCLEAR REGULATORY COMMISSION
REGION IV

Inspection Report: 50-313/88-10
50-368/88-10

Licenses: DPR-51
NPF-6

Dockets: 50-313
50-368

Licensee: Arkansas Power & 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: March 28 through April 30, 1988

Inspectors: W.D. Johnson 5/5/88
W. D. Johnson, Senior Resident Reactor Inspector Date

R. C. Haag 5/5/88
R. C. Haag, Resident Reactor Inspector Date

Approved: Dwight D. Chamberlain 5/20/88
D. D. Chamberlain, Chief, Reactor Project Section A, Division of Reactor Projects Date

Inspection SummaryInspection Conducted March 28 through April 30, 1988 (Report 50-313/88-10)

Areas Inspected: Routine, unannounced inspection including operational safety verification, maintenance, surveillance, and followup on previously identified items.

Results: Within the four areas inspected, one deviation was identified (failure to take action as committed in response to a violation, paragraph 2).

Inspection Conducted March 28 through April 30, 1988 (Report 50-368/88-10)

Areas Inspected: Routine, unannounced inspection including operational safety verification, maintenance and surveillance, complex surveillance, followup on previously identified items, and followup on an allegation.

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

DETAILS1. Persons Contacted

- J. Levine, Executive Director, ANO Site Operations
- B. Baker, Plant Modifications Manager
- T. Baker, Technical Support Manager
- E. Bickel, Health Physics Superintendent
- M. Bolanis, Health Physics Specialist
- A. Cox, Unit 1 Operations Superintendent
- E. Ewing, General Manager, Technical Support
- J. GoBell, Mechanical Maintenance Engineer
- *L. Gulick, Unit 2 Operations Superintendent
- C. Halbert, Engineering Supervisor
- H. Hollis, Security Superintendent
- D. Howard, Licensing Manager
- *L. Humphrey, General Manager, Nuclear Quality
- *R. Lane, Engineering Manager
- *D. Lomax, Plant Licensing Supervisor
- A. McGregor, Engineering Services Supervisor
- J. McWilliams, Maintenance Manager
- *P. Michalk, Licensing Engineer
- V. Pettus, Mechanical Maintenance Superintendent
- D. Provencher, Quality Assurance Supervisor
- *S. Quennoz, General Manager
- P. Rogers, Special Projects Coordinator
- C. Taylor, Unit 2 Operations Technical Support Supervisor
- J. Taylor-Brown, Quality Control Superintendent
- L. Taylor, Special Projects Coordinator
- J. Teeter, Operations Technical Support
- J. Vandergrift, Operations Manager
- *J. Waxenfelter, Shift Maintenance Superintendent

*Present at exit interview.

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

2. Followup on Previously Identified Items (Units 1 and 2)

- a. (Closed) Oper. Item 313/8620-03; 368/8621-03: Development of a quality control (QC) inspector training program.

The licensee has established and filled a QC lead trainer position. A training program for contractor QC inspectors has been developed and implemented. This program includes screening exams, general employee training, contractor QC inspector indoctrination (approximately 40 hours), performance evaluations for contractor QC inspectors, and continuing training. In addition, contractor welding inspectors and visual inspectors receive specialized training in these areas. For licensee QC inspectors an initial training program

had been developed and implemented. This initial QC indoctrination course requires approximately 6 days. Training programs for licensee QC inspectors in the areas of welding and visual inspections have been developed and approved. These courses each require approximately 2 weeks. Training programs for licensee QC inspectors in the areas of instrumentation and controls, mechanical, and electrical are being developed. These programs are expected to be approved and implemented in 1989.

This item is closed.

- b. (Closed) Open Item 368/8615-09: Use of local gage for pump testing data.

Procedure 2104.39, Supplements 1, 2, and 3 have been revised to specify the use of the local pump discharge pressure gage for calculation of high pressure injection pump differential pressure.

This item is closed.

- c. (Closed) Violation 313/8618-01; 368/8619-01: Failure to submit annual reports as required by 10 CFR 50.59.

The 1985 report was submitted on September 18, 1986. The 1986 report was submitted on August 15, 1987. The licensee has developed methods to ensure timely submittal of these reports as required.

This item is closed.

- d. (Closed) Violation 368/8627-01: Failure to respond to emergency diesel generator annunciator alarm.

The NRC inspector reviewed the licensee's corrective actions for this violation. These included counseling the operator, discussion of the incident in operator requalification training, revision of Procedure 2104.36, and revision of Drawing M-2217, Sheet 2. These actions appear to be sufficient to prevent recurrence of the violation.

This item is closed.

- e. (Open) Unresolved Item 313/8601-06: Errors on Piping and Instrumentation Diagrams (P&IDs)

This unresolved item was later identified as a violation not assessed a civil penalty in the Notice of Violation and Proposed Imposition of Civil Penalty dated November 12, 1986. For tracking and closure purposes, the unresolved item 8601-06 designation is being maintained.

The identified errors have been corrected as was documented in NRC Inspection Report 313/8713. The licensee's further response to the NRC on this item, dated October 1, 1987, addressed how valve positions would be depicted on P&IDs. This letter stated that a convention would be established and documented in plant procedures by December 31, 1987. P&IDs which had valve position depictions which were not in accordance with the new convention would be corrected during the normal revision process. During followup on this item, the NRC inspector found that the licensee had not yet established a valve position convention for P&IDs as of April 20, 1988. This is an apparent deviation from a written commitment to the NRC. (313/8810-01)

3. Operational Safety Verification (Units 1 and 2)

The NRC inspectors observed control room operations, reviewed applicable logs, and conducted discussions with control room operators. The NRC inspectors verified the operability of selected emergency systems, reviewed tagout records and verified proper return to service of affected components, and ensured that maintenance requests had been initiated for equipment in need of maintenance. The NRC inspectors made spot checks to verify that the physical security plan was being implemented in accordance with the station security plan. The NRC inspectors verified implementation of radiation protection controls during observation of plant activities.

The NRC inspectors toured accessible areas of the units to observe plant equipment conditions, including potential fire hazards, fluid leaks, and excessive vibration. The NRC inspectors also observed plant housekeeping and cleanliness conditions during the tours.

The NRC inspectors walked down the accessible portions of the Unit 1 high pressure injection system to verify operability. The walkdown was conducted using Procedure 1104.02, Attachment A and P&ID M-231. During the walkdown, several minor discrepancies which did not adversely affect system operability were identified. The licensee was informed of the following items so corrective action could be taken in conjunction with their ongoing program for P&ID/procedure upgrades.

- . Caps were missing from the following vent or drain line: MU-1020B, MU-1021B, MU-1023B and MU-1018B.
- . MU-60, 61, and 62 were not shown on P&ID M-231.
- . PI-1242 and PI-1241 appeared to be failed upscale.
- . PI-1242A was not installed.
- . Several locked valves were not indicated as locked in Procedure 1104.02, Attachment A: BW-2 and 3, MU-18A, 18B, and 18C, MU-20A, 20B, and 20C.

- . Procedure 1104.02, Attachment A, indicated that drain line valves MU-1019A and B, MU-1021A and B, and MU-1023A and B were downstream of MU-20A, B, and C, respectively. The drain lines including these valves are located upstream of MU-20A, B, and C.
- . The labels on drain valves MU-1018A and B, and MU-1019A and B conflict with P&ID M-231 with respect to which drain line is upstream.
- . The cap on MU-1019B was loose.
- . Procedure 1104.02, Attachment A, indicated that MU-64 was located in the lower north piping room, but the valve is located in the upper north piping penetration room.
- . LO-3883 and LO-3885 should be listed with the C makeup pump room valves in Procedure 1104.02, Attachment A.

The NRC inspector toured the Unit 2 reactor building on April 26, 1988, in anticipation of reactor building closeout. The cleanup effort in the reactor building appeared to be near completion. While observing housekeeping activities in the south cavity, the NRC inspector noticed a questionable radiological work practice. Workers were cleaning up debris from a concrete platform that surrounds the mid-level of the pressurizer with rags using a sweeping motion. This activity created a large amount of dust in the general area. The workers wore respirators, however, the area was not posted as requiring respirators for entry. Upon exiting the area, the NRC inspector questioned the health physics technician covering the south cavity concerning the cleaning activity. The technician had given approval to use wet rags during the cleanup. The NRC inspector did not verify the use of wet rags. The NRC inspector was concerned whether sufficient controls were in place to assure proper radiological posting. The NRC inspector discussed this concern with the health physics superintendent. The superintendent stated that, while the sweeping of debris is not a normal practice in a radiologically controlled area, there were controls in place for periodic air samples in the cavities to monitor this type of activity.

These reviews and observations were conducted to verify that facility operations were in conformance with the requirements established under Technical Specifications, 10 CFR, and administrative procedures.

No violations or deviations were identified.

4. Monthly Surveillance Observation (Units 1 and 2)

The NRC inspector observed the Technical Specification (TS) required surveillance testing on the Unit 1 steam driven emergency feedwater pump (Procedure 1106.06, Supplement II) and verified that testing was performed in accordance with adequate procedures, that test instrumentation was calibrated, that limiting conditions for operation were met, that removal

and restoration of the affected components were accomplished, that test results conformed with TS and procedure requirements, that test results were reviewed by personnel other than the individual directing the test, and that any deficiencies identified during the testing were properly reviewed and resolved by appropriate management personnel.

The NRC inspector also witnessed portions of the following test activities:

- Calibration of Unit 1 N16 monitor (Procedure 1304.021, Job Order 752977)
- 18-month operational test of emergency diesel generator (Procedure 2104.36, Supplement 4)
- Monthly Reactor Protection System (RPS) Channel C Test (Procedure 1304.039). The NRC inspector observed several of the RPS parameter tests, including reactor power, reactor building pressure, and reactor coolant pump status. Documentation and evaluation of equipment found out of tolerance were also reviewed.
- Overspeed trip test of Emergency Feedwater Pump 2P7A Turbine (Procedure 2106.06, Supplement VI). This test is performed each refueling outage and following maintenance on the overspeed trip mechanism. The turbine was uncoupled from the pump during the test. The initial attempt to perform the test was unsuccessful due to the electrical leads on the turbine speed controller (2HIC-0336-02) being reversed. Calibration of the controller during the outage required temporary lifting of these electrical leads. The licensee is revising Procedure 2304.128 "2P7A Speed Control Calibration" to provide positive identification of electrical leads for reconnection. Following correction of the speed controller, the turbine operated successfully, however an overspeed trip did not occur in the required range of 4420-4520 RPM. The overspeed trip adjustment was made (Job Order 756542) and three consecutive overspeed trips were obtained. The NRC inspector will review the licensee's control of lifted leads for calibration activities during future inspections to assess program adequacy in this area.

No violations or deviations were identified.

5. Monthly Maintenance Observation (Units 1 and 2)

Station maintenance activities of safety-related systems and components listed below were observed to ascertain that they were conducted in accordance with approved procedures, Regulatory Guides, and industry codes or standards; and in conformance with the TSs.

The following items were considered during this review: the limiting conditions for operation were met while components or systems were removed from service; approvals were obtained prior to initiating the work;

activities were accomplished using approved procedures and were inspected as applicable; functional testing and/or calibrations were performed prior to returning components or systems to service; quality control records were maintained; activities were accomplished by qualified personnel; parts and materials used were properly certified; radiological controls were implemented; and fire prevention controls were implemented.

Work requests were reviewed to determine the status of outstanding jobs and to ensure that priority is assigned to safety-related equipment maintenance which may affect system performance.

The following maintenance activities were observed:

- . Replacement of scavenging air blower on emergency diesel generator 2K4B (Procedure 2406.83, Job Order 754147)
- . Removal of cooling coil from room cooler 2VUC-11B (Job Order 744713)
- . Testing of control room switches following Design Change 87-2060 (Work Plan 2409.125)
- . Replacement of emergency diesel generator oil cooler bypass temperature control valve (Job Order 751214)
- . Inspection of Check Valve 2EFW-2B (Job Order 752737, Procedure 2402.97)
- . Adjustment of governor for emergency diesel generator (Job Order 755348)
- . Installation of motor for Containment Cooling Fan VSF-1A
- . Installation of pipe supports for the pressurizer spray line (Job Order 733936)
- . Stress walkdown by engineers inspecting five pipe supports installed by Design Change 82-2072
- . Installation of intercell and intertier straps on Station Battery 2D11 (Job Order 754513)
- . Calibration of Electro-pneumatic Converter 2E/P-1001 for steam generator Atmospheric Relief Valve 2CV-1001 (Job Order 747299)
- . Repair of Lube Oil Cooler E39C for Make Up Pump P36C (Job Order 755457) due to water in the lube oil. A liquid nitrogen freeze seal was used for isolation. After the service water was isolated the leakage in the cooler could not be determined. The licensee has made other attempts to locate the cooler leakage, however, they have not been successful. The resident inspector will continue to monitor this repair effort.

The NRC inspector observed establishment of the freeze seal per Special Work Plan 1406.45. A safety precaution in the plan requires a dropcloth to protect surrounding equipment, piping and personnel from accidental overflow of liquid nitrogen, however, no dropcloth was installed. Liquid nitrogen was slowly dripping from the freeze seal exhaust (the method of controlling nitrogen to the freeze seal) onto the service water pipe then falling to the floor. When questioned by the NRC inspector the freeze seal technician stated that a dropcloth was not needed since there was not any susceptible equipment in general area of the freeze seal. The licensee should review this practice and consider that a drop cloth will not only provide protection from an accidental overflow of nitrogen but also protect personnel during routine freeze seal operation.

During outage maintenance the licensee discovered a new Rosemount Model 1154 transmitter with the electrical housing rotated with respect to the sensor module. Rosemount Instruction Manual IM4388 contains a caution stating not to break the neck seal between the sensor module and the electronic housing. In response to questions by the licensee, Rosemount stated they could not guarantee environmental qualification of the transmitter with a housing that had been rotated. The licensee identified Rosemount Transmitter Model 1153D as having similar concerns as Model 1154.

Sixteen transmitters in Unit 2 were identified with rotated housings. A 60 psi pressure decay test was applied to each transmitter, with two transmitters exhibiting a decay in the initial test pressure. The housing seals for these transmitters were remade and a subsequent pressure test was successful. For Unit 1, 19 transmitters were found to have rotated housings. Five transmitters in the reactor building were pressure tested with no leakage identified. The licensee plans to test the transmitters located in the auxiliary building. The licensee prepared five justifications for continued operation for those transmitters in the Unit 1 reactor building which were not tested or not accessible for inspection due to radiological concerns. The resident inspector will continue to review the licensee's actions in this area.

No violations or deviations were identified.

6. Complex Surveillance (Unit 2)

This inspection was conducted to determine whether functional testing of more complex safety-related systems and subsystems is in conformance with regulatory requirements and applicable industry guides or standards. Procedure 2305.01, "Integrated Engineering Safeguards Test," was reviewed for compliance with the applicable TS.

The NRC inspector observed performance of the test from the control room. The following key factors were verified during the tests:

- . The size of the crew was sufficient for actions required during testing and data retrieval.
- . Calibration of test equipment was current.
- . Test prerequisites were completed.
- . The test coordinator was knowledgeable of test requirements and maintained proper control of the test.

Following the test, affected systems and components were returned to their normal configuration as stated in Procedure 2305.01. The NRC inspector verified the recorded data (starting times of various ESF components) met the FSAR requirements. Test discrepancies and components not included in the test due to maintenance were listed on the discrepancy list in the procedure. The NRC inspector reviewed the resolution and retest records and verified that items on the discrepancy list were resolved with the exception of a ventilation damper. This item will require subsequent repair and retest. The NRC resident inspector will review the licensee's action for this item.

No violations or deviations were identified.

7. Followup on Allegation 4-88-A-0033 (Unit 2)

On April 19, 1988, the NRC inspector received an allegation that material was being removed from the Unit 2 containment without being surveyed by health physics technicians.

Due to the possible severity of this allegation, the NRC inspector discussed this matter with licensee personnel. They stated that material was being removed from containment through the equipment hatch in preparation for the containment integrated leak rate test. Due to time constraints, the material was not being surveyed, but was being transferred as contaminated material to a trailer. This was performed in a manner to prevent the spread of contamination and maintain control over the material. Subsequently, the material was surveyed, decontaminated as required, and disposed of or released for reuse.

The allegation was substantiated, but no violations or deviations were identified.

8. Exit Interview

The NRC inspectors met with Mr. S. M. Quennoz, General Manager, and other members of the AP&L staff at the end of inspection. At this meeting, the inspectors summarized the scope of the inspection and the findings.