



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION II  
101 MARIETTA STREET, N.W.  
ATLANTA, GEORGIA 30323

Report Nos.: 50-348/88-13 and 50-364/88-13

Licensee: Alabama Power Company  
600 North 18th Street  
Birmingham, AL 35291-0400

Docket Nos.: 50-348 and 50-364

License Nos.: NPF-2 and NPF-8

Facility Name: Farley 1 and 2

Inspection Conducted: April 4-8, 1988

Inspector:

G. R. Wiseman  
G. R. Wiseman

5/9/88

Date Signed

Approved by:

T. E. Conlon  
T. E. Conlon, Section Chief  
Engineering Branch  
Division of Reactor Safety

5/10/88

Date Signed

SUMMARY

Scope: This routine, unannounced inspection was in the areas of fire protection and prevention.

Results: One deviation was identified - Designated Combustible Storage Area Not Separated From Safe Shutdown-related Areas by Approved Fire Walls - Paragraph 5.h.(2).

## REPORT DETAILS

### 1. Persons Contacted

#### Licensee Employees

- \*C. L. Buck, Supervisor, Plant Modification Department
- \*J. P. Hayes, Plant Fire Protection Staff
- R. Hendley, Plant Training Instructor
- \*R. H. Marlow, Technical Supervisor
- \*D. N. Morey, Assistant General Manager - Operations
- #\*C. D. Nesbitt, Technical Manager
- \*J. K. Osterholtz, Unit Supervisor - Operations
- \*L. M. Stinson, Manager - Modifications
- \*F. G. Watford, Fire Marshall
- \*R. Wiggins, Supervisor Operations Training
- \*J. D. Woodard, Plant General Manager

#### NRC Resident Inspectors

- \*W. H. Bradford
- \*W. H. Miller

\*Attended exit interview

#Participated in telephone exit interview on April 20, 1988

### 2. Exit Interview

The inspection scope and findings were summarized on April 8, 1988, with those persons indicated in paragraph 1 above. The inspector described the areas inspected and discussed in detail the inspection findings. On April 20, 1988, additional discussions relating to the inspection were held between members of the licensee's staff and the inspector. The following new item was identified during this inspection:

Deviation (348/88-13-01), Designated Combustible Storage Area Not Separated From Safe Shutdown-related Areas by Approved Fire Walls - Paragraph 5.h.(2).

The licensee did not identify as proprietary any of the materials provided to or reviewed by the inspector during this inspection.

### 3. Licensee Action on Previous Enforcement Matters

This subject was not addressed in the inspection.

### 4. Unresolved Items

Unresolved items were not identified during this inspection.

## 5. Fire Protection/Prevention Program (64704)

## a. Fire Prevention/Administrative Control Procedures

The following procedures were examined by the inspector:

<u>Procedure No.</u>	<u>Title</u>
FNP-0-AP-35 (Revision 14)	General Plant Housekeeping and Cleanliness
FNP-0-AP-37 (Revision 8)	Fire Brigade Organization
FNP-0-AP-38 (Revision 8)	Use of Open Flames
FNP-0-AP-39 (Revision 8)	Fire Patrol and Watches
FNP-0-AP-45 (Revision 8)	Farley Nuclear Plant Training Plan
FNP-0-AOP-29.0 (Revision 6)	Plant Fire

These procedures comply with the NRC supplemental guidelines of the document entitled "Nuclear Plant Fire Protection Functional Responsibilities, Administrative Controls and Quality Assurance" dated June 14, 1977, except a discrepancy was noted on the identification of plant rooms Unit 1, 403, Hot Instrument Shop and Unit 2, 2403, Respirator Storage Room between procedure FNP-0-AOP-29.0 and FNP-0-AP-35. The licensee corrected the discrepancy during the inspection through issuance of Revision 7 of procedure FNP-0-AOP-29.0, dated April 7, 1988, which correctly identified these areas as to their current occupancy.

## b. Fire Protection Surveillance Procedures

The inspector examined the following selected fire protection surveillance procedures:

<u>Procedure No.</u>	<u>Title</u>
FNP-0-STP-51.0 (Rev. 0)	Water Storage Systems Supply Check
FNP-0-STP-52.1 (Rev. 7)	1A Diesel Fire Pump Operability Test

<u>Procedure No.</u> (cont'd)	<u>Title</u>
FNP-0-STP-56.0 (Rev. 11)	Fire System Valve Operability Test
FNP-0-STP-59.0 (Rev. 8)	Visual Inspection of New or Repaired Fire Barrier Penetrations
FNP-0-STP-127.0 (Rev. 18)	Yard Loop - Monthly
FNP-0-STP-132.0 (Rev. 2)	Hydrant Hose House Inspection - Monthly
FNP-0-STP-626.1 (Rev. 7)	Diesel Generator Building Heat Detectors - Thermostats Functional Test
FNP-0-STP-626.0 (Rev. 12)	Reaction Sprinkler System - 18 Month Test

The above surveillance procedures were reviewed to determine if the various test outlines and inspection instructions adequately implement the surveillance requirements of the plant's Fire Protection Technical Specifications. In addition, these procedures were reviewed to determine if the inspection and test instructions followed general industry fire protection practices, NRC fire protection program guidelines and the guidelines of the National Fire Protection Association (NFPA) Fire Codes. Based on this review, it appears that the above procedures are satisfactory.

c. Fire Protection System Surveillance Inspections and Tests

The inspector reviewed the following surveillance inspection and test records for the dates indicated:

<u>Procedure No.</u>	<u>Results Reviewed</u>
FNP-0-STP-127.0	October 1987 to March 1988
FNP-0-STP-132.0	July 1987 to January 1988
FNP-2-STP-126.0	October 1987 to February 1988
FNP-2-STP-626.0	June 1985 and December 1986

The surveillance test record data and testing frequency associated with the above fire protection system surveillance tests/inspections were found to be satisfactory with regard to meeting the requirements of the plant's Fire Protection Technical Specifications.

d. Reports on Fire Prevention Activities

The inspector reviewed the station's quarterly fire prevention activities reports for the fourth quarter 1985, and all of 1986, and 1987. These reports are designated in fire protection administrative Procedure FNP-0-AP-35. These reports indicated that there were two incidents of fire onsite in 1986, one fire event in 1987, and two fires so far in 1988. Of the fire events indicated, two were grass fires, one was equipment failure, and the remainder involved welding or cutting activities. None of the fire events reviewed appeared to be of major safety significance.

e. IE Information Notice No. 84-92

IE Information Notice 84-92, Cracking of Flywheels on Cummins Fire Pump Diesel Engines, was issued on December 17, 1984. This Notice alerted licensees of a potential problem of cracking flywheels on certain models of Cummins diesel engine driven fire pumps. Cummins diesel engine Model No. NT-855-F2, manufactured by Peerless Pump Company and equipped with flywheel Part No. 3453, has experienced repeated fatigue crackings of the flywheels. The licensee stated that a review had been performed by the FNP Maintenance Department and it was determined that FNP uses Cummins engine model Nos. NT-380-1F and NT-355-F2 diesel driven fire pumps with flywheel Part No. BM 69576. Therefore, there are no diesel fire pumps onsite with the flywheel identified in the IEN. This determination was documented by Memorandum No. FNP-85-1231 dated January 13, 1986. The inspector verified the fire pump model numbers during the inspection which validated the licensee's determination.

f. Fire Protection Audit

The most recent audit reports of the Farley Fire Protection Program were reviewed. These audits were:

- Nuclear Mutual Limited (NML) Insurance Audit of December 17-19, 1986.
- Annual Fire Protection Audit of July 6-9, 1987.

The July 1987 Annual Fire Protection Audit was conducted by an outside Fire Protection Firm, Professional Loss Control (PLC) in compliance with Section 6.5.2.8.i of the FNP Technical Specifications. The audit identified eleven fire protection program enhancements. The inspector expressed concern that several recommendations related to Appendix R Fire Protection features remained under evaluation and were open as indicated by the Fire Protection Punchlist. These issues included the operability requirements and

surveillance procedures for Appendix R cable fire wraps (Section 4.1.3 of PLC Audit Report); preaction sprinkler system valves for safe shutdown areas left in non-normal (tripped-open) position because of numerous fire detector spurious signals (Section 4.3.1 of PLC Audit Report); and procedures for maintaining Appendix R emergency lighting units (Section 4.3.3 of PLC Audit Report). At the exit interview the inspector indicated his concurrence with the auditor's report that management should primarily concentrate efforts on improving the fire detection system and fire protection surveillance procedures in these areas. The licensee's stated position was that adequate management attention was being placed in this area. These items will be reviewed during future NRC inspections.

g. Fire Brigade

(1) Organization

The total station fire brigade is composed of approximately 154 personnel from the operations, security and plant chemistry staff. The on duty shift fire brigade leader is normally one of the shift foremen and the remaining four fire brigade members are composed of two plant operators, one security officer and one person from the chemistry group. An auxiliary brigade composed of 58 personnel from the mechanical, electrical, instrumentation, warehouse and operations departments is also available. It appears that sufficient manpower is available to meet both the operational and the fire brigade requirements of the plant's Technical Specifications.

(2) Training

The inspector reviewed the training and drill records of ten brigade members for 1987. The records reviewed indicated that each of these leaders and members had attended the required training and participated in the required number of drills. The fire brigade training records which were inspected were found satisfactory.

The inspector reviewed the shift fire brigade drills conducted during 1987 and noted that 26 drills were conducted. Seven drills were conducted in each of the first and second quarters, and six drills in each of the third and fourth quarters. This review revealed that drills are conducted on the required basis

h. Plant Tour and Inspection of Fire Protection Equipment

(1) Outside Fire Protection Walkdown

The inspector verified that the two fire protection water storage tanks contained sufficient water to meet the requirements of the Technical Specifications.

The three fire pumps were inspected and the diesel engine fire Pump No. 2 was out of service due to problems with the pump relief valve. The system jockey pump and electric motor fire Pump No. 3 were running and diesel engine fire Pump No. 1 was in standby.

The following fire protection valves within the fire pump house for fire pump alignment were inspected and verified to be properly aligned as designated in Procedure FNP-0-STP-56.0:

- N1P43V005 - Engine driven fire Pump No. 1 suction isolation valve
- N1P43V109 - No. 1 fire tank to jockey pump suction valve
- N1P43V005 - Engine driven fire Pump No. 1 suction isolation
- N1P43V108 - Jockey pump suction isolation valve
- N1P43V007 - Motor driven fire Pump No. 3 suction isolation valve
- N1P43V017 - Motor driven fire Pump No. 3 manual recirculation valve
- N1P43V010 - Motor driven fire Pump No. 3 discharge isolation valve

The following sectional control valves in the outside fire protection water supply system were inspected and verified to be properly aligned in position:

- N1Y43V001 - Cooling tower header isolation valve
- N1Y43V002 - Plant loop header isolation valve
- N1P43V001 - Storage tank No. 1 isolation valve
- N1P43V002 - Storage tank No. 2 isolation valve
- N1P43V037 - Yard main supply header isolation valve
- N1P43V038 - Yard main supply header cross connect valve
- N1Y43V047 - Unit 1 Auxiliary Building header isolation valve



N1Y43V045 - Unit 1 Auxiliary Building motor operated isolation valve

The following fire hydrant equipment houses were inspected:

Hose house 15  
Hose house 21  
Hose house 46

The equipment hose houses contained the minimum equipment requirement of that specified by NFPA-24, Private Fire Service Mains and their Appurtenances, and/or the FSAR commitments. The equipment appeared to be adequately maintained, except it was noted that hose house No. 15 northeast of the Auxiliary Building leaked rain water inside onto the fire equipment such that rust deposits had formed onto firehose and nozzle threads. These deposits may cause difficulty in thread engagement during fire hose deployment. The inspector identified this condition to the fire protection staff who acknowledged that corrective action would be taken. This will be reviewed during a future NRC inspection.

A tour of the exterior of the plant indicated that sufficient clearance was provided between permanent safety-related buildings and structures and temporary buildings, trailers, and other transient combustible materials. The general housekeeping of the areas adjacent to the permanent plant structures was satisfactory.

(2) Inside Plant Tour

A plant tour was made by the inspector. During the plant tour selected safe shutdown related plant areas and combustible storage areas as designated in Table 1 of Procedure FNP-0-AP-35 and FSAR Section 9B within the Unit 1 and Unit 2 Auxiliary Buildings and Diesel Generator Building were inspected.

The fire/smoke detection systems, manual firefighting equipment (i.e., portable extinguishers, hose stations, etc.) and the fire area boundary walls, floors and ceiling associated with the above plant areas were inspected and verified to be in service or functional; except it was noted that Room 444, Clean Linen Storage, as designated in Table I of the Farley housekeeping procedure FNP-0-AP-35 was being utilized as a general combustible storage area. In addition, it was noted that one-hour fire wrapped safe shutdown cable raceways 21E044, 31E021, and 41E020 as identified in Section 9B.B-41.2 of the FSAR were routed through Room 444 in the concealed space above the



suspended ceiling. The inspector expressed concern that no sprinkler coverage was provided for the safe shutdown cable raceways in Room 444 and the room's partial height separation walls were not approved rated fire walls for a designated combustible storage room. During the exit interview the licensee stated that this Unit 1 plant area was undergoing outage modifications related to PCN-85-1-3431 and that additional information from the offsite Nuclear Engineering and Licensing (NEL) organization would be required to resolve the inspector's concerns. During a telephone conversation on April 20, 1988, the licensee stated that during NEL's followup evaluations for Room 444 following this inspection an hourly fire watch patrol was established for the area and the detection system was verified operable as a compensatory Technical Specification compensatory measure. The licensee stated that further cable interaction evaluations by NEL verified that cables within the wrapped raceways in Room 444 are no longer required for safe plant shutdown. The licensee stated that the plant modification had, however, downgraded the partition walls of Room 444 such that at the time of the inspection, they were not approved rated walls. This condition does not conform to the commitments made to the NRC in Section 9B.2.2.2 of the Farley FSAR. This discrepancy is identified as Deviation (348/88-13-01), Designated Combustible Storage Area Not Separated From Safe Shutdown-related Areas by Approved Fire Walls. The licensee representative acknowledged this finding during the telephone conversation of April 20, 1988.

The automatic preaction systems installed in safe shutdown areas of the Auxiliary Building were inspected. The inspector expressed concern that Technical Specification systems 2A-23 (West Cable Chase), 2A-43 (Cable Spreading Room) and 2A-59 (West Corridor) were placed in an abnormal "tripped" configuration. While the status of the preaction deluge valves do not reduce the system's ability to flow water to control fires which might occur, the abnormal condition of the systems results in the loss of supervisory signal service for the sprinkler piping as well as loss of water flow alarms in the event of pipe break or sprinkler actuation which could cause serious damage to sensitive electrical equipment in the protected areas. The licensee's staff provided the inspector copies of Plant Change Requests (PCR) Nos. 81-960 and 83-2-2501 approved by the plant manager on December 19, 1983, which identified this issue and requested resolution by the off-site design organization. At the time of the inspection no resolution had been implemented. This item was previously identified during the 1987 annual fire protection audit and is discussed in Paragraph 5.f. of this report.

Other than noted above, the fire protection features associated with safe shutdown plant areas inspected appeared functional.

The plant tour also verified the licensee's implementation of the fire prevention administrative procedures. The control of combustibles and flammable materials, liquids and gases, and the general housekeeping were found to be good in the areas inspected. A welding operation was observed in Room 185 of the Auxiliary Building. An approved "Hot Work" permit had been issued for the welding operation and work practices met the licensee's fire prevention control procedures.

(3) Appendix R Fire Protection Features

The inspector visually inspected the fire rated raceway fire barriers required for compliance with Appendix R, Section III.G.2 in the following plant areas:

<u>Raceways No.</u>	<u>Location</u>
BDDA1B BHDE09	Room 185 Unit 1 Auxiliary Building 100 ft. Elevation Component Cooling Water Room
BEE010 BHLZ45	Room 319 Unit 1 Auxiliary Building 139 ft. Elevation Hallway
21E044 31E021 41E020	Room 444 Unit 1 Auxiliary Building 151 ft. Elevation Clean Linen Storage
BHD15C	Room 2185 Unit 2 Auxiliary Building 100 ft. Elevation; Component Cooling Water Room
BHF443 B1D03D	Room 2319 Unit 2 Auxiliary Building 139 ft. Elevation, Hallway
AHE321 BHJ12W	Room 2-502 Auxiliary Building, Stairwell

Based on the inspector's observation of the above raceway fire barrier enclosures, it appears that the one hour fire barrier integrity associated with the above fire barrier assemblies was complete.

Except as noted above, within the areas inspected no additional violations or deviations were identified.