

APPENDIX

U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Report: 50-313/81-33  
50-368/81-32

Dockets: 50-313  
50-368

Licenses: DPR-51  
NPR-6

Licensee: Arkansas Power and Light Company  
Post Office Box 551  
Little Rock, Arkansas 72203

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

Inspection at: ANO Site, Russellville, Arkansas

Inspection Conducted: November 30 - December 4, 1981

Inspectors: J. P. Jaudon  
J. P. Jaudon, Reactor Inspector, Systems and Technical  
Section (Paragraphs 1, 3, 4, 5, & 6)

12/23/81  
Date

E. H. Johnson  
E. H. Johnson, Reactor Inspector, Systems and Technical  
Section (Paragraphs 1, 2, 5, & 6)

12/23/81  
Date

Approved: R. E. Hall  
R. E. Hall, Chief, Systems and Technical Section

12/24/81  
Date

Inspection Summary

Inspection Conducted on November 30 - December 4, 1981 (Report 50-313/81-33;  
50-368/81-32)

Areas Inspected: Routine, unannounced inspection of fire prevention, calibration, and procedures. The inspection involved 74 inspector-hours by two NRC inspectors.

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

## DETAILS

### 1. Persons Contacted

- \*J. Alters, Planning and Scheduling Supervisor
- B. Austin, Assistant Office Services Supervisor
- B. Baker, Operations Manager
- M. Bishop, Office Services Supervisor
- \*M. Bolanis, Health Physics Superintendent
- D. Brown, Engineer
- C. Cole, Planning and Scheduling Coordinator
- J. Davis, Assistant Office Services Supervisor
- \*L. Duggar, Special Projects Manager
- R. Hargrove, Training Coordinator
- P. Jones, I&C Superintendent
- \*J. Lamb, Safety and Fire Prevention Coordinator
- \*J. O'Hanlon, ANO General Manager
- J. Ray, Quality Control Engineer
- \*P. Rogers, Special Projects Coordinator
- L. Schempp, Manager, Nuclear Quality Control
- \*M. Stroud, Engineer
- \*R. Turner, Engineer
- J. Waxenfelter, I&C Supervisor

The NRC inspectors also contacted other plant personnel including administrative, clerical, engineering, maintenance, and operations personnel.

\*Denotes presence at the exit interview conducted December 4, 1981.

### 2. Fire Protection/Prevention Program Implementation

The objective of this inspection effort was to ascertain whether the licensee is implementing a program for fire protection and prevention that is in conformance with regulatory requirements, commitments in the fire protection plan, and industry guides and standards.

The following elements of the ANO fire protection/prevention program were included in this inspection effort:

- a. control of combustible materials in safety-related areas
- b. general station housekeeping and housekeeping during maintenance and modification
- c. fire brigade and fire protection equipment, functional, and properly maintained
- d. surveillance testing of the fire protection system
- e. fire brigade training and fire drills

The NRC inspector reviewed the below listed licensee procedures to determine the extent to which regulatory requirements and commitments were reflected in internal procedures:

<u>Procedure/Revision</u>	<u>Title</u>
1005.20/0	"Fire Brigade Organization and Responsibilities"
1023.20/0	"Fire Plan/Fire Brigade Training Program"
1000.18/2	"Housekeeping"
1053.01/0	"Control of Combustibles"
1053.02/1	"Control of Ignition Sources"
1053.03/1	"Safety and Fire Prevention Inspection"
1032.01/1	"Design Control"

In this review, the NRC inspector determined that although the station procedures for design control included a sign off for a fire hazard analysis review, there were no supporting instructions to indicate how this review was to be conducted. It was not clear to the NRC inspector whether this review would include both the fire hazards involved during the modification work and the effect of the proposed modifications on the fire hazards analysis; that is, whether the proposed modifications introduced new previously unanalyzed hazards or altered the assumptions upon which the original fire hazards analysis was based. During the exit interview, this item was discussed. The NRC inspector learned that the design control program had recently been rewritten and some of the supporting instructions were yet to be prepared. The questions raised by the NRC inspector were intended to be addressed in these. The NRC inspector indicated that this item would remain open pending review of the supporting procedures. (Open Item 8132-01)

The NRC inspector conducted a tour of the accessible areas of the station to determine if the fire protection systems were installed and appeared to be operational as required, and to assure that station housekeeping conditions were adequate to reduce fire hazard potential. The NRC inspector noted that housekeeping conditions in all areas inspected were excellent. In one location where maintenance had been in progress but had been suspended for the time being, the work area was neat and orderly. No accumulations of combustible materials, such as had been noted in a previous NRC inspection (NRC Report 50-368/81-28, paragraph 3), were identified. The NRC inspector commented on the high state of plant cleanliness during the exit interview, a condition which he felt indicated the positive effort and attention of the plant staff.

During the facility tour, the NRC inspector noted that the licensee had put into effect a requirement that all nonsupervised valves in the fire protection system be sealed in their required positions. This requirement was in addition to the monthly inspection of valve positions required by the Technical Specifications. The NRC inspector noted that several valves, although positioned properly, lacked lead seals or had broken seals. The licensee's Safety and Fire Prevention Coordinator indicated that following modification, maintenance, or tests requiring valve manipulations, the valves were properly repositioned, but getting the valves resealed had not yet been completed. He indicated that methods were being developed to assure all valves would be resealed. In the meantime, his own weekly inspections were identifying and following up on valves needing resealing. Later during the inspection, the NRC inspector reviewed selected fire protection system valve position surveillances and he could not detect any instances of valves improperly positioned. No items of noncompliance or deviations were noted in this area of the inspection.

The NRC inspector toured each unit's control room with a licensee representative to inspect the central fire alarm panels. In the Unit 2 control room, the NRC inspector noted the panel indicated a trouble condition. This was discussed with the licensee representative, and the NRC inspector learned that two recently added deluge systems, which were not yet operational, were presently isolated, causing the closed supervised inlet valve to send a trouble alarm condition to the control alarm panel. This in turn caused the control room front panel alarm to be activated continuously. The NRC inspector expressed his concern during the exit interview that the continuous trouble alarm condition had not been corrected. The ANO General Manager indicated that this item would be taken under review. The licensee's actions on this matter will be reviewed during a future inspection. (Open Item 8132-02)

The NRC inspector reviewed selected results of surveillance testing of fire protection systems to determine that the testing was conducted at the intervals required, and the results were satisfactory. This sampling covered 9 different surveillance requirements involving 22 separate tests on the operation of the diesel driven and electric fire pumps, fire system valve position verifications, fire system flushes, fire pump performance tests, annual fire system valve cycling, and fire hose station testing and hydro. No items of non-compliance or deviations were noted in this area of the inspection.

The implementation and content of the licensee's fire brigade training program was inspected. The training program, outlined in Procedure 1023.20 listed above, consists of two parts. The first part is an

initial fire brigade training session given by the licensee's on-site training department. The session is given to all newly assigned operations department personnel in the first month they are on site, prior to being assigned to a shift and consists of four hours of classroom instructions covering the fire protection system, components and system description, and fire brigade organization and responsibilities, followed by a 1½ hour walk through of the facility to identify the installed equipment. Completion of this program qualifies a new non-licensed operator for assignment to the shift fire brigade.

The second part is a continuing fire brigade training program presented over two years. Each of 20 lessons in this training is given for 5 successive weeks to allow all operators to attend. The course is presented by the staff of the Arkansas Fire Academy. The total duration of this course is approximately 60 hours.

The NRC inspector conducted a detailed review of training records for 27 nonlicensed operators who were qualified, as of the date of the inspection, to stand watch as either auxiliary operator or waste control operator, since the shift fire brigade primary members are selected from this group. The actual attendance rate for individual operators at the continuing lecture series averages about 60-80 percent. Further, when the NRC inspector compared this list of qualified watchstanders to their date of arrival on site, it was apparent that the average experience level for fire brigade members at the ANO site is less than six months. On average, these watchstanders had only attended about 20 percent of the total two year course. The NRC inspector confirmed that the licensee's procedures require that a fire brigade team member complete the two year continuing training program.

This item was discussed at the exit interview where the NRC inspector pointed out that a more extensive initial fire brigade training course would allow a corresponding cutback in the scope of the continuing program. This would permit more flexibility in scheduling the continuing program as Appendix R to 10 CFR 50 requires only quarterly training sessions whereas the present program required attendance at 10 sessions each year. This in turn would enable a higher attendance rate at the continuing sessions. The ANO General Manager indicated that the plant staff would look into this matter to ensure that training goals would be met.

During his review of the licensee's fire brigade training program, the NRC inspector noted that no specific fire brigade leader training was included, nor did internal procedures set out any specific qualification criteria for brigade leaders. This item was discussed at the exit interview where the licensee made clear his position that the training program would ensure all primary fire brigade team members would be capable of assuming duties as the team leader. As of the time of the inspection, the two year training program which had begun on January 1, 1981, was

only half complete, thus an assessment as to whether this program could accomplish this goal could not yet be made. The NRC inspector indicated that this item would remain open for evaluation during a future inspection. (Open Item 8132-03)

The NRC inspector also reviewed the licensee's program for fire drills. At the present time, the licensee is performing four fire drills per year. Appendix R to 10 CFR 50 requires that each shift fire brigade perform four fire drills per year and that each fire brigade member participate in at least two drills per year. The records for the four drills performed were reviewed. Participation in these drills was limited to the following fire brigade members:

- a. February 1981 fire drill - two Unit 1 operators, one Unit 2 operator, two fire brigade support team members (security force)
- b. June 1981 fire drill - five Unit 1 operators, two Unit 2 operators, two fire brigade support team members (security force)
- c. August 1981 fire drill - three Unit 1 operators, two Unit 2 operators, two fire brigade support team members (security force)

One additional fire drill is scheduled for December 1981, which will involve the participation of the Russellville Fire Department.

The NRC inspector examined the licensee's commitments to fire drill performance which are contained in the ANO Fire Plan (latest version - Revision 2 of November 1978). In this plan (Section 3.e), the licensee indicates that four fire drills per year will be performed. This commitment was made in response to the fire protection guidance issued by NRR in Appendix A to Branch Technical Position (BTP) 9.5-1 of August 23, 1976. These commitments were incorporated as license conditions for ANO, Unit 1 (Amendment 35 to License DPR-51) and ANO, Unit 2 (NUREG 0223). The intent of BTP 9.5-1 with regards to fire drills was that each shift fire brigade would participate in four drills per year, a requirement that is reflected in Appendix R to 10 CFR 50 as indicated above. The licensee is at present interpreting his commitment as four total drills per year. The NRC inspector indicated, during the exit interview, that this interpretation was at variance with the requirements of Appendix R, but additional information would have to be sought from the Office of Nuclear Reactor Regulation regarding this interpretation in order to resolve this item. The NRC inspector indicated that this item would be classified as unresolved, at present. (Unresolved Item 8133-i; 8132-1)

On December 16, 1981, a telephone conference call was held among the NRC inspector; Mr. R. E. Martin, Licensing Project Manager of the Office of Nuclear Reactor Regulation; and Mr. J. P. O'Hanlon and other members of the licensee's staff to discuss this item. The NRC inspector was informed that the licensee's staff had reviewed this item and had decided that although the commitment to a minimum of four fire drills per year was being met, a stronger training program

would be achieved by exercising each shift fire brigade with four fire drills per year. Mr. O'Hanlon indicated that this would be done starting in January 1982, and that a letter describing this program would be sent to the Region IV office. He felt, he said, that this would provide the additional information needed to resolve this item.

### 3. Calibration

This inspection was for the purpose of verifying the accuracy and frequency of licensee instrument calibrations. Unit 2 calibrations were recently reported in inspection report 50-313/81-31; 50-368/81-30. This report also covered part of the licensee's program for calibrating measuring and test equipment (M&TE).

The NRC inspector reviewed the licensee's records of completed calibrations. These were working records maintained by Planning and Scheduling. These records indicated that calibrations had been completed as scheduled for Unit 1. The NRC inspector then reviewed completed calibration procedures. Thirteen completed procedures were reviewed. Some of these procedures covered multiple instruments. In general, the NRC inspector found that each completed procedure had the following common attributes:

- a. The procedure was signed by the technician completing the work and by the first line supervisor who reviewed the completed procedure for the licensee.
- b. Each procedure specified M&TE to be used and delineated, by serial number, the M&TE used.
- c. Data were legibly recorded, including "as found" and "as left" values.
- d. There were no discrepancies found between "as left" recorded data and stated acceptance criteria.

Additionally, the NRC inspector compared names of technicians completing various calibrations to licensee on-the-job-training records. It was confirmed that the technicians were "qualified" to accomplish the calibrations checked.

Inspection report 50-313/81-31; 50-368/81-30 indicated that the licensee had issued several new procedures covering calibration and M&TE, but that one additional procedure, 1035.05, was still under preparation. The NRC inspector found that Procedure 1035.05, Revision 0 (11/11/80), "M&TE Calibration and Repair," had been issued. The NRC inspector verified licensee performance in one aspect of this procedure. This was the licensee's method of recording, for rapid retrieval, each instance in which M&TE was used. This record was maintained by



computer data base update. The NRC inspector found that this data base gave the licensee the ability to identify quickly every calibration in which a given meter or other test device had been used. Therefore, when any piece of M&TE was found to be out of calibration, the licensee was able to determine what plant instruments could have been affected and might be out of calibration. By interview, the NRC inspector established that plant personnel were knowledgeable of this procedure and were apparently making rational judgements concerning the necessity to recalibrate plant instruments when M&TE equipment problems were found.

There were no violations or deviations identified in this area of the inspection.

#### 4. Procedures

The purpose of this inspection was to verify that the licensee had issued procedures to cover areas of plant operation or administration that were required by Technical Specifications (Chapter 6) or in the Final Safety Analysis Report (Chapter 13.5). The NRC inspector also verified that the review and approval of procedures were accomplished in accordance with Technical Specifications (Chapter 6) requirements.

The NRC inspector found that the licensee had over 3000 procedures. A sample of 42 of these procedures were reviewed in detail. These are listed in Attachment A. The NRC inspector found that the licensee had three methods to modify procedures. These methods were by revision, by permanent change, or by temporary change. No matter what the method of modification, review by the Plant Review Committee (PRC) and approval by the General Manager were required. It was noted that revisions were generally more comprehensive than were permanent changes and that whenever a revision was issued, it incorporated existent permanent changes. For simplicity, both revisions and permanent changes are hereafter referred to as "changes."

The NRC inspector found that the licensee modified procedures at an approximate rate of 200-225 changes a month. The NRC inspector considered this rate of change to be very high; however, no conflicts with control procedure were detected.

Analysis of the 42 procedures reviewed in detail indicated the following:

- a. Twenty-eight (of the 42) had been either changed or issued new during calendar year 1981. This sample indicated a modification rate of 67% a year on key procedures.
- b. The total number of changes to the 28 procedures (including new issues) was 61. Thus, for procedures of potential safety significance, the true change rate appeared to be approximately 145%.



During the review of procedure records, the NRC inspector found that records were apparently well kept, easily retrievable and that there was evidence of PRC review and management approval for every change.

The NRC inspector concluded that the mechanics of procedure review and approval and the records thereof were in apparent compliance with Technical Specification requirements. The NRC inspector expressed concern to licensee management that the volume of procedure change was so large as to make questionable the quality of the review being given to procedure changes. Review of the content of many of the procedure changes made during 1981 tended to substantiate to the NRC inspector that the review of procedures was of questionable quality, since many of the changes were to correct errors that could reasonably have been found during initial review.

There were no violations or deviations identified during this phase of the inspection.

5. Unresolved Item

An unresolved item is a matter about which more information is required in order to ascertain whether it is an acceptable item, a violation, or a deviation. One unresolved item is discussed in paragraph 2 of this report.

<u>Item No.</u>	<u>Description</u>
50-313/8133-01; 50-368/8132-01	Frequency and number of fire drills conducted

6. Exit Interview

An exit interview was conducted December 4, 1981, with those personnel denoted in paragraph 1 of this report. At this exit interview, the NRC inspectors summarized the scope and findings of their inspection.

ATTACHMENT A

<u>Procedure No.</u>	<u>Revision</u>	<u>PC</u>	<u>Date</u>	<u>Title</u>
1000.06	6	-	9/3/81	Procedure Review, Approval and Revision Control
1000.27	1	-	9/25/81	Hold and Caution Card Control
1102.08	4	1	7/8/81	Approach to Criticality
1103.02	2	-	10/7/81	Filling and Venting the Reactor Coolant System
1103.07	6	-	6/13/79	Reactor Coolant Pump Seal Leakage Measurement
1103.17	3	-	3/17/81	Power Imbalance and Quadrant Power Tilt Calculations Using Backup Incore Detector System
1104.04	11	3	7/8/81	Decay Heat Removal Operating Procedure
1104.11	1	-	8/19/75	Plant Makeup Water
1104.20	5	1	3/25/81	Clean Waste System Operation
1104.29	8	-	9/30/81	Service Water and Auxiliary Cooling System
1105.01	2	2	3/6/81	NI and RPS Operating Procedure
1105.13	0	-	4/1/80	Relief Valve Monitoring System Operation
1106.09	5	2	11/11/81	Turbine Startup (Warmup and Roll)
1106.16	6	-	4/29/81	Condensate, Feedwater, and Steam System Operation
1107.01	7	1	11/20/81	Electrical System Operations
1202.02	4	-	3/6/81	Blackout
1202.09	4	-	3/4/81	Loss of Condenser Vacuum
1202.15	2	-	7/22/75	Loss of Reactor Coolant Makeup

ATTACHMENT A

1203.04	1	-	4/16/74	Reactor High Startup Rate
1203.12	8	-	5/27/81	Annunciator Corrective Actions
1304.28	3	6	8/5/80	Area Radiation Monitoring System Calibration
1304.41	3	-	5/27/81	Reactor Protection System Channel A Calibration
1304.101	0	5	5/25/81	Fire Hose Station Testing and Hydrostatic Test
1309.03	0	1	2/11/81	Decay Heat Removal System Integrity Test and Leak Rate Determination
1402.08	0	-	9/9/80	Auxiliary Feedwater Pump Disassembly, Inspection and Re-Assembly
1402.16	1	-	10/30/81	CRD Shim Safety Rod Lead Screw Removal
1402.35	0	-	1/14/81	Suppressor Snubber Valve Repair
1405.13	4	3	10/23/81	Fire Detection Instrument Operability
2106.12	0	1	11/7/77	Electro-Hydraulic Oil System Operation
2201.01	0	2	5/17/79	Load Rejection
2202.06	7	-	11/30/81	Loss of Reactor Coolant
2202.17	1	-	2/20/80	Loss of Reactor Coolant Flow
2202.29	1	-	2/21/80	Pressurizer System Failures
2304.10	1	1	5/25/81	Shutdown Cooling and LPSI Flow Instruments
2304.17	0	1	12/1/80	Process Radiation Monitoring System (Failed Fuel Calibration)
2304.57	0	9	5/23/81	Preventive Maintenance Emergency Diesel Generator
2304.75	1	2	6/25/81	Safety Injection Tank Pressure and Level Calibration "D" Tank
2304.02	0	-	12/8/80	Oil Addition to Operating Emergency Diesel

ATTACHMENT A

2402.06	0	-	12/9/80	Repair of Pressurizer Code Relief Valves
2402.14	0	1	8/4/81	2P7-A&B Emergency Feedwater Pumps Inspection/Repair
2402.31	0	-	3/31/81	Emergency Diesel Fuel Transfer Pump Unit #2
2304.16	0	-	11/11/81	Hydrogen Recombine Inspection & Electrical Testing