

ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket Nos.: 50-313
50-368

License Nos.: DPR-51
NPF-6

Report No.: 50-313/98-20
50-368/98-20

Licensee: Entergy Operations, Inc.

Facility: Arkansas Nuclear One, Units 1 and 2

Location: Junction of Hwy. 64W and Hwy. 333 South
Russelville, Arkansas

Dates: October 19-22, 1998

Inspector(s): Thomas H. Andrews, Emergency Preparedness Analyst

Approved By: Blaine Murray, Chief, Plant Support Branch

Attachment: Supplemental Information

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EXECUTIVE SUMMARY

Arkansas Nuclear One, Units 1 and 2
NRC Inspection Report 50-313/98-20; 50-368/98-20

This routine, announced inspection focused on the operational status of the licensee's emergency preparedness program. Emphasis was placed on changes that had occurred since the last routine emergency preparedness inspection.

Plant Support

- The emergency preparedness program was properly implemented. The emergency plan and procedures were properly maintained. The annual review of emergency action levels was adequately documented. Emergency response facilities were maintained in a state of operational readiness. Equipment, supplies, and procedures were maintained and available for use. The emergency planning staff was properly trained and maintained good awareness of industry events. The emergency response organization was trained in accordance with the licensee's procedures. Audits and assessments of the emergency preparedness program provided good insight into program performance. An effective program was used for tracking internal task assignments. Potential areas for improvement identified by the licensee were aggressively pursued. Corrective actions were implemented in a timely manner (Section P3).
- The overall performance of two shift crews during walkthroughs using the training simulator was very good. Teamwork, supervisory oversight, and effective use of dose assessment results during the scenarios were very good. Assessment of plant conditions, classification of emergencies, notifications of offsite agencies, protection of plant personnel, dose assessment, and protective action recommendations were performed properly and in a timely manner. The critique of crew performance was thorough and provided good feedback for areas of improvement (Section P4).
- The training tracking process was identified as a strength due to the flexibility of use and availability to site personnel. Emergency plan implementing procedures adequately described the emergency response organization training and requalification requirements (Section P5).
- The technical expertise of the 1998 audit team was much better than the 1997 audit team which resulted in a more probing and insightful review of the emergency preparedness program. Assessment of offsite interfaces was performed and transmitted to the offsite agencies in accordance with 10 CFR 50.54(t). Self-assessments provided very good insight and identified areas for enhancement. A combined assessment between the Arkansas Department of Health and the licensee was considered unique (Section P7.1).

Report Details

IV. Plant Support

P1 Conduct of Emergency Preparedness Activities (93702)

The inspector reviewed event notifications reported to the NRC Operations Center since March 1997. There were no events classified as emergencies. All events were properly classified.

P2 Status of Emergency Preparedness Facilities, Equipment, and Resources

a. Inspection Scope (82701-02.02)

The inspector toured the following emergency response facilities and reviewed facility/equipment maintenance records.

- Control room
- Technical support center
- Operational support center
- Emergency operations facility

b. Observations and Findings

The emergency response facilities were maintained in an operational state of readiness. The technical support center and emergency operations facility were dedicated response facilities while the operational support center was an area used for routine work space. Means were provided to ensure that equipment and materials needed for emergency response were secured and properly maintained. The areas designated for the operational support center were capable of quickly being reconfigured for emergency response.

Emergency kits were maintained with equipment and supplies. The quantities of supplies were adequate, and the equipment was operational. Equipment that required calibration had labels indicating that the calibration was current. Supplies with a designated shelf life were properly labeled indicating the shelf life expiration date. Supplies with a specified shelf life were within the shelf life period. Based upon a review of the routine surveillance logs, the inspector found that inspections of emergency kits were performed within the frequency specified in the licensee's procedures.

Using a list of procedures that had been recently revised and issued, the inspector determined that procedures within the facilities were maintained. The inspector reviewed telephone listings located in the emergency response facilities and found them to be correct.

The inspector tested selected telephone circuits by using them to contact the NRC Operations Center. All phones tested satisfactorily. The inspector reviewed the

licensee's routine telecommunications test results and determined that the communications circuits were properly maintained.

c. Conclusions

Emergency response facilities were properly maintained in a state of operational readiness. Equipment, supplies, and procedures were properly stored, maintained, and available for use.

P3 Emergency Preparedness Procedures and Documentation

a. Inspection Scope (82701-02.01)

The inspector reviewed emergency plan and implementing procedures were maintained. Specifically, the inspector evaluated the following areas:

- Verified that emergency implementing procedures were reviewed annually and that changes were submitted in accordance with 10 CFR 50.54(q) and 10 CFR Part 50, Appendix E.V,
- Verified annual review of emergency action levels with offsite authorities, and
- Verified annual reconfirmation of offsite organization letters of agreement.

b. Observations and Findings

The licensee used a systematic approach for review of emergency plan implementing procedures. When a procedure required revision, the entire procedure was reviewed. Therefore, at the end of the year, only those procedures that had not been revised during the year required review. A similar approach was used for reviewing the emergency plan. If a revision of the emergency plan was required, the entire plan was reviewed at that time. The licensee credited this review as the annual review of the emergency plan. The licensee provided documentation showing that emergency plan and implementing procedures were either revised or reviewed in 1987.

The inspector selected representative changes made to Revision 24 of the emergency plan. A review of emergency plan implementing procedures revealed that the changes were accurately reflected in the procedures. The inspector determined that the emergency plan and procedures were properly maintained.

The inspector reviewed transmittal records for emergency plan changes and emergency plan implementing procedure revisions. Requirements found in 10 CFR 50.54 and 10 CFR Part 50, Appendix E stated that these changes were to be provided to the NRC within 30 days of implementation. The transmittal records showed that changes to the emergency plan and implementing procedures were provided to the NRC in a timely manner.

A surrogated and redundant approach was used to review emergency action levels with offsite agencies on an annual basis. The primary review was with the Arkansas Department of Health. A representative of the Arkansas Department of Health reviewed the emergency action levels with the local officials and provided documentation of the review to the licensee. Emergency planning staff members also reviewed the emergency action levels with county officials as part of their routine meetings/contacts. The inspector determined that the annual review of emergency action levels was properly performed.

c. Conclusions

The emergency plan and procedures were properly maintained. Changes to the emergency plan and implementing procedures were provided to the NRC in a timely manner. The annual review of emergency action levels was properly performed.

P4 Staff Knowledge and Performance in Emergency Preparedness

a. Inspection Scope (82701-02.04)

The inspector conducted walkthroughs with two operating crews using a dynamic simulation on the plant-specific control room simulator. The inspector assessed the ability of the control room teams to classify events accurately, perform the required notifications in a timely manner, perform offsite dose assessments, and make adequate protective action recommendations.

b. Observations and Findings

The performance of two shift crews, one from each unit, was evaluated using scenarios developed by the licensee. Each crew had a different scenario. The performance of both crews was very good. Event recognition, classification, and offsite notifications were performed properly and in a timely manner.

Internal communications and supervisory oversight were good. Briefings were frequent, served to maintain focus on priorities, and contained a review of current conditions. Both crews demonstrated good teamwork to ensure that critical information was given to the shift supervisor for use in decision making. Crews showed good awareness in identifying potential paths for event escalation. Three-part communications were used throughout the scenarios. Three-part communications included the following parts:

- Statement or request made by the first person to the second person
- Repeat of the statement or request by the second person to the first person
- Confirmation by the first person that the repeated information was correct

Announcements of plant equipment condition changes and the declaration and upgrade of emergency classifications were announced to plant personnel using the plant paging system within minutes of these events. Localized evacuations were used appropriately to remove personnel from affected areas of the plant. The announcement of evacuation

of nonessential personnel occurred within 10 minutes following the declaration of the site area emergency during both scenarios. The evacuation routes used considered wind direction even though a release was not in progress at the time. The inspector determined that the licensee's process to protect plant personnel was very good.

Both crews exercised good use of dose assessment information. One crew used information provided to upgrade the event classification based upon dose assessment results. The other crew used information provided by the dose assessor to confirm that a release was in progress and upgrade to a general emergency was required. Crews maintained good awareness of the need to inform dose assessment personnel of potential unmonitored release paths.

Protective action recommendations were properly developed and included in notifications to offsite agencies. The protective action recommendations used both plant conditions and dose assessment results. Following the scenarios, a special training briefing was conducted to reinforce the proper method to formulate protective action recommendations. The inspector determined that this form of briefing served to reinforce actions performed during the scenario.

Both crews conducted critiques of their performance. The critiques included input from the emergency planning evaluators as well as from the crew. The critiques contained a mix of areas for improvement and recognition of good performance.

c. Conclusions

The overall performance of two shift crews during walkthroughs using the training simulator was very good. Teamwork, supervisory oversight, and effective use of dose assessment results during the scenarios were very good. Assessment of plant conditions, classification of emergencies, notifications of offsite agencies, protection of plant personnel, dose assessment, and protective action recommendations were performed properly and in a timely manner. The critique of crew performance was thorough and provided good feedback for areas of improvement.

P5 Staff Training and Qualification in Emergency Preparedness

a. Inspection Scope (82701-02.04)

The inspector reviewed: (1) training records for key emergency response personnel, and (2) records and documents associated with emergency drills/exercises.

b. Observations and Findings

The licensee developed a mechanism using the company Intranet to track the training of emergency response organization personnel. Training records are entered into the database as training courses are completed. The inspector confirmed that training records were maintained current by verifying that there was no backlog of records to be entered. The licensee demonstrated the capability of the system to produce a

qualification report for an individual or for a group of individuals. The group capability would be used at the start of an emergency to generate a hard copy of the information in case the computer system was later lost.

The qualification reports for individuals indicated the following:

- Status of their emergency response organization members' qualifications
- Status of their respirator qualifications
- The size respirator face piece they were fitted with (if applicable)
- A notation indicating if corrective lenses were required for the individual

The inspector determined that the information would be valuable to personnel assembling repair teams during an emergency. The system also permitted personnel to access the web page from their office to check their own qualification status at any time. The inspector determined that the training tracking process was a program strength due to the flexibility of use and availability to site personnel.

Procedure 1063.021, "Emergency Response Training Program," Revision 21, provided detailed training requirements for emergency response organization personnel. The procedure established appropriate retraining requirements and specified methods to trend the performance of emergency response training. The inspector determined that the training procedure adequately described the training required for emergency response organization training and requalification.

The inspector reviewed the training requirements for emergency planning staff. Procedure 1063.021 provided general information for continuing training requirements. The inspector reviewed training records for the emergency planning staff and determined that the staff was trained in a broad spectrum of subjects to support emergency preparedness. Interviews with the staff revealed good awareness for recent industry events and their significance. The inspector determined that the emergency planning staff was properly trained and maintained good awareness of industry events.

c. Conclusions

The training tracking process was identified as a strength due to the flexibility of use and availability to site personnel. Emergency plan implementing procedures adequately described the emergency response organization training and requalification requirements. The emergency planning staff was properly trained and maintained good awareness of industry events.

P7 Quality Assurance in Emergency Preparedness Activities

P7.1 Independent and Internal Reviews and Audits (82701-02.05)

a. Inspection Scope

The inspector examined the latest audits and internal assessments of the emergency preparedness program.

b. Observations and Findings

The inspector reviewed the 1997 and 1998 quality assurance audits and assessments of the emergency preparedness program. The scope of the audits was consistent with the scope specified in the emergency plan. The audits were conducted within 12-month intervals as stated in the licensee's emergency plan.

Based upon the number of recommendations and observations, the 1998 audit appeared to provide a more in-depth review of program performance than the 1997 audit. The inspector reviewed the qualifications of personnel who performed the audits and found that the 1998 audit had included a technical expert from the corporate office. For the 1997 audit, the lead auditor was considered to be the technical expert. The lead auditor's expertise was based upon previous experience auditing the emergency preparedness program. The inspector determined that the technical expertise of the 1998 audit team was better than the 1997 audit team which resulted in a more probing and insightful review of the emergency preparedness program.

Assessment of the offsite interface included interviews of offsite officials. The portion of the audits describing the assessment of the offsite interface was transmitted to each of the five counties and the Arkansas Department of Health for the 1997 and 1998 audits. This satisfied the offsite interface assessment requirements of 10 CFR 50.54(t).

The inspector reviewed three of the self assessments performed by the emergency planning staff. These provided very good insight into the areas assessed and identified areas for enhancement. The inspector found one of the assessments to be unique in that it was a joint assessment performed by the licensee and the Arkansas Department of Health to identify areas of overlapping capabilities for potential cost savings.

c. Conclusions

Audits of the emergency preparedness program were good. The audits were conducted on a 12-month frequency as required by 10 CFR 50.54(t). The technical expertise of the 1998 audit team was better than the 1997 audit team which resulted in a more probing and insightful review of the emergency preparedness program. Assessment of offsite interfaces was performed and transmitted to the offsite agencies in accordance with 10 CFR 50.54(t). Self assessments provided very good insight and identified areas for enhancement. A combined assessment between the Arkansas Department of Health and the licensee was considered unique.

P7.2 Effectiveness of Licensee Controls (82701-02.06)

a. Inspection Scope

The inspector reviewed the licensee's action item tracking system and other methods used to identify areas in need of corrective action.

b. Observations and Findings

Three separate programs were used to track emergency planning section corrective actions. These included:

- Condition Reports
- Training Evaluation/Action Requests
- Emergency Planning Action Tracking System

The training evaluation/action request and the emergency planning action tracking system were the principal tools for tracking emergency planning section corrective actions. These tracking systems were used to document conditions such as weaknesses, problems, and areas for improvement identified during drills and exercises; items identified during self-assessments; and suggestions for improvement identified through other processes.

Training evaluation/action requests were assigned to the director of training and emergency planning. Emergency planning action tracking items were assigned to the manager of emergency planning. Therefore, items requiring higher level management focus were collected in one system, while more routine types of items were contained within the emergency planning action tracking system.

The training evaluation/action request and emergency planning action tracking systems were similar to, but did not supersede the condition report system. The condition report system was used on a plant-wide basis to document problems adverse to quality. If a situation were significant, both a training evaluation/action request and a condition report could be generated. Based on a review of condition reports, training evaluation/action requests, and emergency planning action tracking items, the inspector determined that the emergency planning section processed these documents in a timely manner.

The licensee addressed observations and recommendations identified in audits and surveillances aggressively. The inspector noted several examples of improvement items listed in the various tracking programs which had been reviewed and incorporated. The licensee's strategic plan for the emergency preparedness program was reviewed which showed further strong management support for improving the emergency preparedness program.

Routine tasks were tracked on a log-sheet maintained in the emergency planning section. The inspector reviewed monthly, quarterly, and annual sheets and determined that routine tasks were performed as required.

c. Conclusions

The licensee had an effective program for tracking internal task assignments. Potential areas for improvement were aggressively pursued. Corrective actions were implemented in a timely manner.

P8 Miscellaneous Emergency Preparedness Issues (92904)

P8.1 (Closed) Inspection Followup Item 50-313/9710-01; 50-368/9710-01: administration of potassium iodide to field team members

During a previous inspection, inspectors identified that potassium iodide was not stored in field team kits. Based upon review of procedures and regulatory guidance, the inspectors determined that the existing options for distribution of potassium iodide to field teams were insufficient because they would delay potassium iodide administration, hinder personnel safety, and could inhibit the licensee's ability to monitor/confirm offsite consequences.

In response, the licensee placed bottles of potassium iodide in the field team kits with instructions for use. Procedures were modified to account for this change. The reviewed changes to the potassium iodide administration program and field team kit inventories adequately addressed the identified concern.

P8.2 (Closed) Inspection Followup Item 50-313/9710-02; 50-368/9710-02: failure to satisfactorily implement site evacuation procedures

During simulator walkthroughs conducted during a previous inspection, onsite protective actions were not satisfactorily implemented by two crews. One crew did not perform a site evacuation when a site area emergency was declared as required by procedures, and the other did not announce the evacuation until 23 minutes after the site area emergency declaration.

The licensee's response stated that the root cause was insufficient refresher training. The licensee conducted extensive refresher training and drills to ensure personnel understood the requirement and process for evacuating nonessential personnel at a site area emergency or general emergency. During the simulator walkthroughs, the inspector noted that both crews announced the evacuation of nonessential personnel within 5 to 10 minutes after the declaration of the emergency and specified the appropriate evacuation routes to be taken. The inspector determined that the licensee's corrective actions were sufficient.

P8.3 (Closed) Inspection Followup Item 50-313/9710-03; 50-368/9710-03: failure to properly assess the amount of fuel damage

During simulator walkthroughs conducted during a previous inspection, inspector determined that two crews failed to correctly perform fuel damage assessments. This failure had an adverse impact on protective action recommendations in that a

recommendation was made that was not reflective of dose assessment results or actual plant conditions.

The licensee's response stated that the root cause was insufficient refresher training. The licensee conducted extensive refresher training and drills to ensure personnel understood the process for determining the amount of fuel damage. During the simulator walkthroughs, both crews properly assessed the amount of fuel damage and adjusted the protective action recommendations accordingly. The inspector determined that the licensee's corrective actions were adequate.

V. Management Meetings

X1 Exit Meeting Summary

The inspector presented the inspection results to members of licensee management at the conclusion of the inspection on October 22, 1998. The licensee acknowledged the findings presented. No proprietary information was identified.

ATTACHMENT

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

C. Anderson, General Manager Plant Operations
R. Bement, Plant Manager, Unit 2
J. Crawford, Emergency Planning
S. Cotton, Training/Emergency Planning Director
M. Fletcher, Emergency Planning
R. Fowler, Emergency Planning
R. Freeman, Emergency Planning
R. Gresham, Manager, Emergency Planning
J. Hare, Emergency Planning
S. Pyle, Licensing Specialist
D. White, Emergency Planning
D. Young, Emergency Planning

NRC

K. Kennedy, Senior Resident Inspector

INSPECTION PROCEDURES USED

82701 Operational Status of the Emergency Preparedness Program
92704 Followup - Plant Support
93702 Prompt Onsite Response to Events at Operating Power Reactors

ITEMS CLOSED

Closed

50-313/9710-01	IFI	Administration of potassium iodine to field team members
50-368/9710-01		
50-313/9710-02	IFI	Failure to satisfactorily implement site evacuation procedures
50-368/9710-02		
50-313/9710-03	IFI	Failure to properly assess the amount of fuel damage
50-368/9710-03		

DOCUMENTS REVIEWED

Letters

Letter from D. Snellings, Director, Division of Radiation Control and Emergency Management, Arkansas Department of Health to S. Cotton, Director, Training and Emergency Planning, Arkansas Nuclear One, dated April 6, 1998.

EP-97-0101, December 19, 1997, "Briefing the State Nuclear Planning and Response Advisory Committee of 1997 ANO Emergency Plan Changes and Emergency Action Level Changes"

EP-97-0107, December 29, 1997, "Annual Review of the Emergency Plan and Emergency Plan Implementing Procedures (EPIP's)"

EP-98-0051, July 10, 1998, "Quality Assurance Audit Report; Emergency Planning -- QAP-13-98 (Reference: NQ-98-0134)"

NQ-97-0126, "May 7, 1997, "Quality Assurance Audit Report; QAP-13-97 -- Emergency Planning"

NQ-97-0141, May 30, 1997, "Arkansas Nuclear One; Quality Assurance Audit of Emergency Planning," (Johnson County)

NQ-97-0142, May 30, 1997, "Arkansas Nuclear One; Quality Assurance Audit of Emergency Planning," (Logan County)

NQ-97-0143, May 30, 1997, "Arkansas Nuclear One; Quality Assurance Audit of Emergency Planning," (Pope County)

NQ-97-0144, May 30, 1997, "Arkansas Nuclear One; Quality Assurance Audit of Emergency Planning," (Yell County)

NQ-97-0145, May 30, 1997, "Arkansas Nuclear One; Quality Assurance Audit of Emergency Planning," (Conway County)

NQ-97-0146, May 30, 1997, "Arkansas Nuclear One; Quality Assurance Audit of Emergency Planning," (Arkansas Department of Health)

NQ-97-0220, August 8, 1997, "Quality Assurance Surveillance Report SR-032-097, Emergency Planning Drill of July 23, 1997"

NQ-98-0134, June 11, 1998, "Quality Assurance Audit Report; Emergency Planning -- QAP-13-98"

NQ-98-0139, June 18, 1998, "Arkansas Nuclear One; Quality Assurance Audit of Emergency Planning," (Johnson County)

NQ-98-0140, June 18, 1998, "Arkansas Nuclear One; Quality Assurance Audit of Emergency Planning," (Pope County)

NQ-98-0141, June 18, 1998, "Arkansas Nuclear One; Quality Assurance Audit of Emergency Planning," (Logan County)

NQ-98-0142, June 18, 1998, "Arkansas Nuclear One; Quality Assurance Audit of Emergency Planning," (Yell County)

NQ-98-0143, June 18, 1998, "Arkansas Nuclear One; Quality Assurance Audit of Emergency Planning," (Conway County)

NQ-98-0144, June 18, 1998, "Arkansas Nuclear One; Quality Assurance Audit of Emergency Planning," (Arkansas Department of Health)

NQ-98-0204, September 9, 1998, "Quality Assurance Surveillance Report SR-024-98, Emergency Response Exercise (REX-98) of August 19, 1998"

Procedures

1063.021, "Emergency Response Training Program," Revision 21

1903.004, "Admin. & Maintenance of the Emergency Plan & Implementing Procedures," Revision 20

1903.010, "Emergency Action Level Classification," Revision 34

1903.011, "Emergency Response/Notifications," Revision 23

1903.035, "Administration of Potassium Iodide," Revision 6

1903.060, "Emergency Supplies and Equipment," Revision 33

Other Documents

Company Policy PL-140, "Respiratory Protection Guidelines," Revision 1

Arkansas Nuclear One Emergency Plan, Revision 24