

ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION  
REGION IV

Docket Nos.: 50-313  
50-368

License Nos.: DPR-51  
NPF-6

Report No.: 50-313/97-10  
50-368/97-10

Licensee: Entergy Operations, Inc.

Facility: Arkansas Nuclear One, Units 1 and 2

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

Dates: March 17-21, 1997

Inspectors: Gail M. Good, Senior Emergency Preparedness Analyst  
Thomas H. Andrews, Jr., Radiation Specialist

Approved By: Blaine Murray, Chief, Plant Support Branch  
Division of Reactor Safety

ATTACHMENTS

Attachment 1: Supplemental Information

Attachment 2: Scenario Narrative Summary - Unit 1

Attachment 3: Scenario Narrative Summary - Unit 2

## EXECUTIVE SUMMARY

### Arkansas Nuclear One, Units 1 and 2 NRC Inspection Report 50-313/97-10; 50-368/97-10

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.

#### Engineering

- No discrepancies were identified during a review of the Updated Final Safety Analysis Report commitments (Section E2).

#### Plant Support

- Emergency events were correctly classified. As previously documented, notifications to NRC did not meet regulatory requirements. The licensee's event investigation was thorough and effectively identified corrective actions/lessons learned (Section P1).
- Emergency response facilities, equipment, instrumentation, and supplies were maintained in an operational state. An inspection followup item was identified concerning incomplete plans for administering potassium iodide to offsite field team members. The current process could hinder personnel safety and affect the licensee's ability to monitor offsite release consequences (Section P2).
- Emergency plan and procedure changes were submitted to NRC within 30 days after changes were made. Generally, changes to the emergency plan were reflected in other station procedures (Section P3).
- Overall, the performance of the shift crews was generally good. Communications were effective with several noted exceptions. A strength was identified for one crew's briefing technique. Performance in some areas was less than satisfactory. Two exercise weaknesses were identified; one for failure to satisfactorily implement site evacuation procedures, and one for failure to perform correct fuel damage assessments. Dose assessment information used to formulate protective action recommendations was not clearly understood by some shift superintendents (Section P4).
- Sufficient emergency response organization training records were maintained. The process provided a good method to ensure that personnel were qualified to perform assigned response functions and to ensure that retraining was completed in a timely manner (Section P5).

- The emergency planning organization staffing was sufficient. Offsite support agency letters of agreement were reviewed as required (Section P6).
- The 1996 program audit technically met regulations but was compliance-based, rather than performance-based. The audit lacked depth and some elements were not conducted in a manner that would identify problems. The audit was performed by personnel with satisfactory expertise (Section P7.1).
- The licensee had an effective program for tracking internal task assignments. Corrective actions were implemented in a timely manner. Self-assessments were satisfactory (Section P7.2).

Report Details

IV. Plant Support

**P1 Conduct of Emergency Preparedness Activities**

a. Inspection Scope (93702)

The inspectors reviewed event notifications made since July 7, 1996, to determine if events were properly classified. The following declared emergency event was reviewed to evaluate whether the emergency plan was properly implemented:

- October 17, 1996 Containment Fire - Notification of Unusual Event (Event Report 31173)

b. Observations and Findings

After reviewing the event notifications made to the NRC operations center, the inspectors concluded that none of the events were misclassified. One notification of unusual event was declared on October 17, 1996, for a fire in the reactor building lasting more than 10 minutes. The event was properly classified; however, there were some problems with notifications as described in NRC Inspection Report 50-313;-368/96-27.

Specifically, the report documents a violation for failure to inform the NRC within 1 hour of a notification of unusual event declaration. Although the NRC was promptly contacted and the details relayed, the caller failed to mention the emergency classification. In addition, the report notes that an incorrect emergency action level number was written on the emergency message form that was transmitted to the offsite agencies. The incorrect emergency action level corresponded to conditions that would require an alert declaration.

Following the event, the licensee performed a root cause analysis and prepared a report. The report documented 11 items, all of which were associated with notifications. The licensee's corrective actions will be reviewed during a subsequent inspection to address the violation identified in the aforementioned NRC inspection report (50-313/9627-02). The inspectors concluded that the licensee had performed a thorough event investigation and had effectively used the event to identify corrective actions/lessons learned.

c. Conclusions

Emergency events were correctly classified. As previously documented, notifications to NRC did not meet regulatory requirements. The licensee's event investigation was thorough and effectively identified corrective actions/lessons learned.

## **P2 Status of Emergency Preparedness Facilities, Equipment, and Resources**

### **a. Inspection Scope (82701-02.02)**

The inspectors reviewed the status of emergency response facilities, equipment, instrumentation, and supplies to ensure that they were maintained in a state of operational readiness. The inspectors toured the following facilities:

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

### **b. Observations and Findings**

The inspectors observed that, with the exception of the operational support center and the dose assessment area in the emergency operations facility, all three emergency response facilities were single-use facilities. Telephones in each facility were tested and found operable. The inspectors also verified that monthly communications tests were conducted in accordance with emergency plan and procedure requirements. The inspectors concluded that the emergency facilities were operationally maintained.

The following issues were identified during emergency equipment locker/kit examinations:

- The inspectors observed that a supply of potassium iodide was not stored in the offsite monitoring team kits at the emergency operations facility (none specified on the inventory). The inspectors questioned how potassium iodide would be distributed to the field team members if a decision was made to administer the drug. Since there was no procedural guidance for emergency response personnel, indicating that implementation would be on an ad hoc basis, the inspectors interviewed personnel who would be involved in the process.

The interviewees identified three options: (1) all teams could be recalled, (2) an additional team could be formed, administered potassium iodide, and sent to substitute an existing team (repeated until all teams were treated), and (3) medical personnel could be dispatched to deliver potassium iodide to the field teams. Licensee personnel stated that potassium iodide distribution to offsite monitoring teams had never been tested in a drill or an exercise to test process feasibility/timing.

While reviewing this matter, the inspectors identified a procedural inconsistency. Emergency Plan Implementing Procedure 1903.035, "Administration of Potassium Iodide," Revision 5, correctly stated that the

medical team leader was responsible for administering potassium iodide. Whereas Procedure 1903.042, "Duties of the Emergency Medical Team, Revision 19, did not state that the medical team had the responsibility to administer potassium iodide.

In an emergency, the medical team would be located at the operational support center. Since the offsite field teams would be dispatched from the emergency operations facility, the inspectors determined that additional coordination/personnel movement would be necessary to collocate the necessary personnel.

The inspectors noted the following applicable regulations:

10 CFR 50.54(q) requires licensees to follow and maintain in effect emergency plans which meet the standards in 50.47(b).

10 CFR 50.47(b)(9) requires that adequate methods, systems, and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition are in use.

10 CFR 50.47(b)(10) requires that a range of protective actions have been developed for the plume exposure pathway emergency planning zone for emergency workers and the public. Guidelines for the choice of protective actions during an emergency, consistent with Federal guidance, are developed and in place.

NUREG-0654, FEMA-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Revision 1, Evaluation Criterion I.7 states that each organization shall describe the capability and resources for field monitoring with the plume exposure emergency planning zone.

NUREG-0654, Evaluation Criterion J.6c states that each licensee shall, for individuals remaining or arriving onsite during the emergency, make provisions for use of radioprotective drugs.

Sections 2.3.2 and 2.5, and Table 2-1 of Environmental Protection Agency 400-R-92-001, "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents recommends the use of potassium iodide for emergency workers.

After considering the above information, the inspectors concluded that the current options were insufficient because they would delay potassium iodide administration and hinder personnel safety (i.e., an as low as reasonably achievable issue). In addition, recalling all field teams could inhibit the



licensee's ability to monitor/confirm offsite consequences. The inspectors determined that satisfactory demonstration in a drill or exercise was necessary to determine the adequacy of the current process, including the lack of specific procedural guidance. This matter was identified as an inspection followup item and will be reviewed in a future inspection (50-313/9710-01; 50-368/9710-01).

- The inspectors observed that only medium-sized respirators and self-contained breathing apparatus face pieces were stored in the technical support center, operational support center, and emergency operations facility emergency lockers. The licensee acknowledged that personnel qualifications were based on specific face-piece type and size. The licensee verified that fire lockers contained a variety of face-piece sizes and indicated that the need for other sizes in the emergency response facilities would be considered. This response was satisfactory.
- Third, the inspectors observed that one operational support center locker contained an air sampler cartridge head that had dried and cracked o-rings (could create a poor seal and affect sample volume). The licensee stated that the o-rings were supposed to be checked during periodic equipment inventories. The licensee replaced the cartridge head. This response was appropriate.

c. Conclusions

Emergency response facilities, equipment, instrumentation, and supplies were maintained in an operational state. An inspection followup item was identified concerning incomplete plans for administering potassium iodide to offsite field team members. The current process could hinder personnel safety and affect the licensee's ability to monitor offsite release consequences.

**P3 Emergency Preparedness Procedures and Documentation**

a. Inspection Scope (82701-02.01)

The inspectors used Inspection Procedure 82701 to determine whether the emergency plan and implementing procedures were maintained. The inspectors reviewed licensee records to verify the following actions:

- Emergency plan and implementing procedure changes were submitted to NRC within 30 days after changes were made; and,
- Emergency plan and procedure changes were reflected as appropriate in other station procedures.

b. Observations and Findings

The inspectors reviewed copies of transmittal records for emergency plan and procedure changes. Changes were provided to the NRC within 30 days of implementation. The licensee determined that none of the changes reduced the effectiveness of the emergency plan. The inspectors concluded that the process for submitting emergency plan and implementing procedure changes was properly implemented.

While reviewing selected procedures, the inspectors noted that Procedure 1903.042, "Duties of the Emergency medical Team," Revision 19, contained guidance for the emergency medical team in response to declared emergencies. The procedure stated that the emergency medical team did not have to respond during a notification of unusual event unless the emergency was declared as a result of injury to an individual. The inspectors reviewed emergency action levels and determined that they no longer had an emergency action level associated with a potentially contaminated injured worker. Therefore, while there may be injuries requiring emergency medical team assistance associated with conditions in the plant, there would not be a declaration of an emergency based only on injured workers. The inspectors concluded that procedure reviews, to ensure proper implementation of emergency plan changes, could have been more comprehensive.

c. Conclusions

Emergency plan and implementing procedure changes were submitted to NRC within 30 days after changes were made. Generally, changes to the emergency plan were reflected in other station procedures.

**P4 Staff Knowledge and Performance in Emergency Preparedness**

a. Inspection Scope (82701-02.01)

The inspectors conducted walkthroughs with three operating crews (1 crew from Unit 1, and 2 crews from Unit 2) using a dynamic simulation on plant-specific control room simulators. During the walkthroughs, the licensee was evaluated on the ability to:

- Evaluate plant conditions,
- Identify respective emergency action levels,
- Evaluate or, where appropriate, perform dose calculations,
- Classify the emergency using the latest procedures,
- Recommend appropriate protective actions, and
- Make timely notifications to offsite agencies.



The scenarios consisted of a sequence of events requiring escalation of emergency classifications, culminating in a general emergency. Narrative scenario descriptions are contained in Attachments 2 and 3 of this report. Each walkthrough lasted approximately 2 hours.

b. Observations and Findings

Overall, shift crew performance during the simulator walkthroughs was generally good. Emergency classifications and offsite agency notifications were correct and timely.

Crews showed very good use of three-part communications. Three-part communications involve the first individual stating a condition or giving a direction, the second individual repeating the statement or request, followed by confirmation by the first individual.

As an extension of three-part communications, one crew conducted exceptionally effective briefings. At the conclusion of a crew briefing, the control room supervisor asked each crew member to summarize the information as it applied to their position and to state their post-brief actions. The control room supervisor confirmed the information/actions as being accurate. This process was considered a strength since it ensured that crew members were attentive to information presented and were cognizant of crew priorities.

Communications were good with the following exceptions:

- Upon declaration of the notification of unusual event, all three crews contacted health physics to inform them of potentially changing radiological conditions. The inspectors noted that none of the crews made an announcement to inform workers of this potential concern. The licensee's procedures required a plant page for alert and higher emergency declarations. The inspectors noted that plant personnel would benefit from notification of unusual event announcements, especially in situations that involve changing radiological conditions.
- Crew 3's general emergency declaration was slightly delayed due to ineffective communications concerning containment integrity. The shift superintendent was informed that the super particulate iodine/noble gas monitor was alarming and that there were alarms associated with process monitors. Although there was some confusion about which monitor was alarming and what the information meant, the crew eventually determined (within about 5 minutes) that the information indicated that a release was in progress. The general emergency was promptly declared following this determination.

- There were times when Crew 1's control room supervisor did not immediately forward important plant parameter changes (leakrate information) to the shift superintendent. Delays of up to 5 minutes were observed. The delayed communications could have affected the emergency classification and the accuracy of information released offsite.
- Crews 1 and 2 were slow to inform the operating crew when an emergency was declared. Delays ranged from 5 to 8 minutes between declaration time and a control room staff announcement. The inspectors determined that operators would be more attentive to escalation thresholds and mitigation actions if emergency classification information was known.

Onsite protective actions were not satisfactorily implemented by two crews. Crew 2 did not perform a site evacuation when a site area emergency was declared as required by procedures, and Crew 3 did not announce the evacuation until 23 minutes after the site area emergency declaration.

Procedure 1903.030, "Evacuation," Revision 21, required a site evacuation upon declaration of a site area emergency or general emergency unless extenuating circumstances posed a greater danger to workers. Examples of extenuating circumstances included an ongoing security event or inclement weather. However, the procedure contained guidance that appeared to be confusing regarding balancing risks of evacuation versus risks from extenuating circumstances. The shift superintendent for Crew 2 stated that he did not call for a site evacuation because there was no radiological release, implying no risk to site personnel.

Although Crew 3's shift superintendent completed the decision-making process for declaring a site evacuation in a timely manner, the plant announcement was not made until 23 minutes after the site area emergency declaration. Consistent with time frames for other important tasks, such as event classification and offsite agency notifications, the inspectors used about 15 minutes as a reasonable time frame for notifying plant personnel of the need to take protective actions.

The failure to satisfactorily implement site evacuation procedures was identified as an exercise weakness due to the potential impact to plant personnel (50-313/-368/9710-02).

The inspectors evaluated the licensee's ability to make offsite agency protective action recommendations based on plant conditions and dose assessments. During the walkthroughs, all three crews elected to use protective action recommendations corresponding to greater than 10 percent fuel failure.

Using default protective action recommendations (based on plant conditions) for a general emergency would have resulted in a recommendation to evacuate a 2-mile radius and 5 miles downwind and to shelter the remainder of the emergency planning zone. Dose assessment results generated by all three crews confirmed

that this recommendation was valid. However, since the crews assumed greater than 10 percent failed fuel, the corresponding protective action recommendations were to evacuate a 5-mile radius and 10 miles downwind and to shelter the remainder of the emergency planning zone.

Crew 1 correctly recognized that protective action recommendations should be based on dose assessment and that there was more than 1 percent failed fuel, but less than 10 percent. Because the time for notifying offsite agencies was about to expire and dose assessment results were not available, the shift superintendent chose the protective action recommendations corresponding to greater than 10 percent failed fuel. Given the information available, the inspectors determined that the Crew 1 shift superintendent made a prudent decision regarding protective action recommendations.

In contrast, Crews 2 and 3 experienced difficulty determining the amount of fuel failure. The crews used a graph that correlated containment radiation levels to estimated fuel failure. The graph had curves for containment spray operating and containment spray not operating. The curves reflected an anticipated reduction in containment radiation levels due to containment atmosphere particulate scrubbing/washout and iodine scavenging by sodium-hydroxide. Therefore, with containment spray operating, 10 percent failed fuel would be reflected by a lower radiation level than if containment sprays were not operating.

Crew 2's shift superintendent misread the fuel damage graph. As a result, the shift superintendent determined that protective action recommendations should be based on greater than 10 percent fuel damage.

Crew 3's shift superintendent recognized that containment pressure was increasing slowly and determined that, at some point, containment spray would actuate. Based on that determination, the shift superintendent used existing radiation levels in containment (without containment spray) to determine the fuel damage from the containment spray curve. As a result, the shift superintendent concluded that there was greater than 10 percent failed fuel and issued corresponding protective action recommendations.

The inspectors determined that Crews 2 and 3 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 failure to properly assess the amount of fuel damage was identified as an exercise weakness due to the potential impact on the ability to accurately make protective action recommendations (50-313;-368/9710-03).

In a related matter, dose assessment information used to formulate protective action recommendations was not clearly understood by some shift superintendents. The following examples were observed by inspectors and presented as areas for improvement:

- Crew 1 incorrectly used dose rate data on the emergency classification form to formulate protective action recommendations instead of cumulative/integrated dose at predetermined distances. Since the classification form only showed site boundary dose rates, it should not have been used to formulate protective action recommendations.
- Crew 3 considered informing offsite agencies and NRC of an "upgrade" in protective action recommendations based on dose assessment data. The offsite agencies and NRC had already been notified (simulated) of the recommendation to evacuate a 5-mile radius and 10 miles downwind, and to shelter the remainder of the emergency planning zone. The protective action recommendation "upgrade" was actually a relaxation of protective action recommendations (2-mile radius and 5 miles downwind). The inspectors concluded that transmitting the dose assessment-based protective action recommendations could have led to confusion. A similar finding was made during the August 1996 biennial exercise.
- Since the shift superintendents in the walkthroughs did not display confidence in this area, the inspectors conducted interviews with three other shift superintendents. Based on the results of the walkthroughs and interviews, the inspectors concluded that some individuals did not demonstrate a clear understanding of the differences between integrated doses, dose rate, and evacuation criteria. The inspectors communicated this conclusion to the licensee for consideration.

c. Conclusions

Overall, the performance of the shift crews was generally good. Communications were effective with several noted exceptions. A strength was identified for one crew's briefing technique. Performance in some areas was less than satisfactory. Two exercise weaknesses were identified; one for failure to satisfactorily implement site evacuation procedures, and one for failure to perform correct fuel damage assessments. Dose assessment information used to formulate protective action recommendations was not clearly understood by some shift superintendents.

**P5 Staff Training and Qualification in Emergency Preparedness**

a. Inspection Scope (82701-02.04)

The inspectors reviewed training records for selected individuals to ensure that training requirements were satisfied.

b. Observations and Findings

There were few changes to the emergency response organization since the last inspection and there were no significant changes to responsibilities of assigned positions. While reviewing training records, the inspectors noted that there were occasions when people transferred within the plant organization, but were retained in their existing/current emergency response organization position. For example, a person transferred from health physics to reactor engineering, but retained health physics emergency duties. The individual was designated as an offsite monitoring team supervisor in the emergency response organization. The inspectors reviewed differences in day-to-day activities and routine training associated with the health physics position to determine the relevance to the emergency response position.

The inspectors found notable differences between the reactor engineering and health physics positions. The licensee agreed that there may be a long-term issue associated with this practice. Based on the individual's existing qualifications and background, the inspectors did not consider this matter an item of concern at this time.

The licensee maintained records of emergency response organization training. According to procedures, for requalification purposes, emergency response organization members should participate in a drill or exercise and either participate in classroom training or complete a workbook for their position each year. While reviewing 1996 training records, the inspectors made the following observations:

- "N/A" was noted in the columns for workbook or drill/exercise date for several individuals. These individuals were either reassigned from the emergency response organization or were new to the assigned position and had been provided classroom training in lieu of the workbook.
- The drill/exercise date column was blank for two individuals. These individuals were scheduled to participate in an exercise during the first quarter of 1997. According to the emergency planning supervisor, if these individuals do not participate in an exercise during the first quarter of 1997, they will be suspended from the emergency response organization.
- A failing grade (scoring less than 80 percent) on the workbook was entered for three individuals. These individuals were interviewed by the emergency planning supervisor and were determined to be knowledgeable of their emergency response organization duties. No further remedial actions were taken. The licensee maintained appropriate documentation.



The inspectors determined that the licensee maintained sufficient emergency response organization training records. The process provided a good method to ensure that personnel were qualified to perform assigned response functions and to ensure that retraining was completed in a timely manner.

c. Conclusions

Sufficient emergency response organization training records were maintained. The process provided a good method to ensure that personnel were qualified to perform assigned response functions and to ensure that retraining was completed in a timely manner.

**P6 Emergency Preparedness Organization and Administration**

a. Inspection Scope (82701-02.03)

The inspectors reviewed:

- Emergency planning organization staffing,
- Changes in key offsite support personnel and coordination methods, and
- Changes in offsite support organization agreements.

b. Observations and Findings

The emergency planning section consisted of one administrative technician, five emergency planning coordinators, and one fire brigade/medical team trainer. The seven individuals reported to the emergency planning supervisor. The inspectors reviewed task assignments for the section and determined that staffing levels were sufficient.

While reviewing staff task assignments, the inspectors observed that the licensee had assigned each emergency planning coordinator as point of contact for a specific county. The inspectors determined that this practice provided a method for ensuring good interface with local agencies.

The licensee stated that a former member of the Arkansas Nuclear One emergency response organization had been appointed as Director, Division of Radiation Control and Emergency Management at Arkansas Department of Health. This appointment occurred in February 1997.

The inspectors reviewed the licensee's process for maintaining current letters of agreement with offsite support organizations. The licensee had established a process of reviewing half of the agreements each year and summarizing the status of all agreements each year. According to the licensee, all of the agreements were



for an indefinite period of time unless either party notified the other of termination. Each agency was only contacted every other year to reaffirm the existing agreement. The inspectors determined that review and certification processes were performed as required by the emergency plan.

c. Conclusions

The emergency planning organization staffing was sufficient. Offsite support agency letters of agreement were reviewed as required.

**P7 Quality Assurance in Emergency Preparedness Activities**

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

a. Inspection Scope

Using Inspection Procedure 82701, the inspectors examined the latest audit and surveillance reports for the emergency preparedness program to determine compliance with NRC requirements and licensee commitments.

b. Observations and Findings

The licensee's audit team identified one recommendation and three observations during the 1996 emergency planning audit. Although the audit technically met the 10 CFR 50.54(t) audit scope requirements, the inspectors concluded that the audit was compliance-based, and not performance-based. Moreover, the audit lacked depth and, in some areas, was not conducted in a manner that would identify problems.

For example, 10 CFR 50.54(t) requires that the audit include an evaluation for adequacy of the offsite interface. To conduct this part of the audit, the licensee reviewed emergency plan and implementing procedures, quality assurance reports for 1993-1995, and 1993-1995 drill and exercise documentation to verify that criteria for evaluating the offsite interface was included. The inspectors noted that there was no contact with offsite agency representatives to solicit criticism or comments. However, surveillances were conducted during a subsequent drill and exercise to observe the utility/offsite interface. Although this method was slightly more effective than reviewing documents, the inspectors concluded that observing the interface during a drill/exercise limited the licensee's ability to identify problems.

Another issue involved the 10 CFR 50.54(t) requirement to make the part of the review concerning the offsite interface adequacy available to offsite authorities. When the inspectors asked how the licensee met this regulation, the audit team leader stated that the report was available for review upon request. No documentation was presented to show that the state was made aware that the audit was conducted. The audit team leader indicated that representatives from the

State of Arkansas Department of Health (Nuclear Planning and Response) used to be on distribution for the report but were removed when their offices moved from Arkansas Nuclear One's training center.

The inspectors interviewed the audit team leader to determine individual qualifications since all audit team members were quality assurance personnel. The lead auditor had several years experience conducting emergency planning audits, and other audit team personnel were members of the emergency response organization. The inspectors concluded that the audit was conducted by personnel who had satisfactory knowledge of emergency preparedness regulations and programs.

c. Conclusions

The 1996 program audit technically met regulations, but was compliance-based, rather than performance-based. The audit lacked depth and some elements were not conducted in a manner that would identify problems. The audit was performed by personnel with satisfactory expertise.

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

a. Inspection Scope

The inspectors reviewed the licensee's process for identifying, resolving, and preventing problems by reviewing the internal task scheduling system, the corrective action system, and emergency preparedness self-assessments.

b. Observations and Findings

The training evaluation/action request was the principal tool for tracking emergency planning section corrective actions. Training evaluation/action requests 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.

The training evaluation/action request system was 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 training evaluation/action requests, the inspectors determined that the emergency planning section processed these documents in a timely manner.

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

The licensee maintained a drill scenario book that contained a 6-year plan for exercises. The inspectors reviewed selected entries and determined that the drill schedule was consistent with regulatory guidance. Documentation was reviewed by the inspectors for the 1996 environmental drill. Soil, grass, water, and air samples were taken as part of the drill. The materials were sent to River Bend Station for evaluation. The inspectors reviewed the process for collection as well as involved emergency response personnel and determined that the drill was performed satisfactorily.

The inspectors reviewed emergency planning self-assessments for 1996 and 1997. Portions of the self assessment were assigned to various emergency planning staff members. The assessments were documented by memoranda to the emergency planning supervisor. It was determined by the inspectors that assessments adequately covered key program elements. While reviewing one assessment, the inspectors noted that there was a statement that a letter was on file from the State of Arkansas indicating that training had been provided to local agencies in 1996. The letter was dated in January 1996 and stated that training had been provided in March 1995.

When the inspectors pointed out this apparent discrepancy, the licensee realized that the statement was not accurate and provided documentation to show that local officials were trained by emergency planning coordinators in 1996. The inspectors determined that required training was performed.

c. Conclusion

The licensee had an effective program for tracking internal task assignments. Corrective actions were implemented in a timely manner. Self-assessments were satisfactory.

V. Management Meetings

**X1 Exit Meeting Summary**

The inspectors presented the inspection results to members of licensee management at the conclusion of the inspection on March 21, 1997. The licensee acknowledged the findings presented. No proprietary information was identified.

## ATTACHMENT 1

### SUPPLEMENTAL INFORMATION

#### PARTIAL LIST OF PERSONS CONTACTED

##### Licensee

R. Hutchinson, Vice President, Operations  
A. Clinkingbeard, Shift Superintendent, Operations Unit 1  
M. Cooper, Licensing Specialist  
S. Cotton, Manager, Training and Emergency Planning  
J. Crawford, Senior Emergency Planner  
B. Day, Acting Director, Design Engineering  
D. Denton, Director, Support  
R. Edington, General Manager, Plant Operations  
R. Fowler, Senior Emergency Planner  
R. Gresham, Supervisor, Emergency Planning  
D. James, Supervisor, Licensing  
S. Pyle, Licensing Specialist  
R. Scheide, Senior Licensing Specialist  
D. Sealock, Supervisor, Simulator Training and Support  
F. Van Buskirk, Training Instructor  
J. Vandergrift, Director, Quality  
D. Wagner, Supervisor, Quality Assurance  
H. Williams, Superintendent, Plant Security  
J. Woods, Medical Coordinator  
C. Zimmerman, Plant Manager, Unit 1

##### NRC

J. Melfi, Resident Inspector  
S. Burton, Resident Inspector

#### LIST OF INSPECTION PROCEDURES USED

82701      Operational Status of the Emergency Preparedness Program  
93702      Prompt Onsite Response to Events at Operating Reactors

#### LIST OF ITEMS OPENED

##### Opened

50-313;368/9710-01      IFI      Incomplete plans for administering potassium iodide to field monitoring teams (Section P2)

50-313;368/9710-02	IFI	Exercise Weakness - Failure to satisfactorily implement site evacuation procedures (Section P4)
50-313;368/9710-03	IFI	Exercise Weakness - Failure to perform correct fuel damage assessments (Section P4)

#### LIST OF DOCUMENTS REVIEWED

##### Emergency Plan Implementing Procedures

1063.021	Emergency Response Training Program	Revision 20
1903.004	Administration & Maintenance of the Emergency Plan and Implementing Procedures	Revision 19
1903.010	Emergency Action Level Classification	Revision 33
1903.011	Emergency Response/Notifications	Revision 21
1903.030	Evacuation	Revision 21
1903.035	Administration of Potassium Iodide	Revision 5
1903.042	Duties of the Emergency Medical Team	Revision 19
1903.064	Emergency Response Facility - Control Room	Revision 6

##### Other Documents

Arkansas Nuclear One Emergency Plan, Revision 22

Quality Assurance Audit Report QAP-13-96 - Emergency Planning, July 17, 1996

Quality Assurance Surveillance Report 96-013, July 10, 1996

Final Safety Analysis Report, Unit 1 - Chapters 1.4.15; 7.4.5; 11.2.1; and 12.3

Final Safety Analysis Report, Unit 2 - Chapters 12.3; 13.3; and 15.1.26

Root Cause Analysis Report - Emergency Notification Inadequacies During October 17, 1996 Containment Fire Event - Notification of Unusual Event, November 1, 1996

ES-1-036, Unit 1 Dynamic Exam Scenario, Revision 0

ES-2-081, Unit 2 Dynamic Exam Scenario, Revision 0

Emergency Preparedness Self Assessment - 1996

Emergency Preparedness Self Assessment - 1997

## ATTACHMENT 3

### SCENARIO NARRATIVE SUMMARY - UNIT 2

Crews 2 and 3

Shift turnover items:

- 100% power, 480 EFPD (end of life)
- Reactor coolant system boron concentration is 56 parts per million.
- Plant operated at 100% for 40 days
- No equipment out of service

Scenario:

Time Event

- + 0 A cleaner reports he has found a large amount of oil on the floor of the #1 emergency diesel generator room. Auxiliary operator should be dispatched.
- + 3 Auxiliary operator reports that the source of the oil on the #1 emergency diesel generator is the fuel oil day tank. He states that there is a crack in a weld on the supply line. Isolating this leak will remove the source of fuel oil to the emergency diesel generator, rendering it inoperable.
- + 8 Letdown radiation monitor 2##-4806 and 2RITS-4806B alarms are received. The monitors indicate approximately  $5.5 \times 10^5$  counts per minute and appear to have stabilized. This satisfies criteria for notification of unusual event based on emergency action level 1.1; reactor coolant system activity indicating greater than 0.1% failed fuel.
- + 35 The "A" steam generator main feedwater block valve develops a malfunction that causes it to close. The operators should manually trip the reactor prior to receiving an automatic trip on low steam generator level. The transient will cause a weld to fail on the "A" reactor coolant system loop, resulting in a reactor coolant system leak of approximately 300 gallons per minute. More fuel damage will occur, resulting in greater than 1% failed fuel. This satisfies the emergency action level criteria for the site area emergency for containment radiation indicating loss of coolant conditions with greater than 1% fuel cladding failure.
- + 65 A fitting union on the sample line for the reactor building air sample system fails resulting in a breach of containment into the upper south piping penetration room. The control room receives area radiation monitor and super-particulate-iodine-noble-gas monitor alarms, which indicate a release to offsite environment is occurring. This satisfies the emergency action level for a general emergency due to a loss or challenge to all three fission product barriers.

Times reflected are estimated relative from the start of the scenario.



## ATTACHMENT 2

### SCENARIO NARRATIVE SUMMARY - UNIT 1

Crew 1

Shift turnover items:

- 100% power, 200 EFPD
- Plant operated at 100% for 40 days
- "B" circulator pump out of service for repair
- "B" service water pump aligned to the emergency pond

Scenario:

Time Event

- + 1 Auxiliary operator reports he has found oil on the floor of the #1 emergency diesel generator room.
- + 3 Auxiliary operator reports that the source of the oil on the #1 emergency diesel generator is the fuel oil day tank. He states that there is a crack in a weld located in the lower region of the tank. Isolating this leak is not possible. This resulted in the #1 emergency diesel generator being declared inoperable.
- + 8 Failed fuel iodine monitor RE-1237S alarm received. The monitor indicates approximately  $3 \times 10^5$  counts per minute and appears to be stabilizing. This satisfies criteria for notification of unusual event based on emergency action level 1.1; reactor coolant system activity indicating greater than 0.1% failed fuel.
- + 35 CV2680, main feedwater isolation valve for "A" once through steam generator, will receive a false signal to close. Loss of feed water causes the reactor coolant system pressure to increase rapidly. The high pressure will cause a reactor trip and cause an axial power shaping rod to be ejected. The rapid power increase in the region of the ejected rod will cause failed fuel to exceed 1%. The partially ejected rod will cause a leak of about 300 gallons per minute into the reactor building. This satisfies the emergency action level criteria for the site area emergency for reactor coolant system leakage greater than normal makeup capacity (50 gallons per minute) with greater than 1% failed fuel.
- + 65 A fitting union on the sample line for the reactor building air sample system fails resulting in a breach of containment into the upper north piping penetration room. The control room receives area radiation monitor and super-particulate-iodine-noble-gas monitor alarms, which indicate a release to offsite environment is occurring. This satisfies the emergency action level for a general emergency due to a loss or challenge to all three fission product barriers.

Times reflected are estimated relative from the start of the scenario.