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

Docket Nos. 50-313/80-10
50-368/80-10

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: May 22 - June 21, 1980

Inspectors: for D M Hunnicutt — W. D. Johnson, Senior Resident Inspector — 7/10/80 Date

for D M Hunnicutt — L. J. Callan, Resident Inspector — 7/10/80 Date

for D M Hunnicutt — G. L. Constable, Reactor Inspector — 7/10/80 Date

Approved: D M Hunnicutt — D. M. Hunnicutt, Chief, Reactor Projects Section 2 — 7/10/80 Date

Inspection Summary

Inspection conducted during period of May 21 - June 22, 1980
(Report No. 50-313/80-10)

Areas Inspected: Routine, announced inspection including Surveillance Observation, Maintenance, Follow-up on Licensee Event Reports, Operational Safety Verification, Follow-up on Previously Identified Items, and Follow-up on TMI-2 Lessons Learned Requirements.

The inspection involved 98 inspector-hours on site by two (2) NRC inspectors.

Results: Within the six (6) areas inspected no appare[illegible]tems of noncompliance or deviations were identified in four (4) areas, fo[illegible]) apparent items of noncompliance were identified (infraction - alpha [illegible]eys, paragraph 4.B(b)a; infraction - anti-contamination clothing, paragra[illegible]. 4.B(b)d; deficiency - 10 CFR 19 posting requirements, paragraph 4.B(b)e; and infraction - physical barrier, Attachment A) were identified in two areas.

Inspection conducted period of May 21 - June 22, 1980
(Report No. 50-368/80-10)

Areas Inspected: Routine, announced inspection including Operational Safety Verification, Surveillance Observation, Maintenance, Follow-up on Licensee Event Reports, Reactor Shutdown Margin, Control Rod Worth Measurements, and Follow-up on TMI-2 Lessons Learned Requirements.

The inspection involved 136 inspector-hours on site by three (3) NRC inspectors.

Results: Within the seven (7) areas inspected no apparent items of noncompliance or deviations were identified in five (5) areas, four (4) apparent items of noncompliance were identified (infraction - alpha surveys, paragraph 4.B.(b)a; infraction - anti-contamination clothing, paragraph 4.B.(b)d; deficiency - 10 CFR 19 posting requirements, paragraph 4.B.(b)e; and infraction-shutdown margin calculation, paragraph 7).

DETAILS SECTION

1. Persons Contacted

J. P. O'Hanlon, ANO General Manager
G. H. Miller, Engineering and Technical Support Manager
B. A. Baker, Operations Superintendent
T. N. Cogburn, Plant Analysis Superintendent
E. C. Ewing, Plant Engineering 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. Bell, Assistant Operations Superintendent
D. Glenn, Health Physics Supervisor
D. Wagner, Assistant Health Physics Supervisor
L. Humphrey, Plant Administrative Manager
M. Bishop, Office Services Supervisor
J. Waxenfelter, Instrument and Controls Supervisor
A. Cox, Nuclear Engineer
D. Lomax, Nuclear Engineer
H. Hollis, Security Coordinator

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

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

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

This detector has been repaired, calibrated and placed in service.

(Closed) Open Item (313/80-07-01): Training in Non-Nuclear Instrumentation System Modifications.

The required training was performed by the Training Coordinator on May 23-26, 1980.

3. Follow-up on Licensee Event Reports (Units 1 and 2)

Unit 2 LER 80-24/03L-0. This LER described an inadvertent actuation of the Containment Spray System on April 8, 1980. During follow-up of this event, the inspector learned that the stated cause was in doubt. The Operations and Maintenance Manager agreed to further study the cause of this event and to submit a revised LER.

Unit 1 LER 80-15/0IT-0. This LER described the Reactor Coolant Pump seal failure which occurred on May 10, 1980. The inspector requested that the licensee provide a supplement to this LER giving the seal failure analysis results and including more detailed information about the incident.

4. Operational Safety Verification (Units 1 and 2)

The inspectors performed certain activities to ascertain that the facility is being operated safely and in conformance with regulatory requirements and that the licensee's management control system is effectively discharging its responsibilities for continued safe operation. The inspectors activities and findings in this regard are described in the following paragraphs.

A. Certain inspection activities were performed frequently (several times per week).

(1) Control room observations were made which normally included the following items:

a. Verification of licenses adherence to selecting Limiting Conditions for Operation (LCO).

b. Observation of instrumentation and recorder traces for abnormalities.

c. Verification of proper control room and shift manning.

d. Verification of operator adherence to approved operating procedures.

(2) Selected logs and operating records were reviewed to obtain information on plant operations, detect trends, determine compliance with regulatory requirements and assess the effectiveness of communications provided by the logs and records.

B. Certain inspection activities were performed on a weekly basis.

(1) The operability of selected emergency, safeguards features systems was verified by noting valve positions, breaker positions, instrumentation availability and general conditions of major system components. Systems selected for review during this inspection were:

a. Both Unit 1 Core Flood Tanks.

b. Unit 1 Turbine-Driven Emergency Feed Pump.

c. Unit 2 "A" Low Pressure Safety Injection System.

d. Unit 2 Train B Diesel Generator.

(2) The licensee's equipment control was reviewed for proper implementation by performamce of the following inspection activities:

a. Review of tag out records to determine that the licensee has complied with LCO with respect to removal of equipment from service.

b. Independently verifying the proper return to service of selected safety-related components or systems.

c. Independent verification of proper conduct of selected safety-related tagouts currently in effect.

(3) The inspectors conducted tours of accessible areas of the facility to assess equipment conditions, plant conditions, radiological controls, security, safety, and adherence to regulatory requirements. During these tours, the inspectors made observations in the following categories:

a. General plant/equipment conditions including operability of standby equipment.

b. Maintenance requests had been initiated for equipment in need of maintenance, and the appropriate priority has been assigned.

c. Fire hazards.

d. Control of ignition sources and flammable materials.

e. Conduct of activities in progress in accordance with the licensee's administrative controls and approved procedures.

f. Condition of the interior of selected electrical and control cabinets.

g. Physical Security.

The inspector verified that the security plan is being implemented by observing:

(1) The security organization is properly manned and that security personnel are capable of performing their assigned functions.

(2) Protected area barriers are not degraded.

(3) Isolation zones are clear.

(4) Persons and packages are checked prior to entry into the protected area.

(5) Vehicles are properly authorized, searched, and escorted or controlled within the protected area.

(6) Persons within the protected area display photo identification badges. Persons requiring escort are properly escorted.

(7) Vital area physical barriers are not degraded. One item of noncompliance was identified in this area. Refer to Attachment A to this inspection report. (Attachment A contains 2.790(d) information).

h. Plant housekeeping.

i. Radioactive waste system.

(4) The inspectors reviewed the licensee's trouble tickets to verify the operability of this program identification system.

The inspector noted that the Hand and Foot Monitor at the exit point in the Unit 2 controlled access was out of commission during the period June 3 - June 10, 1980, yet no trouble ticket had been submitted. Licensee representatives stated that difficulty had been experienced in the past obtaining the required trouble tickets in the health physics area but that an on-going effort was being made to improve their observances of the trouble ticket system.

(5) The inspectors conducted discussions with operators and other plant personnel and observed several shift turnovers.

(6) The inspectors verified the implementation of the licensee's radiation protection controls by:

a. Observing portions of an area survey performed by health physics personnel.

While reviewing radiation survey records, the inspector noted that no documentation existed of any alpha surveys being completed during 1980. Discussions with licensee representatives confirmed that no alpha surveys were taken in April or May, 1980, but that prior to April, 1980, alpha surveys may have been taken but not documented. This failure to take alpha surveys is contrary to step 6.0 of Radiation Protection Procedure 1602.18, Smear Sampling, which states:

"Monthly smears taken during the Reactor Auxiliary Building Survey will be counted for alpha radiation. If alpha contamination is found, more extensive and more frequent surveys will be made for alpha."

This is an apparent item of noncompliance (313/80-10-1; 368/80-10-1).

b. Examining randomly selected radiation protection instruments that are in use and verifying operability and adherence to calibration frequency.

c. Verifying by observation and review that the requirements of one current RWP were being followed.

d. Verifying compliance with requirements of 10 CFR 19 and 10 CFR 20 regarding posting.

The inspector noted that the licensee failed to post the Notice of Violation on his response to the Notice of Violation for two infractions involving control of radiological working conditions reported in IE Inspection Report 50-313/80-06; 50-368/80-06. The requirement to post such Notices of Violation and their responses is found in section 19.11(a)(4) of 10 CFR 19. This is an apparent item of noncompliance (313/80-10-3; 368/80-10-3).

e. Observing that licensee's procedures are being followed.

The inspector randomly sampled sets of Anti-C clothing for contamination. Two (2) out of ten (10) sets of Anti-C clothing sampled were found to have fixed contamination levels in excess of 1.0 mrem/hour and five (5) of the remaining eight (8) sets of clothing were found to have fixed contamination. All sampled Anti-C's were obtained from common storage shelves in the Unit 1 and Unit 2 Auxiliary Building Controlled access extrance areas. The storage

method and levels of contamination found on the Anti-C clothing are contrary to step 5.0 of Radiation Protection Procedure 1602.27, Anti-C Laundry Handling and Monitoring, which states that all laundered clothing " . . . with less than 0.1 mrem/hr of fixed contamination may be released for normal use. Items with fixed contamination levels between 0.1 mrem/hr and 1 mrem/hr will be segregated for use in highly contaminated areas (outer set of coveralls, etc.). For items above 1 mrem/hr the Health Physics Supervisor will specify final storage on disposal." This is an apparent item of noncompliance (313/80-10-2; 368/80-10-2).

C. Certain inspection activities were performed once during this reporting period.

(1) ESF System Operability Verification: The inspector conducted a complete walk-down of accessible portions of Unit 2 "A" Low Pressure Safety Injection.

(2) The inspector verified that a selected portion of containment isolation lineup was correct. Containment penetrations inspected were:

IP-38, 39, 40, 41, 42, 43, 45, 46, 47, 48, 49, 51, 52, 53, 54, 55, 58, 59, 60, 62, 63, 64, 65.

(3) The inspector verified that plant conditions, equipment status and operating parameters fulfill the following LCO's:

Unit 1

3.3.3 Core Flood Tanks

3.3.4 Reactor Building Spray System

3.4.1.2 Steam System Safety Valves

3.5.1 Operational Safety Instrumentation

Unit 2

3.4.4 Pressurizer

3.4.6.1 RCS Leakage Detection Systems

3.4.1 Safety Injection Tanks

3.3.1.1 Reactor Protective Instrumentation

(4) The inspector reviewed the licensee's Jumper and Bypass logs and no conflicts with Technical Specification were identified.

(5) The inspector witnessed selected portions of a liquid radioactive release and verified the following items:

a. The release (1LR 80-215 of June 20, 1980) was conducted in accordance with approved procedures.

b. The required release approvals were obtained.

c. The required samples were taken and analyzed.

d. The effluent release control instrument was operable and in use during the release.

5. Surveillance Observation (Units 1 and 2)

The inspector observed portions of the following surveillance tests:

a. 1304.76 EFW Control System test Channel "A" (Unit 1).

b. 1304.77 EFW Control System Test Channel "B" (Unit 1).

The inspector determined through personnel observation and review of records where appropriate that:

a Approved procedures were used.

b. Test instrumentation was calibrated.

c. Limiting conditions for operation were met when the system being treated was removed from service.

d. The test data was recorded accurately and completely. Selected test results were independently verified by the inspector.

e. The surveillance test documentation was properly reviewed and test discrepancies were rectified.

f. Test results met technical specification requirements.

g. The test was done by qualified personnel.

The inspector identified no items of noncompliance or deviations in this area.

Additionally, the inspector witnessed portions of the following surveillance tests:

a. 2304.38 Unit 2 Plant Protection System Channel B test.

b. 1304.39 Unit 1 Reactor Protection System Channel C test.

c. 1302.15 Unit 1 Core Performance Monitoring and Fuel Management Data Collection.

For each test, the inspector verified:

a. The test was scheduled in accordance with technical specification requirements.

b. Procedures were being followed.

c. The test was conducted by qualified personnel.

d. Limiting conditions for operation were met while conducting the test.

The inspector identified no items of noncompliance or deviations.

6. Maintenance (Units 1 and 2)

The inspector observed portions of the following maintenance activities:

a. Design Change DCP625, Installation of solenoid valves in seal water lines to Hydrogen Purge Fans.

b. Temporary Job Order 55 OPS, Electric Fire Pump.

The inspector determined through personal observation and review of records where appropriate that:

a. These activities were not violating limiting conditions for operation.

b. Redundant components were operable.

c. Required administrative approvals and tagouts were obtained prior to initiating the work.

d. Approved procedures were being used, if appropriate.

e. The procedures used were adequate to control the activity.

f. Activities were being accomplished by qualified personnel.

g. Replacement parts and materials being used were properly certified.

h. Radiological controls were proper and that they are being properly implemented.

i. Ignition/fire prevention controls are appropriate and are implemented.

For the Hydrogen Purge system design change, the inspector found that the Ignition Source Permit was not properly completed. During a discussion with licensee's Safety and Fire Penvention Coordinator, the inspector learned that this problem had previously been identified by the licensee's Quality Assurance Engineer and that corrective action was in progress.

j. Equipment is properly tested prior to returning to service.

No items of noncompliance or deviations were identified.

The inspector reviewed outstanding job orders to determine that the licensee is giving proper priority to safety related maintenance and that a backlog is not developing on a given system which might affect its operability. The inspector also determined that the proper approvals were obtained for job orders which appear to constitute design changes.

7. Reactor Shutdown Margin (Unit 2)

The purpose of this inspection effort was to verify that the shutdown margin determination had been performed at the required frequency and that the calculation is technically correct.

The inspector reviewed the following work sheets for determining shutdown margin to verify that the calculation had been properly completed and that appropriate management reviews had been accomplished.

Work Sheet No.	Title	Dates
C-1	Calculation of Available Shutdown Margin for Reactor Critical (Modes 1 & 2)	May 1, 1980 - June 5, 1980
C-2	Calculation of Available Shutdown Margin for Shutdown Conditions (Modes 3, 4 & 5)	August 2, 1979 - April 25, 1980

C-3	Calculation of Actual Shutdown Margin for Shutdown Conditions (Modes 3, 4, 5 & 6)	July 5, 1979 - December 25, 1979
C-4	Calculation of Boron Concentration Required to Maintain Shutdown Margin During Cooldown or Heatup (Modes 3, 4, 5 & 6)	(Not Used)
C-5	Determination of Boron Concentration Needed to Maintain Shutdown Margin Requirements in Modes 3, 4, 5 or 6 Using Pre-Calculated Curves of Boron Conc. vs. EFPD	April 7, 1980 - April 18, 1980

During the review of Work Sheet C-5, dated April 18, 1980, time 1545, the inspector noted that step 1 requires that the appropriate attachment be selected for the present shutdown operating mode and temperature. The shutdown mode was 3 and RCS temperature was 502°F. The operator had checked the block indicating that attachment C-8a for Mode 3 less than or equal to 525°F had been used. The correct attachment should have been C-8b for Mode 3 300°F-525°F. The inspector determined that the wrong attachment had been used and that the boron concentration for available SDM should have been 860 ppm instead of the recorded 730 ppm and that the boron concentration for actual SDM should have been 710 ppm instead of the recorded 580. Although this error was in the non-conservative direction, the actual boron concentration at the time was 991 ppm, which was within the prescribed limits. This failure to follow the written procedure is an item of noncompliance. No other items of noncompliance or deviations were noted.

8. Control Rod Worth Measurements - Low Power Physics Test (Unit 2)

The purpose of this inspection effort was to verify that control rod worth measurements are technically correct and consistent with NRC requirements.

The inspector began a review of Low Power Physics Test, Procedure 2.750.01, and associated records. No items of noncompliance or deviations were noted. The review of this area will be completed during a future inspection.

9. TMI-2 Lessons Learned Requirements (Units 1 and 2)

The inspector reviewed certain licensee activities taken in response to the "Category A" lessons learned requirements of NUREG 0578. Items reviewed are discussed below, using the item numbers of NUREG 0578.

2.1.3.a Direct Indication of PORV and Safety Valve Pos tion (Units 1 and 2)

The licensee has issued operating procedure 1105.13, Relief Valve Monitoring System Operation. This closes open item 313/80-03-04. The licensee has reviewed operating procedure 2203.12, (Revision 1, 2/21/80). Annunicator Corrective Action, to include response to the new annunciators associated with the valve monitoring system. No system operating procedure for Unit 2 has yet been issued. Open item 368/80-03-03 remains open.

2.1.3.b Instrumentation for Detection of Inadequate Core Cooling (Units 1 and 2)

The licensee has issued operating procedure 1105-12, Reactor Coolant System Saturation Margin Monitor Operation. This closes open item 313/80-03-05. The licensee has revised operating procedure 2203.12 to include response to the new annunciators associated with the RCS Saturation Margin Monitor system. No system operating procedure for Unit 2 has yet been issued. Open item 368/80-03-04 remains open.

The inspector reviewed the seismic and environmental qualification documents for the RCS Saturation Margin Monitor Systems.

2.1.4 Containment Isolation (Unit 2)

The licensee has revised test procedure 1304.055, ESAS Coincidence and Manual Trip Test, to reflect the modified containment isolation system.

2.1.5.c Recombiner Procedures (Unit 2)

The inspector reviewed operating procedure 2104.44, Containment Hydrogen Purge and Recombiner Operations. No changes to this procedure were required.

2.1.5.c Hydrogen Purge System (Unit 1)

The licensee is in the process of installing the design change (DCP 625) to this system which adds solenoid valves to the seal water supply lines to the system supply and exhaust fans.

2.1.8.a Post Accident Sampling (Units 1 and 2)

At the end of this inspection period, the licensee had not yet issued the interim post accident sampling and analysis procedures required by this item. DCP 80-1065 was in progress to provide portable shielding for post accident sampling. (Open Item 313/80-10-05; 368/80-10-05)

2.1.8b High Range Effluent Monitors (Units 1 and 2)

This licensee has completed the following design changes:

DCP 80-1022 Radiation Monitors on Top of Main Steam Lines (Unit 1)

DCP 80-1065 Interim H_2 Purge Radiation Monitors (Unit 1)

DCP 80-2085 Radiation Monitors on Main Steam Lines (Unit 2)

Interim procedures for the use of these newly installed systems were provided by memorandum ANO-80-2641.

2.1.8c Improved Iodine Instrumentation (Units 1 and 2)

The licensee has obtained two (2) single channel analyzers, but they have not yet been calibrated and placed into operation. As noted in the licensee's letter to the NRC dated January 3, 1980, these systems were expected to be available for use by May 1, 1980. (Open Item 313/80-10-06; 368/80-10-06)

No items of noncompliance or deviations were identified.

10. 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.