

APPENDIX B

U. S. NUCLEAR REGULATORY COMMISSION
REGION IV

Inspection Report: 50-313/87-05
50-368/87-05

Licenses: DPR-51
NPF-6

Dockets: 50-313
50-368

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

Facility Name: Arkansas Nuclear One (ANO), Units 1 and 2

Inspection At: ANO Site, Russellville, Arkansas

Inspection Conducted: February 1-28, 1987

Inspectors:

for *C. C. Harbuck*
W. D. Johnson, Senior Resident Reactor
Inspector

3/4/87
Date

C. C. Harbuck
C. C. Harbuck, Resident Reactor Inspector

3/4/87
Date

Approved:

D. R. Hunter
D. R. Hunter, Chief, Reactor
Project Section B, Reactor Projects
Branch

2/13/87
Date

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Inspection Summary

Inspection Conducted February 1-28, 1987 (Report 50-313/87-05)

Areas Inspected: Routine, unannounced inspection including operational safety verification, maintenance, surveillance, followup on previously identified items and licensee event reports, allegation followup, IE Information Notice followup, the significant event review program, low temperature overpressure mitigation, and emergency operating procedure review.

Results: Within the ten areas inspected, one violation was identified (failure to follow procedure in the operation of the makeup pump room coolers - paragraph 4) and one potential enforcement item was identified (inoperable pressurizer code safety valve - paragraph 3).

Inspection Conducted February 1-28, 1987 (Report 50-368/87-05)

Areas Inspected: Routine, unannounced inspection of operational safety verification, maintenance, and surveillance, followup on previously identified items and licensee event reports, allegation followup, IE Information Notice followup, the significant event review program, and low temperature overpressure mitigation.

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

DETAILS

1. Persons Contacted

- *J. Levine, Director of Site Nuclear Operations
- R. Ashcraft, Electrical Maintenance Supervisor
- *B. Baker, Operations Manager
- C. Fran, QC Supervisor
- D. Bennett, Mechanical Engineer
- M. Browning, Maintenance Engineer
- *P. Michalk, Licensing Engineer
- W. Converse, Operations Assessment Superintendent
- A. Cox, Unit 1 Operations Superintendent
- *E. Ewing, General Manager, Technical Support
- B. Garrison, Operations Technical Support
- L. Gulick, Unit 2 Operations Superintendent
- H. Hollis, Security Superintendent
- D. Horton, Quality Assurance Superintendent
- *D. Howard, Special Projects Manager
- *L. Humphrey, General Manager, Nuclear Quality
- J. Jacks, Licensing Engineer
- *H. Jones, Plant Modifications Manager
- *R. Lane, Engineering Manager
- *D. Lomax, Licensing Supervisor
- B. McCord, Quality Control Inspection Supervisor
- J. McWilliams, Maintenance Manager
- J. Orlicek, Field Engineering Supervisor
- G. Parks, Senior QC Inspector
- V. Pettus, Mechanical Maintenance Superintendent
- *D. Provencher, Quality Assurance Supervisor
- S. Quennoz, General Manager, Plant Operations
- E. Rice, Electrical Maintenance Supervisor
- P. Rogers, Special Projects Coordinator
- *R. Rousselle, Quality Control Engineering Supervisor
- C. Shively, Plant Engineering Superintendent
- R. Smith, Shift Technical Adviser
- M. Snow, Licensing Engineer
- C. Taylor, Operations Technical Support Supervisor
- *J. Taylor-Brown, Quality Control Superintendent
- G. Wrightam, I&C Supervisor
- S. Yancy, Maintenance Supervisor
- C. Zimmerman, Operations Technical Support Supervisor

*Present at exit interview.

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

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

(Closed) Open Item 313/8429-03: Temporary level indication. The licensee has revised Procedure 1103.11 to include the desired valve alignment for using the temporary reactor coolant system level indication manometer. Drawings M-237, sheets 1 and 2, have also been revised to include this system.

(Closed) Open Item 313/8504-01; 368/8504-01: 10 CFR 50.72 reporting. The licensee has revised Procedure 1000.08 to require a report to the NRC within four hours of, "Any event or situation, for which a news release is planned or notification to other government agencies has been or will be made. Such an event may include an onsite fatality or inadvertent release of radioactively contaminated materials, oil spills, hazardous chemical releases, management initiated shutdowns, etc."

(Closed) Open Item 313/8506-05; 368/8506-05: Establishment of a program for initial, documented evaluation of the effect of potential deficiencies on continued safe plant operation. The licensee has implemented Revision 3 of Procedure ESP-304. This procedure provides administrative requirements for logging, tracking, evaluation, documenting, and resolving nuclear safety and nuclear environmental concerns.

(Open) Violation 313/8517-01; 368/8528-01: Failure to establish consistent procedures for the operation of the outside air dampers on the control room emergency recirculation and filtration units. Procedure 2104.34 has been revised to remove the recommendation concerning closing the outside air damper on 2VSF-9 during a chlorine event. The procedures for testing of the control room isolation and emergency ventilation systems have been coordinated and combined in Procedures 2104.07, 2104.34, and 1104.34. Procedure 1104.34 contained unclear or inconsistent information regarding whether VSF-9 starts automatically upon an indication of chlorine in the Unit 2 air intake duct. This item will remain open pending revision of Procedure 1104.34.

(Open) Open Item 368/8528-03: Radiation monitoring panel operability. In December 1985, the NRC inspector observed that an average of 10 to 15 percent (5 to 7) of the instruments or recorders on the Unit 2 radiation monitoring panel (2C25) were inoperable. This was made an open item to track licensee action to improve the operability of these instruments. On February 25, 1987, the NRC inspector observed that the following instruments on 2C25 were inoperable:

2RITS-8903	2RR-2330
2RITS-8911	2RITS-8909
2RITS-8905	2RITS-8912
2RITS-1513-2	2RITS-2429

No apparent progress has been made by the licensee to improve the operability of the radiation monitoring instruments on 2C25.

3. Licensee Event Report (LER) Followup (Units 1 and 2)

Through discussions with licensee personnel and review of records, the following five event reports were reviewed to determine that reportability requirements were fulfilled, immediate corrective action was accomplished, and corrective action to prevent recurrence has been accomplished in accordance with Technical Specifications:

Unit 2

LER 83-035 "Potential Flooding By Fire Suppression System of Vital Electrical DC Buses 2D01 and 2D02." This LER was submitted for information only since its subject was related to IEN 83-41: "Actuation of Fire Suppression System Causing Inoperability of Safety-Related Equipment." The NRC inspector determined that an adequate response to this IEN had been completed by the licensee. This event report is considered closed.

LER 85-022 "Reactor Trip on High Steam Generator Level Due to Closure of Main Feedwater Regulating Valve." The NRC inspector verified that the following corrective actions were completed:

- . Proper installation of instrument air filters
- . Replacement of the pneumatic relays and readjustment of the 'B' valve positioner
- . Installation of differential pressure gages across filters
- . Additional operator training on the instrument air system
- . Changing preventive maintenance on the air dryer to meet manufacturer's recommendations
- . Placement of duplex filters in the air lines to the MFRVs and changing them out monthly

Additionally a design change to install finer filters was to be completed in the near future. This event report is considered closed.

LER 86-013 "Inoperable Containment Building Pressure Transmitter." The NRC inspector verified that procedures were in place to ensure that environmentally qualified equipment is installed and maintained properly. This event report is considered closed.

Unit 1

LER 86-003 "Breaches in Control Room Isolation Integrity Capability." Although the three breaches of the control room isolation boundary found were all in the Unit 2 control room, this LER was reported under Unit 1, since both control rooms are considered to be in the same habitability

envelope. The three breaches were identified on three separate dates: July 24, 1985, and January 3 and 20, 1986. The licensee did not determine these breaches to be a reportable event until February 13, 1986. The NRC inspector expressed concern to the licensee that this determination should have been more timely. All corrective actions pertaining to this LER were verified to have been completed. This event report is considered closed.

LER 86-007 "Pressurizer Code Safety Valves Inoperable Due to Incorrect Set Pressure." The principal subject of this report was the finding that valve PSV-1002 had been found set approximately 500 psi above the lift set pressure specification on December 21, 1986. Although the licensee plans a supplemental report by October 1987, the significance of this finding warranted an NRC review before then. The NRC inspector reviewed applicable documentation and interviewed maintenance personnel who were involved with the refurbishment and testing of PSV-1002 in September of 1985 under Job Order 702359. The purpose of this review was to independently verify the licensee's conclusions that the maintenance had been performed properly and that probably the correct safety valve had subsequently been tested. (No licensee record exists for work on this valve from the conclusion of testing in September of 1985 until the set pressure was found high on December 21, 1986.) From this review the NRC inspector noted the following documentation problems:

- a. A single copy of Procedure 1402.18 (Pressurizer Relief Valve Removal and Replacement, Revision 0, dated January 2, 1985) was used to document the removal of one safety valve and the refurbishment and installation of a different safety valve in its place. The fact that two valves were involved was not clearly denoted in the job order documentation.
- b. The licensee had three code safety valves, each of which had its own unique identification number; however, these numbers were not used to identify particular valves during maintenance or testing activities on site. Consequently, certain determination of which valve was tested in September 1985 on the pressurizer was not possible using the existing documentation in the job order package.
- c. Part of the test data was missing from the documentation of the set pressure testing performed under Procedure 1802.03 (Pressurizer Code Relief Valve Test, Revision 0, Permanent Change 1, dated December 18, 1984) on September 25-26, 1985. The first three of six test runs were not included in the test record and possible adjustments to the spring tension for the first three tests, if any, were not recorded.
- d. Procedure 1402.18 had the following problems:
 - . The releasing of the valve spring tension and the replacement of the spindle were not clearly documented.
 - . Procedure Step 7.4.7, verification of the blowdown ring position during valve reassembly was marked "not applicable," but

apparently should have been done as indicated by related step 7.2.20 during valve disassembly.

Although the bellows was replaced, procedure step 7.3.1 indicated the contrary.

The NRC inspector expressed concern to the licensee that these documentation problems indicated an inadequate management review of the job order package prior to closeout. The licensee acknowledged this concern and indicated that changes made since 1985 to the code safety valve maintenance and testing procedures and in the way job orders are written have improved work documentation.

Despite the documentation problems noted, based on discussions with licensee maintenance personnel, managers, and the test engineer involved with the work, it appeared that the maintenance had been performed properly and that the correct safety valve had been tested. Additionally, during disassembly of the valve in question (PSV-1002) no problems were found. However, because the September 1985 test documentation was unclear on valve identification, due to the past practice of not recording the unique identification number, no definite conclusion that the correct valve had been tested could be reached from the documentation reviewed. Further, the root cause of the out of specification setting was still considered by the licensee to be unknown.

The NRC inspectors discussed with the licensee the possibility of Valve PSV-1002 having been set 500 psi above lift set pressure during an extended period of critical operation, in violation of Technical Specification 3.1.1.3.A which requires two operable code safety valves during critical operation. The licensee was informed that this issue is being considered as a potential enforcement item and will be addressed in separate correspondence.

This event report will be reviewed further following submittal of the supplemental report.

No violations or deviations were identified.

4. Operational Safety Verification (Units 1 and 2)

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

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

The NRC inspectors observed plant housekeeping/cleanliness conditions and verified implementation of radiation protection controls. The NRC inspectors walked down the safety-related portions of the Unit 1 electrical distribution system. The walkdown was performed using the checklists of Procedure 1107.01. No breaker misalignments were identified. The licensee had recently completed relabeling this system, including the addition of controlled breaker lists attached to the doors of the 120 volt AC and 125 volt DC distribution panels. One breaker tag was missing and one tag differed in wording from the checklist. The licensee was informed of these minor discrepancies, and corrective action was initiated. During a plant tour later in the month, the NRC inspector noted that another breaker tag was missing. This tag had apparently fallen off due to failure of its adhesive.

During plant tours, the NRC inspectors noted that plant general appearance and cleanliness was excellent in most areas. Significant improvement has been made recently due to the auxiliary building free release project and the general painting project. These projects were continuing at the end of this inspection period. During the month, two areas needing additional housekeeping attention were identified to the licensee. These were the Unit 2 motor driven emergency feedwater pump (2P7B) room and the Unit 2 number 1 diesel generator room around the boric acid pumps. Also during a plant tour, the NRC inspector noted that a brass tag with the wrong valve number on it was attached to Manual Valve 2CS-814. The licensee was informed, and corrective action was taken.

The NRC inspector noted that the number of deficiency tags attached to control and indication panels in the Unit 2 control room had increased. This indicated a growing backlog of minor maintenance items affecting control room operators. These minor deficiencies did not indicate a failure to meet any Technical Specification requirements, and they did not appear to have a significant negative impact on operator performance; but the NRC inspector expressed concern that this could become a problem if the trend were not reversed. The licensee had initiated a tracking system to monitor this backlog.

On February 10, 1987, the NRC inspector noted that only one of the three makeup pump room coolers in Unit 1 was in operation. A recent revision to Supplements, II, III, and IV of Procedure 1104.02, "Makeup and Purification System Operations," required that at least two makeup pump room coolers must be in operation and that all three should be running if available. The licensee's failure to follow this procedural requirement is an apparent violation. (313/8705-01)

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.

5. Monthly Surveillance Observation (Units 1 and 2)

The NRC inspector observed the Technical Specification required surveillance testing on High Pressure Safety Injection Pump 2P89C (monthly test, Procedure 2104.39, Supplement 3) and High Pressure Injection/Makeup Pump P36A (quarterly test, Procedure 1104.02, Supplement IV) 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, that test results were reviewed by personnel other than the individual directing the test, and that any deficiencies identified during the testing were properly reviewed and resolved by appropriate management personnel.

The inspector also witnessed portions of the following test activities:

- . Power range linear amplifier calibration at power (Procedure 1304.32)
- . Unit 2 diesel generator number 2 biweekly test (Procedure 2104.36, Supplement 2)
- . Engineered safeguards actuation system analog channel 2 monthly test (Procedure 1304.05)
- . Unit 1 diesel generator number 1 monthly test (Procedure 1104.36, Supplement I)

No violations or deviations were identified.

6. Monthly Maintenance Observation (Units 1 and 2)

Station maintenance activities of safety-related systems and components listed below were observed to ascertain that they were conducted in accordance with approved procedures, Regulatory Guides, and industry codes or standards; and in conformance with 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 ensure that priority is assigned to safety-related equipment maintenance which may affect system performance.

The following maintenance activities were observed:

- . Altering the limit switch configuration on 2CV-1418-1 per Design Change Package 86-2055 (Job Order 714452)
- . Investigation of a ground in plant protection systems channel 3 (Job Order 729986)
- . Repair of reactor protection system channel A (Job Order 0306)
- . Replacement of tripper finger assembly on operator for 2CV-1418-1 (Job Order 711323)

No violations or deviations were identified.

7. Significant Event Review Program (Units 1 and 2)

The licensee has implemented Procedure 1000.38, "Significant Review Program." This procedure established the Significant Event Review Committee and provided requirements for this committee to review significant events (including plant trip, plant transients, and engineered safeguards actuations) to determine root and contributing causes and to recommend corrective actions. The NRC inspector attended a meeting of this committee on February 12, 1987. At this meeting, the Unit 1 transient of February 9, 1987, involving a main feedwater pump trip and a plant runback was reviewed.

The committee used a structured approach to analyze the event, determine the root cause of the event, determine possible contributing causes, and to prepare recommended corrective actions.

No violations or deviations were identified.

8. Followup of Allegation 4-86-A-105 (Units 1 and 2)

In a letter dated October 23, 1986, Region IV of the NRC forwarded to the licensee an allegation received by the NRC regarding drug usage at ANO. This letter requested the licensee to perform an investigation of the allegation and to take any necessary corrective action. The licensee's letter of January 21, 1987, to NRC Region IV reported that the allegation had been reviewed and appropriate corrective measure had been taken.

The NRC inspector discussed the licensee's review of the allegation and the measures taken with licensee management.

No violations or deviations were identified.

9. Followup on IE Information Notice 86-106 (Units 1 and 2)

This notice was entitled "Feedwater Line Break" and was issued on December 16, 1986. It addressed feedwater pipe thinning and requested the licensee to review the information for applicability to their facilities and consider actions to preclude similar problems at their facilities. At the time of this inspection, the licensee had not completed its review of IEN 86-106. The NRC inspector discussed the issue of pipe wall thinning with licensee personnel to learn their past actions and future plans in dealing with pipe wall thinning. The following points are presented as a summary:

- . The licensee has had a program for monitoring secondary system piping and fittings for thinning since 1982.
- . The monitoring program has grown over the years, following each additional incident at another plant.
- . The primary focus of the program has been extraction steam piping and high pressure turbine exhaust piping.
- . After the event described in IEN 86-106, the ANO-1 condensate piping was inspected, concentrating on areas where direction changes could lead to erosion.
- . No problems were found in the condensate piping, but some thinning was found on smaller piping associated with the heater drain pumps.
- . AP&L is working to develop an integrated piping inspection program, combining the existing programs and using specific selection criteria.
- . Inspections are planned to be performed during each refueling outage. The new inspection program is expected to be in place prior to the next refueling outage.

No violations or deviations were identified.

10. Low Temperature Overpressure (LTOP) Mitigation Systems (Units 1 and 2)

The NRC inspector initiated a review to verify that both ANO units have an effective LTOP system which is in accordance with licensee commitments and NRC safety evaluation reports. This review includes specific verifications in the areas of design, administrative controls and procedures, training and equipment modification, and surveillance.

Some aspects of system design were reviewed during this inspection period. No violations or deviations were identified. This inspection effort will continue during a future inspection period.

11. Emergency Operating Procedure (EOP) Review (Unit 1)

The purpose of this part of the inspection was to determine whether the Unit 1 EOP was prepared in accordance with the NRC-approved Procedures Generation Package (PGP) and are adequate to control safety-related functions in the event of system or component malfunction.

The NRC inspector reviewed the PGP which consisted of Plant-Specific Technical Guideline (P-STG), the Plant-Specific Writer's Guide (P-SWG), and the description of the program for verification and validation of the EOP. Preliminary reviews of the EOP indicate that it was consistent with the PGP.

Additionally, the NRC inspector observed a licensed operator training session on the Unit 1 simulator and noted that the portions of the EOP used in the scenario (loss of coolant accident) appeared to have been adequate to guide operator actions to ensure safe shutdown of the plant.

The review of the Unit 1 EOP will be continued in a future inspection.

No violations or deviations were identified.

12. Exit Interview

The NRC inspectors met with Mr. J. M. Levine, Director, Site Nuclear Operations, and other members of the AP&L staff at the end of inspection. At these meetings, the inspectors summarized the scope of the inspection and the findings.

ATTACHMENT 2

UPDATE FORM

FACILITY: AND-1
DOCKET: 50-313

ORIGINATORS NAME: JOHANSONWD

TYPE: V

ITEM NO.: 8705-07

REPORT: 8705

PARAGRAPH: 4

FUNCTIONAL AREA: PLANTOPERATIONS

DESCRIPTION: FAILURETOOPERATE

TWOMUPRMCOOLERS

PER110402

STATUS CODE: C

UPDATE/CLOSE:
REPORT

RESPONSIBLE
SECTION RPSB

DETAILS: _____

