

APPENDIX

U. S. NUCLEAR REGULATORY COMMISSION  
REGION IV

NRC Inspection Report: 50-313/85-10  
50-368/85-10

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: Arkansas Nuclear One, Russellville, Arkansas

Inspection Conducted : April 22-26, 1985

Inspector: Charles A. Hackney 5-29-85  
C. A. Hackney, Emergency Preparedness Analyst Date

Other Accompanying Personnel: R. Hall, Chief, EP&RPB, RIV (April 25-26, 1985 only)  
D. Matthews, Chief, EPB, OIE  
C. Wisner, Public Affairs Officer, Region IV  
M. Moeller, Battelle  
J. Kenoyer, Battelle  
A. Smith, Battelle  
M. Good, Comex Corporation

Approved: J. B. Baird 5-29-85  
J. B. Baird, Chief, Emergency Preparedness Section Date

L. E. Martin 6/24/85  
L. E. Martin, Chief, Project Section A Date  
Reactor Project Branch 2

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Inspection Summary

Inspection Conducted April 22-26, 1985 (Report 50-313/85-10; 50-368/85-10)

Areas Inspected: Routine, announced inspection of the licensee's performance and capabilities during an exercise of the emergency plan and procedures. The inspection involved 232 inspection-hours by 7 NRC and contractor inspectors.

Results: Within the emergency response areas inspected no violations or deviations were identified. Three deficiencies were identified (initiating and maintaining communications - paragraph 7; demonstration of downgrading of emergency classification - paragraph 7; and demonstration of radiological protection - paragraph 12).

DETAILS

1. Persons Contacted

Principal Licensee Personnel

- \*Levine, J., ANO General Manager
- \*Tull, M., Emergency Planning Coordinator
- \*Enos, T., Licensing Manager
- \*Baker, B., Operations Manager
- \*Hollis, H., Security Coordinator
- \*Campbell, G., Vice President Nuclear
- \*Boyd, D., Emergency Planning Coordinator
- \*Van Buskirk, F., Emergency Planning Coordinator
- Pool, R., Assistant Radiochemistry Supervisor
- Binkley, D., Emergency Planning Trainer

State of Arkansas

Wilson, F., Director, Radiation Control And Emergency Management Programs  
Meyers, C., Manager, Nuclear Planning And Response Program

NRC

- Johnson, W., Senior Resident Inspector
- \*Harrell, P., Resident Inspector

Federal Emergency Management Agency (FEMA)

Lookabaugh, A., Chief, Technological Hazards Branch  
Jones, G., Community Planner, Technological Hazards Branch

The NRC inspectors also held discussions with other station and corporate personnel in the areas of health physics, operations, emergency response organization, quality assurance, training and records management.

\*Denotes those present at the exit interview.

2. Licensee Action on Previous Inspection Findings

(Closed) Open item (313/8211-13; 368/8209-13): The operational support center was adequately informed of plant status during the exercise.

(Open) Open Item (313/8211-49; 368/8209-49): There was not a complete shift change of personnel in the technical support center (TSC).

(Closed) Open Item (313/8211-84; 368/8209-84): Projected dose and integrated dose were calculated.

(Open) Open Item (313/8211-89; 368/8209-89): Offsite data from the state was not used by licensee dose assessment personnel.

(Closed) Open Item (313/8408-01; 368/8408-01): A full compliment of control personnel was provided for the control room.

(Closed) Open Item (313/8408-02; 368/8408-02): Detection and classification observed during the exercise were timely and correct. Additional emergency plan and procedure training had been provided for the shift operations supervisors (SOSs).

(Closed) Open Item (313/8408-03; 368/8408-03): The shift administrative assistant (SAA) was available in the control room and additional assistance was provided during the exercise.

(Closed) Open Item (313/8408-04; 368/8408-04): Personnel in the control room, TSC, and the emergency operations facility (EOF) were aware of the change of command and the location of the emergency director.

(Closed) Open Item (313/8408-05; 368/8408-05): Protective action recommendations, notifications, and dose assessment were transferred from the control room to the TSC in a timely manner.

(Closed) Open Item (313/8408-06; 368/8408-06): The state was contacted from the TSC and radiological information was exchanged.

(Open) Open Item (313/8408-11; 368/8408-11): The medical portion of the exercise was not observed onsite during this inspection.

### 3. Exercise Scenario

The scenario was written to test the reactor operations personnel, onsite and offsite monitoring personnel, first aid, fire team, and other support functions. The scenario challenged the operations personnel for emergency classification, notification, and dose assessment. The onsite and offsite radiological monitoring teams had the opportunity to demonstrate the use of emergency procedures and radiological monitoring equipment during a night time exercise.

### 4. Control Room

The exercise was initiated at 1758 with the leak rate in the primary system exceeding a technical specification limit for the Unit 2 reactor. The initial exercise conditions were given to the SOS and the SOS declared a Notification Of Unusual Event based upon the emergency action level in the emergency procedures. State officials were notified within 10 minutes after the emergency had been declared. The Duty Emergency Coordinator (DEC) was notified according to the personnel notification procedure. He arrived onsite 22 minutes after having been paged. The NRC resident

inspector was notified at his residence and he reported directly to the control room. The DEC was briefed by the SOS as to the plant conditions, notifications, and emergency classification.

An Alert was declared at 1959 due to increased reactor coolant system leakage. The DEC relieved the SOS of his emergency coordinator function and assumed command of the emergency coordinator function. The state was notified of the Alert class at 2009. The NRC operations center was notified and given an hourly update over the emergency notification system (ENS) telephone. Plant augmentation was started at 2012 by the SAA. The SOS requested additional assistance for the SAA when he considered the Unit 2 SAA to be overloaded in performing offsite notifications, dose assessment, and communicating with offsite agencies. Due to apparent degradation of the plant, the SOS requested an hourly sample and analysis of the primary coolant water.

The NRC inspector noted that the senior reactor operator (SRO) was the communicator that maintained an open line with the NRC on the ENS. The reactor operator was without immediate technical assistance since the SOS and the SRO were performing other emergency functions.

A loss of number 1 diesel generator and loss of offsite power occurred at 2120. The SOS declared a Site Area Emergency and ordered evacuation of all nonessential personnel. The NRC inspector noted that there was not an audible or visual indication in the control room that the site evacuation alarm had sounded or the verbal message had been broadcast over the plant address system.

The TSC had been activated and declared operational at 2100. The DEC was relieved by the Emergency Coordinator (EC) in the TSC and all offsite coordination functions were to be performed by the emergency personnel in the TSC.

Based on the above findings, improvements in the following areas should be considered:

(Open) Open Item (313/8510-01; 368/8510-01): Assign a communicator for the ENS, pursuant to 10 CFR Part 50.72(c), that will not reduce the reactor operators technical support.

(Open) Open Item (313/8510-02; 368/8510-02): Provide a mechanism for the control room personnel to be assured that the site evacuation alarm is activated and that the site personnel message is broadcast.

No violations or deviations were identified.

5. Technical Support Center

The NRC inspector noted that the TSC staff appeared to adequately perform their duties as assigned by the EC. The EC took command from the DEC at 2100 and assumed all offsite coordination functions. The DEC kept the TSC personnel informed of plant status, and held regular staff briefings. The NRC inspector noted that radiological surveys were conducted both inside and outside the TSC during the exercise.

The NRC inspector noted that the personnel status board had additional emergency response personnel identified that were not listed in the emergency plan or procedures. It was noted that the additional personnel were an asset to the EC and provided logistical and technical support during the exercise. It is recommended that those additional support personnel be reviewed for need, and incorporated into the Emergency Response Organization, if justified.

The NRC inspectors noted that the TSC staff supported the control room operators at the initial stages of the exercise and continued to support the control room operators throughout the exercise. Further, the TSC staff initiated a recovery and reentry plan during the final phase of the exercise.

The NRC inspector noted that prior to transmitting the General Emergency notice to the state there was considerable time expended to obtain the latest radiological information so that the information could be sent with the General Emergency information being telefaxed to the state. The information was sent to the state 15 minutes after the General Emergency was declared.

Following the initial accountability of plant personnel, it was determined that accountability was not being performed to maintain account of TSC personnel during the remainder of the exercise.

Based on the above observation, improvement in the following area should be considered:

(Open) Open Item (313/8510-03; 368/8510-03): Following the completion of plant personnel accountability, establish and maintain accountability of personnel assigned to the TSC.

6. Dose Assessment

Following the initial portion of the exercise, dose assessment was conducted in the TSC. The gaseous effluent radiological monitoring system (GERMS) was activated for performing dose assessment. The GERMS was preprogrammed with meteorological, radiological, and other variables to follow the accident scenario.

The NRC inspector noted that the dose assessment team did not evaluate the dose rates and summation doses in the affected sectors versus the source term, plume centerline results or offsite radiological monitoring team measurements. It was noted that the TSC dose assessment team did not attempt to obtain or use the state offsite radiological monitoring information.

Based on the above findings, improvement in the following area should be considered:

(Open) Open Item (313/8510-04; 368/8510-04): Include radiological data from offsite monitoring or other sources in the evaluation of GERMS dose assessment reports.

No violations or deviations were identified.

#### 7. Emergency Operations Facility

The EOF was prepared for operation in a timely manner. The NRC inspectors noted an unusual number of personnel utilized for setting up the EOF prior to the arrival of the emergency response organization (ERO) personnel from Little Rock, Arkansas. The EOF was staffed with an adequate number of personnel. The NRC inspector noted that personnel were listed on the status boards that were not indicated in the emergency plan or procedures. It is recommended that those additional personnel be identified and included in the emergency response plan, if justified.

The EOF Director (EOFD) arrived at the EOF and promptly assigned personnel to their emergency tasks. It was noted that the EOF was not activated within the time recommended in NUREG-0737, Supplement 1. This had been identified as an unresolved item (313/8502-03; 368/8502-03) prior to the exercise and action on this item was not completed at the time of this inspection. Furthermore, the EOFD delayed relieving the TSC EC for approximately 80 minutes after arriving at the EOF. During the delay the plant conditions degraded and a General Emergency was declared.

The NRC inspector noted that the EOFD kept the staff apprised of plant status and events. However, the EOFD briefings did not include onsite/offsite radiological conditions or state and local events. The plant status boards were maintained and kept up to date during the exercise.

The NRC incident response center experienced difficulty in establishing and maintaining contact with the EOF during the exercise. In addition, communicators were not designated to communicate with the NRC at the EOF.

The exercise was terminated during a General Emergency class at approximately 0300 hours. The status boards indicated that a release was

ongoing and the reactor was not in a stable condition. The licensee did not demonstrate termination of the release, placing of the reactor in a stable condition and downgrading of the emergency class.

Based on observations by the NRC inspector in the EOF, the following items are considered to be emergency preparedness deficiencies:

The capability to downgrade and reclassify the accident following mitigation of the accident was not demonstrated. (313/8510-05; 368/8510-05).

The EOF communication system procedures did not adequately support communication with offsite agencies. (313/8510-06; 368/8510-06).

Based on the above findings, improvement in the following area should be considered:

(Open) Open Item (313/8510-07; 368/8510-07): Assign an individual(s) in the EOF responsibility for communicating with the NRC.

No violations or deviations were identified.

#### 8. Operational Support Centers

The radiation protection operational support center (OSC) was activated in a timely manner. The team leader took charge of the area and made team assignments. Members of the team appeared to be adequately trained in the proper use of their instruments and procedures. Team members were briefed prior to being dispatched to monitor radiological conditions in the plant.

The NRC noted that a status board was maintained for radiological conditions and personnel accountability; however, there was not a procedure to maintain personnel accountability in the OSC. The NRC inspector noted that several key procedures were not in the onsite equipment cabinet. In particular, "EPIP 1903.43 Duties of Emergency Radiation Team" and the equipment/operational checklist were not in the cabinet.

Based on the above observations, improvement in the following areas should be considered:

(Open) Open Item (313/8510-08; 368/8510-08): Ensure appropriate copies of checklist and procedures are in the emergency cabinet.

(Open) Open Item (313/8510-09; 368/85-09): Develop and implement an accountability procedure for the OSC.

No violations or deviations were identified.

9. Fire Team

The fire team members responded to the fire in a timely manner. The fire team leader established communications with the control room. Necessary equipment was available to meet the teams initial response needs. The fire team members had to be prompted to take an active role in the scenario. The NRC inspector noted that team members were not familiar with the use of their communication equipment that may be used with the self-contained breathing apparatus.

Based on the above observations, improvement in the following area should be considered:

(Open) Open Item (313/8510-10; 368-8510-10): Provide training for all fire team members in the use of communications equipment.

No violations or deviations were identified.

10. Post Accident Sampling

Personnel were familiar with the required procedures and appropriate equipment. Interaction between the radiochemist and the radiation protection personnel appeared to be excellent. Pre-sampling briefings were thorough. However, the post accident sample building had water covering most of the floor; this was considered a safety concern due to the electronic equipment being used in the facility. The NRC inspector also noted that the automatic liquid nitrogen fill system was inoperable. During an accident personnel may have to go into a high radiological area to obtain liquid nitrogen for the multi-channel analyzer.

Based on the above observation, improvement in the following area should be considered:

(Open) Open Item (313/8510-11; 368/8510-11): Provide an alternate method for obtaining liquid nitrogen outside a potentially high radiation area if the automatic fill system should fail.

No violations or deviations were identified.

11. Security/Accountability

The nonessential personnel evacuation alarm was activated at a Site Area Emergency at 2128. The accountability of station personnel was completed at 2236; a total time of 68 minutes to complete the accountability process. This exceeds the 30 minutes guidance of NUREG-0654 by a significant amount.

Based on this observation, improvement in the following area should be considered:

(Open) Open Item (313/8510-12; 368/8510-12): Review the accountability process and provide procedures to accomplish accountability according to the NUREG-0654 guidance criterion of 30 minutes.

No violations or deviations were identified.

## 12. Offsite Radiological Monitoring

The NRC inspector observed the formation and dispatch of the offsite radiological monitoring team. The teams were notified to report to the plant at the Alert class. Onsite team members began arriving at the OSC in approximately 10 minutes. The offsite team members began arriving in approximately 45 minutes.

Team members were briefed as to their duties and requested to get their equipment, inventory the kits, and go to their designated area. The team members used the procedures provided in the kits, and performed activities as they were requested from the TSC and the EOF. Team members did not use, or simulate, the use of the respiratory protective equipment and anti-contamination clothing. Further, the team was on the edge of the plume and when the wind shifted the team was notified that the radiological readings were increasing and the team remained in the plume. Upon returning to the EOF the team did not survey the vehicle or themselves for radiological contamination.

Based on observations by the NRC inspectors, the following item is considered to be an emergency preparedness deficiency:

Offsite radiological monitoring team members did not demonstrate adequate radiological protection procedures during the exercise. (313/8510-13; 368/8510-13)

No violations or deviations were identified.

## 13. Public Relations/Media

The NRC inspector observed that the joint information center (JIC) was staffed in timely manner considering the JIC's distance from the AP&L office in Little Rock, Arkansas. The licensee staff assigned to the JIC staff for the exercise was sufficient to carry out their assigned duties, and it was noted that there were additional personnel available in Little Rock. News releases were coordinated with the appropriate representatives and released in a timely manner. The news conferences were held in a time frame which was commensurate with the events as they were happening in the scenario without any indication of anticipatory action. The information available during the news conference was adequate. However, consideration should be given to providing media training to those individuals

responsible for conducting news conferences and prioritizing information to be disseminated to the public.

The performance of all personnel in the JIC was adequate during the exercise, also, coordination of information with the state was adequate.

No violations or deviations were identified.

14. Exercise Critique

The licensee's critique of the emergency exercise was observed to determine that deficiencies identified as a result of the exercise and weaknesses noted in the licensee's emergency response program were identified for corrective actions as required by 10 CFR 50.47 (b)(14), 10 CFR 50, Appendix E, paragraph IV.E, and the guidance criteria in NUREG 0654, Section II.N.

The licensee critique of the emergency exercise was held with exercise controllers, key exercise participants, licensee management, and NRC personnel attending. The deficiencies and weaknesses identified as a result of this exercise were, in most cases, similar to the NRC inspectors' findings. Corrective action taken by the licensee for identified deficiencies and weakness will be reviewed during subsequent NRC inspections.

No violations or deviations were identified.

15. Exit Meeting

The exit interview was conducted on April 26, 1985, with licensee representatives. Mr. P. Harrell, NRC resident inspector, was in attendance. Mr. C. A. Hackney, the NRC team leader, Mr. R. E. Hall, Chief, Emergency Preparedness and Radiological Protection Branch, Region IV, Mr. D. Matthews, Chief, Emergency Preparedness Branch, I&E, and other staff members represented the NRC. Mr. C. A. Hackney summarized the team comments and observations in the subject areas of the exercise scenario, control room, TSC, OSC, fire team, offsite monitoring and public affairs.