

**ENCLOSURE**

**U.S. NUCLEAR REGULATORY COMMISSION  
REGION IV**

Docket Nos.: 50-313; 50-368  
License Nos.: DPR-51; NPF-6  
Report No.: 50-313/99-19; 50-368/99-19  
Licensee: Entergy Operations, Inc.  
Facility: Arkansas Nuclear One, Units 1 and 2  
Location: Junction of Hwy. 64W and Hwy. 333 South  
Russellville, Arkansas  
Dates: December 6 to 10, 1999  
Inspector: Rebecca Nease, Senior Reactor Inspector  
Engineering and Maintenance Branch  
Accompanying Personnel: Richard Deese, Reactor Inspector  
Engineering and Maintenance Branch  
Approved By: Dr. Dale A. Powers, Chief  
Engineering and Maintenance Branch  
Division of Reactor Safety

ATTACHMENT: Supplemental Information

## EXECUTIVE SUMMARY

Arkansas Nuclear One, Units 1 and 2  
NRC Inspection Report No. 50-313/99-19; 50-368/99-19

In this announced, routine inspection, two region-based NRC inspectors reviewed the licensee's implementation of the NRC-approved fire protection program.

### Plant Support

- Overall, the licensee's fire protection program was properly controlled, implemented, and maintained in accordance with their approved fire protection program (Section F1).
- Fire response equipment appeared to be adequately maintained, plant housekeeping for control of transient combustibles was good, and procedures were adequate for implementing the fire protection program (Sections F2 and F3).
- Fire brigade personnel were qualified and performed adequately during the observed fire drill (Section F5).
- Quality assurance surveillances for the fire protection area were critical and comprehensive. The findings and recommendations were well documented and provided good insights to the fire protection staff (Section F7).
- In Condition Report CR-ANO-C-1999-0092, licensee personnel did not address the failure of the fire brigade trainer to document observed fire brigade weaknesses on the fire drill critique sheet. Further, the condition report did not address the failure of the fire brigade trainer to discuss these weaknesses with the fire brigade crew members in the post-fire drill critique meeting. The fire protection program supervisor initiated another condition report to address this concern (Section F8).

## **Report Details**

### **Summary of Plant Status**

Units 1 and 2 operated at full power during the inspection.

## **IV. Plant Support**

### **F1 Control of Fire Protection Activities (64704)**

The inspectors reviewed the licensee's fire protection program to verify that the licensee had properly implemented and maintained the fire protection program, as required by the operating license. The inspectors reviewed fire protection procedures, administrative controls, fire reports, fire brigade qualifications, fire brigade staffing, and fire watch staffing to determine if they were in accordance with the approved fire protection program. The inspectors also conducted tours of the facility and observed a fire drill to verify licensee implementation of the fire protection program.

The inspectors concluded that, for the aspects of the fire protection program reviewed, the licensee's fire protection program was properly controlled, implemented, and maintained in accordance with the approved fire protection program.

### **F2 Status of Fire Protection Facilities and Equipment (64704)**

#### **a. Inspection Scope**

The inspectors performed a walkdown of accessible areas of the facility containing safe shutdown equipment and fire protection equipment, including fire suppression and detection equipment, fire rated assemblies, and fire brigade and operator emergency response equipment. In addition, the inspectors reviewed maintenance and surveillance records of selected fire protection equipment to verify that the equipment was maintained in an operable condition.

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

The inspectors observed that fire protection equipment was maintained in satisfactory condition. Fire fighting equipment, e.g., hose reels and fire extinguishers, was clearly marked and accessible. Fire brigade equipment cabinets were adequately stocked. Emergency lighting appeared to be properly positioned. The inspectors observed very good housekeeping in areas toured. The fire protection staff conducting the tour were able to appropriately address specific questions posed by the inspectors regarding fire protection equipment.

c. Conclusions

Fire protection equipment required for program implementation was maintained and available for use. Plant housekeeping for control of transient combustibles was very good.

**F3 Fire Protection Procedures and Documentation (64704)**

The inspectors reviewed portions of the licensee's approved fire protection program, as documented in the Arkansas Nuclear One, Unit 1, Safety Analysis Report and the Arkansas Nuclear One, Unit 2, Safety Analysis Report, to verify that the procedures adequately implemented the licensee's approved program. The inspectors found that the procedures reviewed adequately implemented the approved fire protection program.

**F4 Fire Protection Staff Knowledge and Performance (64704)**

The inspectors evaluated fire protection staff knowledge by conducting interviews and plant walkdowns with staff members. Discussions with the fire protection design engineer, fire protection system engineer, fire brigade training instructor, and quality assurance fire protection auditor indicated that they understood NRC requirements for the fire protection program. Inspectors noted that, although very recently assigned the position, the fire brigade training instructor appeared to exhibit ownership of the fire brigade training program, and demonstrated good knowledge of fire fighting techniques.

**F5 Fire Protection Staff Training and Qualification (64704)**

a. Inspection Scope

The inspectors reviewed the readiness of the onsite fire brigade personnel to fight fires, including fire brigade composition, qualifications, and training records. The inspectors also interviewed licensee staff responsible for fire protection training, observed the performance of the fire brigade during a fire drill, and attended the fire drill critique.

c. Observations and Findings

Fire brigade training requirements were implemented by ANO Procedure 1063.020, "Fire Brigade Training Program," Revision 13. The inspectors did not find any discrepancies with the training and qualification requirements for fire brigade members. When spot-checked, all assigned fire brigade members from both plants and security met all qualification requirements to stand the fire brigade watch.

Inspectors also reviewed records of fire brigade drills for 1998 and 1999 and found that fire brigade drills were performed in accordance with the frequency and backshift requirements of the fire protection plan.

### Fire Drill Observations

The inspectors observed a fire drill conducted December 9, 1999. Inspectors noted that control room announcements for the fire drill were appropriate for the scenario. The fire brigade reported to the site of the fire in a timely manner, with fire fighting equipment suitable for the type of simulated fire. Three-way communications between the brigade leader and the control room were very good. The inspectors noted, however, that only one of the nine personnel reporting to the fire had appropriately donned all of the required firefighting gear. Dress-out discrepancies included: (1) several individuals were not wearing firefighting gloves, (2) fire jacket collars were not fully buttoned, (3) and the fire brigade leader did not report to the scene with a self contained breathing apparatus.

Although not necessary for fighting this fire scenario, a fire hose was laid out near the simulated fire as a precautionary measure. The inspectors observed that, initially, the fire hose was not properly laid out to prevent kinks. Had the fire hose been needed, the kinks would have had to be worked out to bear water on the fire. This was corrected later during the drill. More than the required number of brigade members dressed out in firefighting gear and responded to the drill. The additional personnel assisted in crowd control and laying out and manning the fire hose. Fire protection staff told the inspectors that the additional turnout was standard practice.

The inspectors attended the post-drill critique meeting conducted immediately following the drill. Inspectors observed that the discussion was interactive, constructive, and of good quality. The drill conductor provided critical observations and asked probing questions to facilitate discussion in order to determine brigade knowledge. The inspectors' negative observations concerning proper fire brigade dress and proper flaking of the fire hose were also noted and discussed by the drill conductor. The drill conductor, who also fulfilled the duty of site fire brigade trainer, demonstrated a good working knowledge of proper techniques for firefighting at the facility.

d. Conclusions

The training and qualification of fire brigade members and the licensee's performance of fire drills met the requirements of the fire protection program.

The fire drill scenario was sufficiently complex to demonstrate the required skills of the fire brigade. The response of the fire brigade to the fire drill was timely, and techniques used were appropriate to the fire drill scenario. The fire drill critique discussion was constructive.

### **F7 Quality Assurance in Fire Protection Activities (64704)**

The inspectors reviewed all of the 1998 and 1999 fire protection related audit reports and discussed results with the licensee's cognizant quality assurance specialist. The reports were critical and comprehensive. Audit findings were clearly documented in the reports and provided good insight to the fire protection staff. Condition reports were

generated to resolve the identified problems, which were tracked and the resolutions reviewed for effectiveness in subsequent audits.

The inspectors concluded that the licensee's fire protection quality assurance program activities met the requirements of the NRC-approved fire protection program and provided good feedback insights to the fire protection staff.

**F8 Miscellaneous Fire Protection Issues (64704)**

The inspectors reviewed condition reports to evaluate the licensee's ability to identify and correct fire protection issues. In Condition Report CR-ANO-C-1999-0092 dated March 4, 1999, the fire brigade trainer identified that during the first quarter of 1999, only one fire brigade crew was able to identify the need and set up appropriate equipment for fighting an oil fire. The inspectors reviewed all the fire brigade critique sheets for those fire brigade drills and found that the critique sheets failed to document the weaknesses observed by the fire brigade trainer. Furthermore, discussions with the new fire brigade trainer revealed that the weaknesses were not discussed in the post-drill critique meetings. In Condition Report CR-ANO-C-1999-0092, licensee personnel addressed the weaknesses in the performance of the fire brigade to fight oil fires; however, did not address the failure of the fire brigade trainer to document these weaknesses in the fire drill critique sheets. In addition, the condition report did not address the failure of the fire brigade trainer to discuss these weaknesses with the fire brigade crew members in the post-fire drill critique meeting. The fire protection program supervisor initiated another condition report to address this concern.

**V. Management Meetings**

**X1 Exit Meeting Summary**

The lead inspector presented the inspection results to members of licensee management at the conclusion of the inspection on December 10, 1999. Licensee representatives acknowledged the findings presented.

The lead inspector asked the representatives of the licensee's management whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

ATTACHMENT

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

C. Anderson, General Manager, Plant Operations  
G. Ashley, Licensing Supervisor  
M. Cooper, Licensing Specialist  
S. Cotton, Training Manager  
M. Fletcher, Senior Technical Instructor  
K. Floyd, Quality Assurance Specialist  
R. Hendrix, System Engineer  
R. Hutchinson, Vice President Operations  
J. Johnson, System Engineer  
R. Lane, Director, Engineering  
R. Rispoli, Engineering Programs Supervisor  
M. Smith, Manager, Engineering Programs  
J. Vandergrift, Director, Nuclear Safety  
D. Wagner, Quality Assurance Supervisor  
W. Walker, Fire Protection Engineer

NRC

R. Bywater, Senior Resident Inspector

INSPECTION PROCEDURES USED

64704 Fire Protection Program

LIST OF DOCUMENTS REVIEWED

PROCEDURES REVIEWED

<u>Number</u>	<u>Title</u>	<u>Revision</u>
1000.152	Unit 1 & 2 Fire Protection System Specifications	002-02-0
1000.047	Control of Combustibles	014-01-0
1063.020	Fire Brigade Training Program	13
ULD-0-TOP-02	Fire Protection Topical Upper Level Document	1
1104.032, Supplement 8	18 Month Functional and Capacity Test of the Fire Water System	51

MISCELLANEOUS LICENSEE DOCUMENTS REVIEWED

<u>Number</u>	<u>Title/Description</u>	<u>Amendment or Date</u>
Arkansas Nuclear One, Unit 1 Safety Analysis Report	Chapter 9.8, "Fire Protection System"	Amendment 16
Arkansas Nuclear One, Unit 1 Safety Analysis Report	Appendix 9D, "Fire Protection System Operability, Surveillance, and Administrative Requirements"	Amendment 15
Arkansas Nuclear One, Unit 1 Safety Analysis Report	Appendix 9A, "Fire Protection Program"	Amendment 16
Arkansas Nuclear One, Unit 2 Safety Analysis Report	Chapter 9.5.1, "Fire Protection System (FPS) - Codes and Standards"	Amendment 15
Arkansas Nuclear One, Unit 2 Safety Analysis Report	Appendix 9A, "Fire Protection Program"	Amendment 12
Arkansas Nuclear One, Unit 2 Safety Analysis Report	Appendix 9D, "Fire Protection System Operability, Surveillance, and Administrative Requirements"	Amendment 15
CR-ANO-C-1999-0092	Condition report documenting the weakness in fire brigade drill critiques to adequately document weaknesses	April 1, 1999
CR-ANO-C-1999-0308	Condition report documenting failure of the monthly surveillance test of the diesel fire pump	December 9, 1999
ANO-98-00160	1998 Quarterly Fire Brigade Drill Summaries	March 5, 1998
ANO-98-00498		July 16, 1998
ANO-98-00618		October 19, 1998
ANO-98-00710		December 11, 1998
ANO-99-00167	1999 Quarterly Fire Brigade Drill Summaries	March 24, 1999
ANO-99-00254		June 10, 1999
EP-99-0049		September 15, 1999



NQ-98-0107	Quality Assurance Surveillance Reports	May 6, 1998
NQ-98-0111	for Fire Protection Issues	May 18, 1998
NQ-99-0028		January 29, 1999
NQ-99-0062		March 30, 1999
NQ-99-0078		April 20, 1999
NQ-99-0181		October 7, 1999
NQ-99-0237		November 4, 1999