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

Report No. 50-313/80-15
50-368/80-15

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: July 22 - August 21, 1980

Inspectors: for D M Hunnicutt 9/3/80
W. D. Johnson, Senior Resident Inspector Date

for D M Hunnicutt 9/3/80
L. J. Callan, Resident Inspector Date

Approved: D M Hunnicutt 9/3/80
D. M. Hunnicutt, Chief, Reactor Projects Section No. 2 Date

Inspection Summary:

Inspection conducted during period of July 22 - August 21, 1980
(Report No. 50-313/80-15)

Areas Inspected: Routine, announced inspection including Surveillance Observation, Maintenance, Operational Safety Verification, Follow up on IE Bulletins, and Follow up on previously identified items.

The inspection involve 94 inspector-hours on site by two NRC inspectors.

Results: Within the five (5) areas inspected, one (1) item of noncompliance was identified (infraction - anti-contamination clothing, paragraph 2) in one area.

Inspection conducted during period of July 22 - August 21, 1980
(Report No. 50-368/80-15)

Areas Inspected: Routine, announced inspection including Operational Safety Verification, Surveillance Observation, Follow up on IE Bulletins, and Follow up on previously identified items.

The inspection involved 65 inspector-hours on site by two NRC inspectors.

Results: Within the four (4) areas inspected, one (1) item of noncompliance was identified (infraction - anti-contamination clothing, paragraph 2) in one area.

DETAILS SECTION

1. Persons Contacted

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
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
R. Poole, Radwaste Coordinator
R. Turner, Electrical Engineering Supervisor
D. Trimble, Manager of Licensing

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

2. Follow Up on Previously Identified Items - (Units 1 and 2)

(Closed) Open Item 313/7725-34: Air Flow from Spent Fuel Area through an Adjoining Door to the Unit 1 Computer Room.

A ventilation air balance has been completed and the door between the computer room and the Spent Fuel Area has been sealed with tape.

(Closed) Open Item 313/7922-04; 368/7921-06: Issuance of an Operating Procedure for the Fire Detection and Suppression System.

The licensee has issued procedure 1203.09, Fire Protection System Annunciator Corrective Action for Unit 1, and procedure 2203.09, Annuciator Corrective Action, Section 2K22 for Unit 2 and has revised and expanded procedure 1104.32, Fire Water System Operation.

(Closed) Unresolved Item 313/8004-01: Manway Removal.

The inspector's review of this item revealed no apparent items of non-compliance. The licensee's contractor plans to use plastic suits and to check water temperature for future steam generator manway removal operations.

(Closed) Unresolved Item 313/8004-02: Radiation Area Labeling.

The inspector's review of this item identified no apparent items of noncompliance. The area in question was posted as a high radiation area and as a contaminated area in accordance with licensee procedures.

(Closed) Unresolved Item 313/8004-03: Conditions Requiring Use of Respirators.

The inspector's review of this item identified no apparent items of noncompliance.

(Closed) Unresolved Item 313/8004-04: Tag Outs for Contractor Maintenance.

The allegation of improper tag outs for contractor maintenance could not be substantiated. No apparent items of noncompliance were identified during the inspector's review of this item.

(Closed) Open Item 313/8009-01; 368/8009-02: Filing Completed Design Change Packages.

The failure to file the test copy of FCN #1 in the vault with DCP 80-2020 is believed to be an isolated instance of human error. Adherence to existing licensee procedures should prevent filing errors of this type.

(Closed) Infraction 313/8006-02; 368/8006-02: Control of Combustibles.

The inspector reviewed the licensee's corrective action on this item, including a memorandum (ANO 80-2247) which designates storage areas in the Auxiliary Building for oxygen and acetylene bottles, and had no further questions.

(Closed) Infraction 313/8005-03: Personnel Air Lock Leak Tests.

The licensee has revised procedures 1304.23 and 2304.15 (Unit 1 and Unit 2 local leak-rate testing procedures) to require a specific sign-off for each leak-rate test requirement following containment entries.

(Closed) Infraction 368/8007-01: Compliance with Job Order Procedure.

The inspector reviewed the licensee's corrective action on this item, including documentation of electrical maintenance personnel training on the Job Order Procedure, 1004.14, and had no further questions.

(Closed) Infraction 368/8005-03: Emergency Diesel Generator Automatic Sequence time Delay Relays.

The licensee submitted a proposed Technical Specification change on August 12, 1980, to clarify Section 4.8.1.1.2.c.2.

(Closed) NRR open item: The inspector verified that the Unit 1 cavity annulus seal ring had been removed from the cavity annulus area and therefore no longer constitutes a potential missile hazard.

(Open) Infraction 313/8010-02; 368/8010-02: Anti-C Laundry Handling and Monitoring.

The inspector reviewed the licensee's corrective action on this item and found it to be insufficient. Specifically, on August 7, 1980, the inspector, assisted by two health physics technicians, found eight (8) out of fifteen (15) sets of anti-contamination clothing sampled to have fixed contamination levels that exceeded the established limit of 0.1 mrem/hour. As stated in our letter of August 14, 1980, this is an apparent continuing item of noncompliance (313/8015-01; 368/8015-01).

3. 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:

- Verification of license's adherences to selected Limiting Conditions for Operation (LCO).
- Observation of instrumentation and recorded traced for abnormalities.
- Verification of proper control room and shift manning.
- 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" Containment Spray System (Unit 1)
- "A" Containment Spray System (Unit 2)
- "A" Decay Heat System (Unit 1)

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

- Review of tag out records to determine that the licensee has complied with LCO with respect to removal of equipment from service.
- Independently verifying the proper return to service of selected safety-related components systems.
- Independent verification proper conduct of selected safety-related tag outs 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:

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

  The inspector noted during a tour of Unit 2 Auxiliary Building on August 13, 1980, that "C" High Pressure Safety Inspection (HPSI) Pump was inoperable due to no oil present in the lube oil reservoir for the pump-end bearing. Although the operability of "C" HPSI pump is not required for

the required redundancy of the HPSI system the inspector is concerned about the ramifications of having similar situations develop without being detected by plant personnel.

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

. Fire hazards.

. Control of ignition sources and flammable materials.

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

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

. Physical Security

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

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

- Protected area barriers are not degraded.

- Isolation zones are clear.

- Persons and packages are checked prior to entry into the protected area.

- Vehicles are properly authorized, searched, and escorted or controlled within the protected area.

- Persons within the protected area display photo identification badges. Persons requiring escort are properly escorted.

. Plant housekeeping.

. Radioactive waste system.

(4) The inspectors reviewed the licensee's trouble tickets to verify the operability of this problem identification 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:

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

  The inspector noted that the newly employed health physics technician performing the comprehensive survey of Unit 2 Auxiliary Building on August 13, 1980, had never conducted a survey of the Auxiliary Building before and had not been required to observe a survey being taken as a trainee. This situation, combined with the general lack of plant systems knowledge of newly employed health physics technicians, raises a concern with the inspector with regards to the effectiveness of the resulting radiation survey. Although no specific inadequacies were found in the observed radiation survey, this item will remain open until a training program is established for health physics technicians that will ensure adequate preparation for the various tasks that they are required to perform. (313/8015-02; 368/8015-02)

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

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

- Verifying compliance with requirements of 10 CFR 20 regarding posting.

- Observing that licensee's procedures are being followed.

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

(1) ESF System Operability Verification:

- "B" containment spray system (Unit 1)

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

- Unit 1, Equipment hatch replacement after outage
- Unit 1, Escape hatch leak test
- Unit 1, Personnel hatch leak test
- Unit 1, Main Steam penetrations

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

Unit 1

3.13.1 Penetration room ventilation system

3.11.1 Emergency cooling pond

3.19.1 Control room and Auxiliary Control Room Halon Systems

3.22.1 Reactor Building Purge Filtration System

Unit 2

3.7.4.1 Emergency Cooling Pond

3.7.10.1 Fire suppression water system

3.8.2.1 Onsite power distribution systems

3.6.1.4 Containment pressure, air pressure and relative humidity

During the review of Limiting Condition for Operation 3.19.1, Control Room and Auxiliary Control Room Halon Systems, the inspector noted that the current system procedure, OP 1104.39, did not match the existing system hardware. The Unit 1 halon system had been significantly modified in April 1979, yet the revised system procedure had not been issued and the old procedure had not been cancelled. This situation led to the Unit 1 operators being misled by the obsolete system procedure, OP 1104.39, and resulted in many misconceptions about the halon system being expressed by the operators when questioned by the inspector. The inspector noted, however, that the emergency procedures for the halon system were correct and were issued

and the old procedure was cancelled on August 15, 1980, the day after the inspector expressed his concern to the licensee. Although the procedural inconsistencies with respect to the Unit 1 halon system have been corrected, this item will remain open until the inspector verifies that adequate operator training has been completed. (313/8015-03).

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

(5) The inspector witnessed selected portions of two liquid radioactive releases (LR 80-286 and LR 80-292) and verified the following:

- The releases were conducted in accordance with approved procedures.
- The required release approvals were obtained.
- The required samples were taken and analyzed.
- The effluent release control instrument was operable and in use during the release.

4. Surveillance Observation (Units 1 and 2)

The inspector observed portions of the following surveillance test:

- O.P. 1304.90, Offsite Power Protective Relay Interlocks and Circuitry (Unit 1)

The inspector determined through observations 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 tested 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.

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

- O.P. 1304.89, Diesel Generator Protective Relaying Starting Interlocks, and Circuitry Checks (Unit 1).
- O.P. 2104.36, Diesel Generator Monthly Test (Unit 2).
- Test of emergency power supplies for security system (CAS, SAS).

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.

5. Maintenance Observation (Unit 1)

The inspector observed portions of the following maintenance activities:

- Plugging of leaking "A" OTSG tubes (Unit 1).
- Removal and replacement of "A" OTSG upper primary manway (J. O. 4103, Unit 1).
- Removal and replacement of "B" OTSG upper primary manway (J. O. 4111, Unit 1).
- Barrel leak test on Unit 1 containment escape hatch (J. O. 7506).

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

(a) These activities were not violating limiting conditions for operations.

(b) Redundant components were operable.

(c) Required administrative approvals and tag outs 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. For personnel involved in the plugging of the leaking "A" OTSG tubes, the inspector verified that adequate training was conducted on a mock-up of the work area to minimize worker radiation exposure.

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

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

(i) Ignition source controls were properly implemented.

(j) QC hold points, if any, were observed.

(k) Equipment was properly returned to service.

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.

6. Follow up on IE Bulletin 79-05C (Unit 1)

Item 5 of this Bulletin required that the licensee provide analyses and develop guidelines and procedures related to inadequate core cooling and define the conditions under which a restart of the Reactor Coolant Pumps (RCPs) should be attempted.

The licensee's letter of December 13, 1979, to the Commission provided analyses and operator guidelines. An attachment to this letter was Babcock & Wilcox (B&W) Emergency Operating Specification (EOS) 69-1106002-00, entitled "Operating Guidelines for Small Breaks for Arkansas Nuclear One (1)." B&W provided additional guidelines to the licensee in B&W Emergency Operating Specification 69-1106921-00, entitled "Inadequate Core Cooling - Decay Heat Removal System Mode of Operation."

The inspector reviewed B&W EOS 69-1106002-00 and ANO-1 Emergency Procedure 1102.06, Revision 7, entitled "Loss of Coolant/RC Pressure." This procedure appears to incorporate the guidelines in a manner which is designed to prevent the core from becoming inadequately cooled following a small break loss of coolart accident. Thus, the procedure does not specifically address the B&W guidelines for recommended action starting from severely degraded core cooling conditions. The Unit 1 Assistant Operations Superintendent agreed to add a section to procedure 1202.06, addressing the desired action if the core is found to be inadequately cooled.

The inspector reviewed B&W EOS 69-1106921-00 and ANO-1 Emergency Procedure 1202.32, Revision 2, entitled "Loss of Decay Heat Removal System." This procedure did not incorporate the diverse core cooling methods given in the guideline. The Unit 1 Assistant Operations Superintendent is revising this procedure to incorporate the B&W guidelines and the requirements of IE Bulletin 80-12.

The long-term action item of IE Bulletin 79-05C required the licensee to submit a design to assure automatic tripping of the operating RCPs under all circumstances, in which this action may be needed. The licensee, together with B&W and the B&W Owners Group, is still in the process of selecting and developing a design for tripping RCPs.

This Bulletin remains open and will be reviewed during a future inspection.

7. Follow Up on IE Bulletin 79-06C (Unit 2)

Item 5 of this Bulletin required that the licensee provide analyses and develop guidelines and procedures related to inadequate core cooling and define the conditions under which a restart of the Reactor Coolant Pumps (RCPs) should be attempted.

The licensee's letter of January 18, 1980, to the Commission stated that ANO-2 emergency procedures and associated operator training had been updated based on recommended guidelines from Combustion Engineering (CE). The referenced CE document was CEN-117, "Inadequate Core Cooling - A Response to NRC IE Bulletin 79-06C, Item 5 for Combustion Engineering Nuclear Steam Supply Systems." This report contains preliminary guidance to assist the operator in recognizing the symptoms of, and understand the phenomena leading to inadequate core cooling. It does not contain specific guidelines for coping with inadequate core cooling, except for events initiated from zero power and from shutdown.

The inspector reviewed CEN-117 and ANO-2 Emergency Procedures 2202.06, Revision 4, and 2202.32, Revision 0, entitled, "Loss of Reactor Coolant" and "Loss of Shutdown Cooling," respectively. It appears that the very general guidelines of CEN-117 have been incorporated into these ANO-2 procedures. When more specific guidelines are available, the inspector

will review their incorporation into ANO-2 emergency procedures.

The licensee has not yet defined the conditions under which a restart of the RCPs should be attempted and procedure 2202.06 does not address restarting RCPs.

The long-term action item of IE Bulletin 79-06C required the licensee to submit a design to assure automatic tripping of the operating RCPs under all circumstances in which this action may be needed. The licensee's proposed design for tripping RCPs has not yet been submitted to the NRC.

This Bulletin remains open and will be reviewed during a future inspection.

8. Exit Interview

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.