

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

Reports: 50-313/81-11
50-368/81-10

Licenses: DPR-51
NPF-6

Licensee: Arkansas Power and Light Company
Post Office 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 22 - April 21, 1981

Inspector: *D M Hunnicutt* 5/13/81
for W. D. Johnson, Senior Resident Inspector Date
Project Section 2

D M Hunnicutt 5/13/81
for L. J. Callan, Resident Inspector Date
Projects Section 2

Approved: *D M Hunnicutt* 5/13/81
D. M. Hunnicutt, Chief, Reactor Projects Section 2 Date

Inspection Summary

Inspection Conducted During Period of March 22 - April 21, 1981 (Report 50-313/81-11)

Areas Inspected: Routine, announced inspection including surveillance observation, maintenance, follow-up on IE Bulletin 80-12, operational safety verification, emergency exercise, startup testing after Refueling, and follow-up on NRC Order of April 20, 1981.

The inspection involved 134 inspector hours on site by two NRC inspectors.

Results: Of the seven areas inspected, one apparent violation was identified (Administrative control of plant drawings, paragraph 3).

Inspection Conducted During Period of March 22 - April 21, 1981 (Report 50-368/81-10)

Areas Inspected: Routine, announced inspection including operational safety verification, surveillance observation, maintenance, follow-up on IE Bulletin 80-12, emergency exercise, inspection during long-term shutdown, refueling activities, preparation for refueling, and follow-up on previously identified items.

The inspection involved 87 inspector hours on site by two NRC inspectors.

Results: Of the nine areas inspected, three apparent violations were identified in three areas (Failure to follow procedures, paragraph 3; failure to station a fire watch, paragraph 11; failure to follow procedures during refueling, paragraph 12).

DETAILS SECTION1. Persons Contacted

J. P. O'Hanlon, ANO General Manager
 G. H. Miller, Engineering & Technical Support Manager
 B. A. Baker, Operations Manager
 T. N. Cogburn, Plant Analysis Superintendent
 E. C. Ewing, Plant Engineering Superintendent
 L. Sanders, Maintenance Manager
 J. McWilliams, Unit 1 Operations Superintendent
 J. Albers, Planning and Scheduling Supervisor
 D. D. Snellings, Technical Analysis Superintendent
 P. Collopy, Health Physics Consultant to ANO
 L. A. Taylor, Operations Technical Engineer
 G. Halverson, Assistant Health Physics Supervisor
 R. Green, Assistant Health Physics Supervisor
 R. Pool, Radioactive Waste Coordinator
 D. Lomax, Nuclear Engineer
 A. Halverson, Assistant Office Services Supervisor
 P. Rogers, Nuclear Support Supervisor
 L. Humphrey, Administrative Manager
 M. Bishop, Office Services Supervisor
 B. Austin, Assistant Office Services Supervisor
 D. Hamblen, Quality Control Inspector
 L. Schempp, Manager of Nuclear Quality Control
 M. Bolanis, Health Physics Supervisor
 T. Pugh, Emergency Planning Coordinator
 C. Shively, Plant Performance Supervisor

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

2. Followup on Previously Identified Items (Unit 2)

(Closed) Unresolved Item 368/7906-04: Reviews by Safety Review Committee.

This committee now reviews all licensee event reports and reviews Quality Assurance and Quality Control audit and inspection reports as recommended by the Manager of Quality Assurance.

(Closed) Open Item 368/8003-03: Valve monitoring system operating procedure.

Operating Procedure 2105.11, Relief Valve Monitoring System Operation, was issued on March 3, 1981.

(Closed) Open Item 368/8005-04: Fire system valves.

The inspector will not track this item further as plant administrative procedures are adequate to assure that the identified discrepancy is corrected.

(Closed) Open Item 368/8006-04: Discrepancies in Attachment A of operating Procedure 2106.06.

This item has been corrected by a procedure change which added new sheets 2 through 6 to this checklist.

(Closed) Open Item 368/8006-05: Capping containment isolation valve test connections.

The licensee has added Appendix F to operating procedure 2102.01. This penetration checklist is performed prior to entering Mode 4 after an outage and is used to verify that caps are installed on pressure points, drains and vents that are located upstream of the outside containment isolation valve.

(Closed) Violation 368/8021-05: Failure to lock valve 2SW-17C.

The inspector has reviewed the licensee's corrective action for this item and considers it appropriate.

3. Operational Safety Verification (Units 1 and 2)

The inspectors observed control room operations, reviewed applicable logs and conducted discussions with control room operators. The inspectors verified the operability of selected emergency systems, reviewed tagout records and verified proper return to service of affected components. Tours of accessible areas of the units were conducted to observe plant equipment conditions, including potential fire hazards, fluid leaks, and excessive vibrations and to verify that maintenance requests had been initiated for equipment in need of maintenance. The inspectors, by observation and direct interview, verified that the physical security plan was being implemented in accordance with the station security plan.

The inspectors observed plant housekeeping/cleanliness conditions and verified implementation of radiation protection controls. The inspector walked down the accessible portions of the Unit 1 Channels A, B, C, and D Emergency Safeguards and Reactor Protective Systems 120VAC electrical distribution; Unit 1 Train; A and B Emergency Feedwater; Unit 1 MCC's A3, A4, B51, B52, B53; and Unit 1 Diesel Generator air start systems and service water supply system to verify operability. The inspector also witnessed portions of the radioactive waste system controls associated with radwaste shipments and barreling.

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. (See attachment).

During a tour of the Unit 2 Control Room on March 30, 1981, the NRC inspector noted that all three of the Charging Pump hand switches were selected to the "AUTO" position. At the time of this observation, Unit 2 was shutdown and the Reactor Coolant System (RCS) temperature was approximately 150°F, and, therefore, the licensee was required by Step 8.29 of Plant Operating Procedure 2102.10, Plant Shutdown and Cooldown, to have implemented Low Temperature Overpressure (LTOP) protection. Step 8.29 of Plant Procedure 2102.10 states, "When RCS temperature is 200°F, disable and lock out all HPSI Pumps, Containment Spray Pumps, and all but (1) Charging Pump, and caution tag HPSI and Charging Pump handswitches to prevent inadvertent operation as required for LTOP protection." Although Step 8.29 had been initialed complete and the Charging Pump hand switches had been caution tagged, two of the three Charging Pump hand switches were not selected to the "STOP" position which would have disabled the Charging Pumps as required. This constitutes an apparent violation (368/8110-1).

While reviewing piping and instrumentation drawings (P&IDs) in the Unit 1 Control Room, the NRC inspector observed that several drawings had not been marked to indicate certain pending design changes although the design changes were known to have been implemented. Administrative Procedure 1000.13, Control of the Station Modifications, requires that upon issuance of the test copy of a Design Change Package (DCP), Plant Engineering shall mark the first generation sepias of the plant drawings to indicate those portions of the drawings affected by the design change. Affected areas are to be circled (bubbled) and "DCP No. _____ Pending" is to be entered in the revision block. Drawings, thus revised are to be distributed within the plant. The intent of the procedure is that the revised drawings be distributed within several days after DCP test copy issuance. As of March 25, 1981, the below listed P&IDs in the Unit 1 Control Room were not marked to indicate pending design changes:

<u>P&ID No.</u>	<u>DCP No.</u>	<u>DCP Test Copy Issue Date</u>
M204	79-1033	12/30/80
M210	80-1135	1/24/81
M210	80-1180	1/28/81
M231	80-1011	2/14/81
M230	80-1004	1/14/81

This is an apparent procedural violation (313/8111-1).

The inspector expressed concern to ANO management that plant operation could be adversely affected if important plant drawings are not maintained current to show actual system status. Due to the delay in updating plant drawings following design changes, Operations Department personnel have found it necessary to append informal sketches reflecting the as-built systems to plant drawings. Although copies of DCP's are provided to the Control Room, it is a time-consuming research task to review the necessary DCP's and integrate the information contained in several DCP's into a form useful for plant operation. This task is made more difficult and more subject to error if the issued drawings are not bubbled to indicate pending design changes even after the design change is implemented. The Director encouraged to develop a system which will ensure that plant drawings are updated in a timely manner following design changes. This is an open item (313/8111-2; 368/8110-4).

4. Monthly Maintenance Observation (Units 1 and 2)

Station maintenance activities of safety-related systems and components listed below were observed/reviewed to ascertain that they were conducted in accordance with approved procedures, regulatory guides and industry codes or standards and in conformance with Technical Specifications.

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 status of outstanding jobs and to assure that priority is assigned to safety-related equipment maintenance which may affect system performance.

The following maintenance activities were observed/reviewed:

- Job Order 13508: Corrective maintenance the mechanical Overspeed Trip Mechanism on P7A, Unit 1 turbine-driven Emergency Feed Pump.
- Job Order 13458: Corrective maintenance on Vital Instrument Inverter Y-11, Unit 1

- Procedure 1304.21: Corrective maintenance on ¹⁶N Monitor, Unit 1
- Job Order 8180: Installation of DCP 80-2155, Low Temperature Over-pressurization Protection
- Job Order 8406: Installation of DCP 81-2026, Reactor Coolant System High Point Vents

Following completion of maintenance on the Unit 1 Instrument Inverter Y-11 and the Unit 1 Turbine-driven Emergency Feed Pump, P7A, the inspector verified that these systems had been returned to service properly.

No violations or deviations were identified.

5. Monthly Surveillance Observation (Units 1 and 2)

The inspector observed the Technical Specification required surveillance testing on the Unit 2 "A" Diesel Generator, Procedure 2104.36, Supplement 4, 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 Technical Specifications and procedure requirements and 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 inspector also witnessed portions of the following test activities:

Leak Rate Test of the Emergency Cooling Pond (Work Plan 2409.36) and monthly check of Unit 1 Channel C Reactor Protective System.

No violations or deviations were identified.

6. Emergency Exercise (Units 1 and 2)

During the period of March 25 - 26, 1981, the Resident Inspectors observed the exercise of the ANO Emergency Plan and attended associated critiques. The Resident Inspectors observed the exercise primarily in the Control Room and in the Technical Support Center. The NRC inspection report covering this exercise will be separately issued with reports 313/81-13; 368/81-11.

7. IE Bulletin Followup (Units 1 and 2)

For IE Bulletin 80-12 the inspector verified that the written response was within the time period stated in the bulletin, that the written response included the information required to be reported, that the written response included adequate corrective action commitments based on information presented in the bulletin and the licensee's response, that licensee management forwarded copies of the written response to the appropriate onsite management representatives, that information discussed in the licensee's written response was accurate, and that corrective action taken by the licensee was as described in the written response. The licensee has prepared, issued and implemented the following procedures as a result of the review required by IE Bulletin 80-12 (Decay Heat Removal System operability):

Unit 1, OP 1015.02, Decay Heat Cooling System Maintenance Control

Unit 2, OP 1015.08, Shutdown Cooling System Maintenance Control

No violations or deviations were identified.

8. Compliance with NRC Order of April 20, 1981 (Unit 1)

This Order modified Facility Operating License DPR-51, including additional Technical Specifications which require periodic surveillance over the life of the plant and which specify limiting conditions for operation for certain reactor coolant system pressure isolation valves.

The revised Technical Specifications require leak testing of check valves DH-14A, DH-13A, DH-17, DH-14B, DH-13B, and DH-18 individually to demonstrate operability following each refueling, following each time the plant is placed in a cold shutdown condition if testing has not been accomplished in the preceding nine months, and following valve maintenance, repair or replacement. Step 6.4.56b of OP 1102.02 requires a leak check of these decay heat removal system check valves prior to plant startup from a cold shutdown condition. This test is performed in accordance with Attachment I to OP 1102.01.

During the recent refueling outage, the licensee completed design change DCP 81-1011, which added pressure transmitters, local pressure indication and test points for leak testing the decay heat system check valves which serve as pressure isolation valves between the reactor coolant system and the decay heat system. This design change enabled the licensee to perform the required leak check in accordance with 1102.01, Attachment I. The inspector reviewed the results of this test which was performed on March 16, 1981. The acceptance criteria of this procedure are consistent with the requirements of Technical Specification Table 3.1.6.9. The results of this test indicated a zero leak rate.

No violations or deviations were identified.

9. Startup Testing (Refueling) (Unit 1)

The NRC inspector reviewed the results of certain startup testing activities related to refueling to verify that testing was conducted in accordance with approved procedures and to verify that the facility was being operated in conformance with NRC requirements and licensee procedures.

. Periodic Core Power Distribution

The inspector reviewed the results of Procedure 1303.12 performed at 40% and 75% full power on March 21 and March 23, 1981, respectively. No discrepancies were identified.

. Control Rod Reactivity Worth Measurements

The inspector reviewed the results of Test Procedure 1302.08 and performed check calculations to verify the accuracy of the licensee's calculations. No discrepancies were identified.

. Heat Balance Calculation Verification

The inspector reviewed the results of Test Procedure 1302.13, Attachment F, and identified no discrepancies.

. Shutdown Margin Calculation

The inspector reviewed the shutdown margin (SDM) calculation portion of Procedure 1103.15, Reactivity Balance Calculation. A review of a sample of licensee SDM calculations (which are performed each shift) revealed no significant discrepancies. The inspector performed an independent SDM calculation which confirmed the licensee's calculations.

. Reactivity Coefficient at Power

The inspector reviewed the results of test Procedure 1302.17 and identified no discrepancies.

No violations or deviations were identified.

10. Preparation For Refueling (Unit 2)

The NRC inspector observed the receipt, inspection and storage of several new fuel assemblies received on-site over the past several months and reviewed the records for the receipt and inspection of the remaining new fuel shipments.

The NRC inspector verified that the licensee has issued technically adequate procedures for fuel handling, fuel inspection, fuel sipping, fuel bundle reconstitution and core internals handling. The licensee has submitted a proposed core reload Technical Specification change to the NRC.

No violations or deviations were identified.

11. Inspection During Long Term Shutdown (Unit 2)

The inspector observed Control Room operations, reviewed applicable logs and conducted discussions with control room operators during this inspection period. The inspector verified surveillance tests required during the shutdown were accomplished, reviewed tagout records, and verified applicability of containment integrity. Tours of accessible areas, including exterior areas were made to make independent assessments of equipment conditions, plant conditions, radiological controls, safety, and adherence to regulatory requirements and to verify that maintenance requests had been initiated for equipment in need of maintenance. The inspector observed plant housekeeping/cleanliness conditions, including potential fire hazards, and verified implementation of radiation protection controls. The inspector by observation and direct interview verified that the physical security plan was being implemented in accordance with the station security plan. The inspector reviewed the licensee's jumper/bypass controls to verify that there were no conflicts with Technical Specifications and verified the implementation of radioactive waste system controls. The inspector witnessed portions of the radioactive waste systems controls associated with radwaste shipments and barreling.

Unit 2 Technical Specification 3.7.10.2 requires that a continuous fire watch with backup fire suppression equipment be established within one hour if the Cable Spreading Room (CSR) sprinkler system is not operable. On March 30, 1981, this system was rendered inoperable (in the automatic mode) when valve 2FS61, the fire water supply to the CSR was tagged closed. A fire watch was established at that time, but coverage was not continuous as required. The NRC inspector found the CSR empty with no fire watch stationed on April 2, 1981. This is an apparent violation (368/8110-3).

Upon notification by the inspector, the licensee took prompt action to re-establish the fire watch. The coverage lapse was attributed to a communications error in personnel assignments. Subsequent checks by the inspector verified that the fire watch was stationed as required. The licensee's maintenance contractor training sessions with maintenance personnel stressing the importance of fire safety during a refueling outage. Since the licensee completed appropriate correction action which was reviewed by the inspector during the inspection period, this item is considered closed and no written response to this item is required.

On April 13, 1981, during a tour of the Containment Building, the NRC inspector observed that a threaded U-bolt pipe support on the B Reactor Coolant Pump (RCP) upper seal pressure sensing line was broken. The Shift Supervisor initiated Job Order 9936 to repair this pipe support. The licensee agreed to inspect all similar RCP piping connections for pipe support adequacy during the current refueling outage. This item remains open pending completion of the necessary repairs and inspections (368/8110-5).

While inspecting the Unit 2 Containment Building on March 30, 1981, the NRC inspector noted that the radiation survey instrument in use by the escorting health physics (HP) technician was inoperable. The NRC inspector and the HP technician escort immediately left the containment building and exchanged the faulty instrument for an operable one. The total time that the NRC inspector and the HP technician were inside the containment building with the inoperable radiation survey instrument was approximately 15 minutes and the resulting radiation dose received by either person was less than 10 mr. Although the licensee maintains that the inoperable radiation survey instrument had been properly response checked with a radiation source just prior to entry into the containment building, the NRC inspector was concerned that inadequate allowance was made for the poor performance history of this particular type of radiation survey instrument, a PIC-6A. Specifically, the licensee's calibration experience for this PIC-6A appears to have established that it was susceptible to failure if its battery charge had deteriorated sufficiently, even though it could satisfactorily pass the battery "check" procedure. Furthermore, it appears that the radiation sources currently used by the licensee to response check radiation survey instruments are too weak to produce an adequate deflection on the commonly used scales of many of the instruments. Additionally, the licensee's administrative controls for handling an identified inoperable radiation survey instrument appears to have been inadequate, in that the inoperable PIC-6A turned in by the NRC inspector's HP technician escort was reissued approximately four hours later to another HP technician; however, the reissued PIC-6A was determined to be inoperable and was exchanged prior to its use. The licensee is currently evaluating the performance history of its PIC-6A radiation survey instruments, evaluating the need for new radiation check sources, and is revising its administrative controls over inoperable survey instruments. These items will remain open until the NRC inspector has verified adequate resolution (368/8110-6).

12. Refueling Activities (Unit 2)

The NRC inspector observed fuel handling activities in the containment, Control Room, and spent fuel area. On April 21, 1981, an apparent violation of the procedural requirements of Operating Procedure 2502.01, Refueling Shuffle, was observed by the inspector while observing fuel handling activities from the Control Room. Step 7.8 of this procedure requires that neutron count rate be noted before and after inserting fuel assemblies into the reactor core and that the count rate be logged.

This requirement was not performed by the Control Room operator when fuel assembly AKC 303 was inserted into core position A-8 (368/8110-2).

The licensee was requested to include in the written response to this item a commitment to provide refresher training for operators within several weeks prior to commencing fuel handling activities during future refueling outages. This training should include (but not be limited to) the following topics:

- . Refueling Shuffle Procedure
- . Fuel Handling Procedure
- . Applicable Refueling Technical Specifications
- . Applicable Refueling Emergency Procedures

Refueling activities were also reviewed by a Region IV inspector and results will be documented in Inspection Report 368/81-13.

13. Exit Interview

The inspector 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 finding.