

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

Report Nos. 50-313/77-16; 50-368/77-21

Docket No. 50-313

License No. DPR-51

50-368

Construction Permit No. CPPR-89

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

Facility Name: Arkansas Nuclear One, Units 1 and 2

Inspection At: ANO Site, Russellville, Arkansas and Corporate Offices in
Little Rock, Arkansas

Inspection Conducted: September 26-29 and October 7-8, 1977

Inspectors:

J. E. Gagliardo
J. E. Gagliardo, Reactor Inspector

10/18/77
Date

R. G. Spangler
R. G. Spangler, Reactor Inspector (Intern)

Date

Approved By:

G. L. Madsen
G. L. Madsen, Chief, Reactor Operations and
Nuclear Support Branch

10/18/77
Date

Inspection Summary

Inspection on September 26-29 and October 7-8, 1977 (Report No. 50-313/77-16;
50-367/77-21)

Areas Inspected: Routine unannounced inspection involving the review of test program status, fuel receipt inspection, witness of secondary hydrostatic testing activities, Unit 2 jumper and bypass log, TWG activities, startup punchlist, commitments on overpressure protection, Unit 2 operations orders, testing of spent fuel pool wall deficiency, posting requirements and followup on previously identified matters. The inspection involved 57 inspector-hours on-site by two (2) NRC inspectors and 12 inspector-hours in the Corporate offices by two (2) NRC inspectors.

Results: Of the eleven (11) areas inspected, no items of noncompliance or deviations were identified in seven (7) areas. One apparent item of noncompliance (infraction - failure to follow a Startup Administrative Procedure, paragraphs 4, 5 and 8) was identified in three (3) of the remaining areas. One deviation from an applicant's commitment was identified (paragraph 3) in one area.

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DETAILS

1. Persons Contacted

Arkansas Power & Light Company Employees

L. Alexander, Quality Control Engineer
P. H. Almonds, Reactor Engineer
L. W. Anderson, Engineering Records Clerk
*J. R. Anderson, Assistant Production Startup Supervisor
J. W. Anderson, Superintendent of Power Plant
B. A. Baker, Assistant Operations Supervisor
*B. Bata, QA Engineer
T. L. Bell, Shift Supervisor
*D. N. Bennett, Production Startup Supervisor
R. A. Brumfield, Production Engineer
T. H. Cogburn, Nuclear Engineer
*E. C. Ewing, Assistant Production Startup Supervisor
F. B. Foster, Production Engineer
A. W. Huebner, QA Engineer
E. B. Hyatt, Reactor Engineer
A. G. Mansell, Production Engineer
G. H. Miller, Assistant Plant Superintendent
*N. A. Moore, QA Manager
D. A. Rueter, Licensing Manager
D. F. Spond, QA Engineer
*S. S. Strasner, Quality Control Inspector
B. A. Terwilliger, Supervisor Plant Operations
D. Trimble, Training Coordinator
W. W. Washburn, Startup Engineer

Bechtel Employees

W. E. McMahon, Senior Startup Engineer

Combustion Engineering Employees

V. P. Roy, QA Engineer

*Indicates those attending the exit interview

2. Status of Preoperational Test Program

At the time of this inspection, the applicant had completed the initial testing defined by seventy-one (71) of the one hundred and eighty-six (186) procedures in the preoperational test program. All but twenty-three (23) of the 186 test procedures have been approved for execution. Eighteen (18) of the fifty-one (51) startup test procedures had been approved for execution.

3. Followup on Previously Identified Findings

(Open) Noncompliance (Infraction 1, Inspection Report 50-313/77-10; 50-368/77-11): Failure of SRC to conduct an audit of the operator requalification program. The inspector found that the revisions to SRC Charter and SRC General Plant Audit Guidelines had been made as noted in the applicant's response letter 1/. The inspector noted, however, that the above guidance was very general and may not provide sufficient detailed guidance to prevent recurrence of this type of noncompliance. Applicant representative said that they would discuss the inspector's concerns with the committee during the next committee meeting. This item remains open.

(Open) Noncompliance (Infraction 2.a, Inspection Report 50-313/77-10; 50-368/77-11): Failure to use vendors from the approved vendor list as required by QC Procedure 1004.05. The inspector verified that:

- a. Procedure 1004.05 had been revised by ANO site QC personnel to include a requirement that the originator of a purchase requisition for Q-List material verify that the vendor is on the approved vendors list;
- b. that corporate QA had conducted an audit to locate all purchases made from nonqualified vendors;
- c. that a system had been initiated requiring corporate QA to review all ANO purchase requisitions to verify that only approved vendors are used. This review will be incorporated into a revision to NSP 2-10 and will be included in procedures being developed by AP&L Purchasing Department.

This item will remain open pending a review of the revised NSP 2-10 and the purchasing procedures.

(Open) Noncompliance (Infraction 2.b, Inspection Report 50-313/77-10; 50-368/77-11): Failure to follow manufacturer storage requirements for Q-List spare parts. In his response letter 2/ the licensee stated, "All motors stored in the ANO Storeroom have been segregated and placed in a "hold" status. Before release for installation, each motor shall be inspected by a qualified level I inspector. The ANO Maintenance Supervisor is developing a system by which each stored Q-List item requiring special attention during storage shall be identified and maintained in such a manner that the item is not degraded. We believe this system will be in effect by August 15, 1977."

1/ Letter D. A. Rueter (AP&L) to G. L. Madsen (NRC/IE), dated 9/1/77.
2/ Ibid

The inspector found that only three Q-List motors were in the "hold" area and the remainder were on the storage shelves. A licensee representative said that all of the Q-List motors had been placed in the "hold" area after the noncompliance item was identified. He said that they were inspected by the Electrical Foreman and returned to the storage shelves. The inspector could find no documented evidence of the licensee's purported activities. The inspector also found that the Maintenance Supervisor had not yet developed the committed system for controlling Q-List items requiring special attention. In a subsequent telephone conversation with the Superintendent of the Power Plant, the inspector was informed that the above activities would be completed and documented by December 1, 1977. This item has been identified as a Deviation from the licensee's above stated commitments.

(Closed) Open Item (Paragraph 2.b, Inspection Report 77-07): Discrepancies in Preoperational Test Procedure 2.024.03. The inspector-identified discrepancies were corrected in the latest revisions to procedures 2.024.03 and 2.024.01 and 02. This item is closed.

(Open) Open Item (Paragraph 4, Inspection Report 77-11): SRC Audits of TS Conformance. Applicant representative discussed with the inspector a program for auditing TS conformance which they planned to submit to the SRC during its next meeting. This item remains open.

(Open) Open Item (Paragraph 5, Inspection Report 77-11): Periodic Review of Drawing Indices. The applicant has no program which establishes responsibilities for the periodic review of the Unit 2 drawing index (register). The applicant's Engineering Record Clerk currently reviews the Unit 1 register as drawing revisions are entered into the system. She does not, however, have a formal requirement (procedure, written instructions, etc.) to perform this review. This item remains open.

(Closed) Open Item (Paragraph 5, Inspection Report 77-11): Tracking of Drawing Changes. The applicant has no formal means of tracking drawing changes through to the submittal of an FSAR amendment. An applicant representative noted that all FSAR amendments are reviewed by AP&L management prior to submittal and that their AE (Bechtel) provides the above controls for tracking drawing changes. This item is closed.

(Open) Open Item (Paragraph 3.b, Inspection Report 77-19): Discrepancies in HFT Procedures. The discrepancies in HFT procedure 2.600.01 have been corrected. Several discrepancies remain in procedures 2.600.03 and 2.600.13. This item remains open.

(Open) Open Item (Paragraph 3.c, Inspection Report 77-16): Inspection of Reactor Internals for Vibration Analysis. The inspector reviewed the photographs that had been taken of the vessel internals during the baseline inspection. The NDE examination results were not available for review. A representative of the applicant said that the dye penetrant examination had been performed and that he would locate the examination results for the inspector's review during a future inspection. This item remains open.

(Open) Open Item (Paragraph 9, Inspection Report 77-20): Training and Certification of Fuel Handling Equipment Operators and Crane Operators. The applicant's Training Coordinator informed the inspector that two lectures would be given to prospective operators of the fuel handling bridge and transfer devices by the operator who had written the operating procedures for this equipment. The Training Coordinator said that no on-the-job training had been performed. He noted, however, that during the checkout and indexing of the fuel handling equipment all operators will participate in the operation and this on-the-job training would be documented. Those operators who have completed this training will be certified by management. He stated that similar training and certifications will be used for the containment building crane operators. This item remains open.

4. Fuel Assembly Receipt Inspection

The inspector continued to review the applicant's activities related to the receipt and inspection of new fuel for Unit 2. The review included a verification that:

- a. Requirements of the SNM license and commitments in the application had been included in the receipt and inspection procedures.
- b. The inspection procedure includes examinations for the types of fuel damage and the poison pin location discrepancies recently experienced at other facilities.
- c. Receipt and inspection activities are in conformance with the above procedures.
- d. The fuel is protected after inspection to maintain it in a clean condition until ready for use.
- e. Inspection records reflect satisfactory performance of the inspection and conformance to the acceptance criteria.

The inspector had previously discussed with applicant representatives the recent experiences at other facilities concerning fuel assembly damage during shipment and the discovery of improperly located poison pins. Applicant representatives had not planned originally to inspect the fuel assemblies for these anomalies but after the above discussions they agreed to do so. The inspector verified that the applicant was performing these additional inspection activities to assure that the above anomalies were not present. The inspector found, however, that the applicant had not amended his inspection procedure to require these additional inspections and thus was not documenting these additional inspections.

The inspector discussed his concern in this area with the Superintendent of the Power Plant. The superintendent stated that there were no regulatory requirements for performing the additional inspections and thus they would cease the performance of the additional inspections. He indicated that they would perform only those inspections which are required by their approved inspection procedures.

The inspector also identified another problem relative to the fuel inspection. Section 10 (Inspection) of the applicant's NRC approved Quality Assurance Manual (QAM) for Operations establishes inspection requirements for quality related activities such as the receipt of Q-List materials, parts or components (Section 10.1.3.4).

Section 10.3.1 of the QAM states in part:

"To accomplish inspections, written procedures, instructions, diagrams, forms and checklists shall be provided which as a minimum contain the following:

- "1) Qualitative and quantitative acceptance criteria.
- "2) Identification of those individuals responsible for performing the inspection operation.
- "3) A description of the method of inspection examination, measurement or test of material or product process necessary to be performed to assure quality.
- "4) Identification of any special tools, equipment or skills required."

The inspector found that the fuel inspection procedure (2503.01) did contain appropriate acceptance criteria but it did not identify those individuals responsible for performing the inspection, the method of inspection/measurement and the special tools required to verify conformance to the acceptance criteria.

Section 10.4.1 of the QAM states in part:

"Personnel qualified to perform inspections are normally the Quality Control Engineer, the onsite quality control staff and the quality assurance inspectors. Personnel qualified to perform inspections shall meet the following requirements:

- "1)
- "2) Have satisfactorily completed the qualification requirements as specified in the procedure for qualification and certification of quality control personnel (QCP 1004.20), or
- "3) Be currently qualified and so designated on a list of qualified inspectors approved by the Quality Control Engineer or the Manager of Quality Assurance."

The applicant's Nuclear Engineer and the Reactor Engineers who are performing the fuel inspections had not been qualified and certified as required above.

Criterion V of Appendix B to 10 CFR 50 requires in part that, "Activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings"

The applicant's failure to adhere to the above requirements of the QAM constitutes an apparent item of noncompliance with the 10 CFR 50, Appendix B requirement listed above.

No other discrepancies were found in this area.

5. Witness of Secondary Hydro

The inspector had planned to witness the performance of the hydrostatic test on the steam generators and connecting secondary piping during this inspection. A number of inadvertent delays were experienced due to valve leakage and water chemistry problems. The inspector terminated his inspection effort on the afternoon of Saturday, October 8. The hydro was completed on Sunday evening, October 9.

During the inspection the inspector performed the following inspection activities:

- a. Reviewed the approved hydro procedure (2.400.01)
- b. Verified that test prerequisites had been met and documented

- c. Reviewed the calibration records of the special test gauges to be used
- d. Verified the line up of selected valves and the installation of special apparatus and hydro pumps
- e. Verified that selected sections of piping which were not included in the boundaries of this test had been previously hydroed under other procedures

Several discrepancies were identified during this inspection effort and are discussed below.

Step 7.2.16 of the approved procedure stated, "Install stainless steel tubing from 2EFW-2011A to 2SGS-1015B and 2EFW-3011B to 2SGS-1065B." These lines bypass the emergency feedwater check valves EFW9A and 9B to insure that hydro pressure is sensed on the emergency feedwater lines upstream of the check valves. The inspector noted in reviewing this step, that according to the referenced drawing (Bechtel Drawing M2206, also Figure 10.2-3 in the FSAR), one of the valves in each of the above pairs was inside the containment building and the other valves were outside of containment. The inspector noted that this step had been signed off on the "official copy" of the test procedure and asked to see this installation. It was found that the stainless steel jumper lines had been installed around check valves EFW9A and 9B but had not been connected to the valves indicated in step 7.2.16.

Paragraph 4.2.1 of Startup Administrative Procedure (SAP) 2-12 states in part, "Administrative errors such as typo's, wrong valve numbers, wrong section numbers, wrong reference numbers, etc. which do not change the technical content of the procedure may be corrected by the test director. Correction is done by lining out, writing the correction and initialling and dating the correction."

The applicant's failure to document and approve the change in step 7.2.16 of procedure 2.400.01 as required above is an apparent item of noncompliance against the requirement of 10 CFR 50, Appendix B, Criterion V, as detailed in paragraph 4 of this report.

The inspector also found that the drawing M-2206 (FSAR Figure 10.2-3) did not show the "as-built" configuration of the steam generator piping. The actual drain lines used to bypass the EFW9A and 9B check valves are not accurately shown on the drawing. One of the drain lines used on the "B" steam generator is not shown on the drawing and both of the drain lines used on the "A" steam generator are shown on the same side of the check valve which is not correct. An applicant representative took note of the error and said that a drawing change would be requested. This item remains open.

6. Jumper and Bypass Log

The inspector reviewed the applicant's use of jumpers, bypasses and temporary system modifications to verify that activities in this area conform to the requirements of the applicant's Startup Administrative Procedure (SAP) 2-9. The inspector also reviewed the status of the jumper and bypass discrepancies which had been cited as an item of nonconformance in Inspection Report 77-20.

To verify conformance with SAP 2-9 in the placement of jumpers and the marking of same, the inspector selected two systems and personally examined each of the open jumpers and lifted leads for these systems. Two minor discrepancies were noted and were corrected by applicant representatives.

Most of the discrepancies cited in Inspection Report 77-20 had been corrected. An applicant representative was unable to locate the log sheet for one of the systems. He said that the sheet may have been removed by a startup engineer after all of the jumpers had been removed and closed out. He said that he would locate the sheet and return it to the log book. This item remains unresolved (Unresolved Item 7721-1).

7. Test Working Group (TWG) Activities

The inspector reviewed the minutes and reviewed sheets for TWG meetings and reviewed activities in September 1977. No discrepancies were identified.

8. Review of the Startup Group's Punchlist

The inspector reviewed the AP&L startup group's punchlist to determine that it contained the items specified in SAP 2-7 (Resolution of System Problems), Revision 1 dated September 29, 1976. Several startup field reports (SFR), startup work reports (SWR), and turnover release exception lists were selected and compared against the punchlist entries. All SFR's and SWR's selected had corresponding punchlist entries. Although paragraph 4.3.3.2 of SAP 2-7, Release Exceptions, specifies that each release exception identified in the turnover package will be placed on the punchlist, the following open release exceptions were not found on the punchlist.

<u>List ID</u>	<u>Item #</u>	<u>Item</u>
65B-1-M	3	Complete large pipe hangers per attached list.
65B-1-M	4	Complete small pipe hangers per attached list.

<u>List ID</u>	<u>Item #</u>	<u>Item</u>
65B-1-M	10	Install motor operators on 2CV-4697-2 and 2CV-4698-1.
65B-1-S/C	1	Complete Installation of 2T-1.

Paragraph 4.3 of Startup Administrative Procedure (SAP) 2-7, Resolution of System Problems, states in part, "In order to provide a convenient means of identifying outstanding work items, a punchlist form will be prepared and maintained /sample forms shown in Appendix D to the procedure/." Furthermore, paragraph 4.3.3.2, Release Exceptions, of SAP 2-7 states:

"Upon system turnover each release exception identified in the turnover package will be placed on the punchlist. As additional construction or vendor problems are identified and agreed to by Construction as valid release exceptions they will be placed on the release exception list. Then these will also be placed on the punchlist. This will be done to centralize all items on one list. Resolution of construction deficiencies shall be in accordance with Section 4.4 of this procedure."

The applicant's failure to place the above release exceptions on the punchlist as required by SAP 2-7 is an apparent item of noncompliance against Criterion V of 10 CFR 50, Appendix B, as detailed in paragraph 4.

9. Review of Applicant's Commitments Regarding Low Temperature Over-Pressurization.

The inspector reviewed the following operating procedures:

2102.02 Plant Startup
2102.05 Operation at Hot Standby
2102.10 Plant Shutdown and Cooldown

The inspector also reviewed other associated operating procedures to determine if these procedures fully implement the interim measures committed to by the applicant in a letter to the Director of Nuclear Reactor Regulation, dated August 18, 1977. The commitments had not yet been implemented. An applicant representative stated that the above procedures are being reviewed and that the commitments would be reflected in the revised procedures. This item is open pending a review of the revised procedures.

10. Review of Unit 2 Operations Orders

The inspector reviewed the operations order to AP&L operators for Unit 2 systems under the direct control of AP&L startup. The operations order book is organized by startup system number and contains instructions to the operators which are entered by the system startup engineer. During a discussion with the applicant's startup management, the inspectors expressed the concern that there appears to be no review of this book by startup management. This dilution of management responsibility can contribute to confusion in that no clear lines of communication exist between startup management and operations personnel. In addition, the segmented organization of the Startup Systems Instruction Book can lead to operational conflicts between systems that may be in other than normal configurations, and to a lack of cross-referenced entries under all affected startup systems. For example, the licensee currently has a requirement to maintain a minimum of 90°F reactor vessel head temperature. Initially, this was done by utilizing a low pressure safety injection (LPSI) pump to add heat to the reactor coolant system as required. This requirement and these instructions were entered only under the LPSI system (number 51) in the Startup System Instruction Book. In view of this, the applicant's startup management agreed to periodically review the Startup System Instruction Book to ensure adequate entries and lack of intersystem conflicts.

11. Spent Fuel Pool Wall Deficiency

The inspector reviewed the report of the tests to verify the structural integrity of the spent fuel pool. These tests were conducted in October 1976 as a result of the applicant's commitment ^{3/} to the Commission. The applicant had performed all of the committed testing and no significant discrepancies were noted.

In the above letter, the applicant made the following long-term surveillance commitment: "For a long-term survey an extended mapping program will be carried out starting with the first refueling." The inspector could find no evidence that responsibilities had been assigned to schedule and perform this surveillance. This item remains unresolved (Unresolved Item 7721-2).

12. Posting Requirements

During the review of noncompliance follow up (paragraph 3), the inspector found that the licensee had not issued instructions or assigned responsibilities to assure that applicable items of noncompliance and responses thereto are posted in accordance with 10 CFR 19. A licensee representative said that administrative procedures would be developed to correct this discrepancy. This item remains open.

^{3/} Letter W. Cavanaugh (AP&L) to J. F. Stolz (NRC/NRR), dated 7/1/76

13. Exit Interview

The inspectors met with licensee representatives (denoted in paragraph 1) at the ANO site and again at the Little Rock Corporate Offices on September 28 and 29, 1977, respectively. The findings as detailed above were discussed with the licensee representatives.

The findings relating to the October 7-8 portion of the inspection were discussed with Mr. D. Bennett and Mr. J. Anderson on October 11 and 12, 1977.