ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Inspection Report: 50-416/96-04

License: NPF-29

Licensee: Entergy Operations, Inc.
P.O. Box 756
Port Gibson, Mississippi

Facility Name: Grand Gulf Nuclear Station

Inspection At: Port Gibson, Mississippi

Inspection Conducted: January 23-26, 1996

Inspector: William J. Wagner, Senior Reactor Inspector, Engineering Branch
Division of Reactor Safety

Approved: /s/ Kriss A. VanDenburgh
Chris A. VanDenburgh, Chief, Engineering Branch
Division of Reactor Safety

2/22/96
Date

Inspection Summary

Areas Inspected: Routine, announced inspection of the licensee's fire protection program and NRC followup items. Inspection Procedures 64704 and 92904 were used.

Results:

Engineering

- The inspector determined that adequate emergency lighting was not provided for all plant areas required for operation of safe shutdown equipment (Section 1.5).

Plant Support

- The inspector determined that the licensee's approved fire protection program was technically adequate and satisfactorily implemented to provide defense-in-depth against plant fires (Section 1).

Summary of Inspection Findings:

- Violation 50-416/9405-01 was closed (Section 2).
- A Non-Cited Violation was identified (Section 1.5).

Attachments:

- Attachment 1 - Persons Contacted and Exit Meeting
- Attachment 2 - Procedures Reviewed

DETAILS

1 FIRE PROTECTION/PREVENTION PROGRAM (64704)

1.1 Grand Gulf Nuclear Station Fire Protection Requirements

The licensee has incorporated the fire protection program, including Technical Specifications, into Appendix 9B of the Updated Final Safety Analysis Report, Revision 5, by letter dated December 1, 1990, in accordance with NRC Generic Letter 88-12. The NRC issued Amendment 82 to Operating License NPF-29 on August 23, 1991. Amendment 82 consisted of the applicable changes to the Technical Specifications and issuance of Operating License Condition 2.c (41), which references the NRC-approved fire protection program and allows certain licensee changes to this program.

1.2 Review of Fire Protection Procedures

The inspector reviewed the licensee's approved fire protection program as defined in the Updated Final Safety Analysis Report for the facility. The inspector specifically reviewed the procedural guidance (Attachment 2) to assure that the fire protection program contained, at a minimum, the following items described below.

1.2.1 Combustible Material Control/Fire Hazards Reduction

The inspector verified that the procedures for combustible controls for transient fire loads in safety-related and adjacent plant areas addressed wood, bulk flammable and combustible liquids and gases storage, anti-contamination clothing and shelving, plastics, and hydrogen lines.

1.2.2 Housekeeping

The inspector verified that the housekeeping procedures addressed the following items: frequency of licensee-conducted housekeeping inspections, control of combustible waste products, storage of radioactive materials, controls of hazardous chemicals, and control of smoking.

1.2.3 Ignition Source/Fire Risk Reduction Controls

The inspector verified that procedural controls addressed welding, cutting and grinding operations, and that these operations were authorized only by an appropriate permit. The inspector also determined that the procedures provided controls for leak testing and other open flame operations.

1.2.4 Fire Control Capabilities

The inspector verified that the fire protection program provided provisions for fire fighting training and qualifications, fire emergency plans, and fire personnel designations. The inspector also verified that the fire control capabilities provided for the maintenance and surveillance on fire suppression, detection, and emergency communications equipment.

1.3 Fire Protection Organization

The inspector's review of the fire protection organization determined that the Manager, Plant Operations, had overall responsibility for the plant fire protection program. The fire protection coordinator was responsible for implementation of the operations department responsibilities for the fire protection program. The shift superintendent, who was also the shift fire chief, was responsible for ensuring that each shift was manned with the necessary complement of qualified fire brigade members.

1.4 Fire Brigade Readiness

The inspector determined that the plant fire brigade was composed of six shifts (A through F) of dedicated fire brigade personnel from the operations staff. Each shift was composed of five fire brigade members. The fire brigade leader reported to the shift fire chief (shift superintendent) who was not a member of the brigade.

The inspector reviewed the physical examination records of the fire brigade members and determined that all fire brigade personnel were scheduled to have the required annual physical examinations by February 20, 1996.

The inspector reviewed the training records of fire drills performed during 1995 and determined that the required drills were preplanned, critiqued, and performed for all six fire brigade shifts including unannounced and backshift drills. The fire brigade drills were conducted at regular intervals not exceeding 3 months for each fire brigade shift during the past 2 years. The inspector verified that at least one unannounced drill was critiqued by independent qualified offsite personnel within the past 3 years. The critique was performed during the triennial fire protection audit conducted on January 6 through February 28, 1993, and assessed overall performance, such as response time, use of equipment, and knowledge.

The inspector reviewed the classroom training course outlines and verified that the following topics were covered by the initial program and were repeated over a 2-year period:

- Indoctrination of the plant fire fighting plan with specific identification of each individual's responsibilities.

- Identification of the type and location of fire hazards and associated types of fire that could occur in the plant.

- The toxic and corrosive characteristics of expected products of combustion.

- Identification of the location of fire fighting equipment for each fire area and familiarization with the layout of the plant, including access and egress routes to each area.

- The proper use of available fire fighting equipment and the correct method of fighting each type of fire. The types of fires included fires involving energized electrical equipment, cables in cable trays, hydrogen fires, fires involving flammable and combustible liquids or hazardous process chemicals, fires resulting from modifications (welding), and record file fires.

The inspector reviewed the training records of one fire brigade leader and two brigade members and verified that each member had the following training: initial fire brigade training, classroom training every 3 months, participation in at least two drills per year, attended practice fire fighting sessions, and that the fire brigade leader had attended fire brigade leadership training.

1.5 Plant Tour

The inspector performed a walkdown inspection of the outside fire protection system to evaluate the operability and material condition of the fire suppression water supply system. The inspector verified that the system had two separate fire fighting water supplies as required by Section 9.5.1.2 of the updated final safety analysis report. One electrically-driven and two diesel-driven fire pumps, each capable of pumping 1500 gallons per minute, take suction from either water storage tank. The inspector determined that the two 300,000 gallon nominal capacity water storage tanks each contained an adequate volume of fire fighting water to supply at maximum demand for 2 hours. During this outside walkdown, the inspector selected five fire main supply valves and verified that were aligned and controlled by locks or electrical supervision devices with audible signals to ensure the continuance of the water supply to all portions of the fire suppression system. The inspector inspected one fire hose house and determined that the hose house was properly equipped.

The inspector toured various areas of the diesel generator building, the auxiliary building and the control building. The inspector performed this tour to visually inspect the fire protection equipment and features provided in these areas and to evaluate the adequacy of the licensee's fire prevention program from a performance-based perspective. The inspector observed the following:

- The fire sprinkler systems and deluge systems were operable and well maintained.

- The fire protection equipment, such as hoses, hose reels, detectors, and fire extinguishers were in good material condition.

- That housekeeping was well maintained.

The inspector walkdown inspection included an evaluation of the ability of plant operators to implement instructions for shutting down the plant from outside the control room as required in Off-Normal Event Procedure 05-1-02-II1, "Shutdown from the Remote Shutdown Panel," Revision 22. The purpose was to ensure that the specific operator actions would not be constrained because of the inadequate emergency lighting or improperly labelled equipment. The inspector noted the emergency lights in the vicinity of Panels 1H22-P299, 1H22-P295, and 1H22-P296 were inadequate for the operator to perform the required safe-shutdown activities. The inspector determined that the inadequate emergency lighting was due to improper aiming of the bulbs. The inspector observed a licensee representative re-aiming the bulbs to provide adequate lighting during the walkdown inspection.

During this walkdown, for operator actions from the remote shutdown panel, the inspector also noted that Panel 1C71-P002 had no emergency lighting to perform the function of opening the circuit breakers as described in Section 3.3 of Procedure 05-1-02-II-1. The inspector determined that the operator actions at Panel 1C71-P002 were not required for safe shutdown and that Section 3.3 was incorporated into Procedure 05-1-02-II-1 as an enhancement. The licensee representative informed the inspector that they would evaluate the necessity to revise Section 3.3 and whether emergency lighting should be required for Panel 1C71-P002.

The inspector walkdown included inspection of fire barriers located in two important fire compartment areas considered in the fire probabalistic risk assessment methodology addressed in licensee Engineering Report GGNS-94-0054, Revision 1. The two compartments, CC202 and CC215, were located in the Switchgear Room on the 111 foot 0 inch elevation of the control building. The probablistic risk assessment targets of interest in these compartments were cables associated with Division 1 and Division 2 safe-shutdown equipment. The Division 2 cables in CC202, and the Division 1 cables in CC215, were assumed in the probablistic risk assessment to have been wrapped with at least a nominal 1-hour wrap. The inspector observed that the Division 2 cables in CC202 were wrapped with Thermo-Lag, and that the Division 1 cables in CC215 were wrapped with 1-hour rated Kaowool fire barrier wrap. The licensee representative informed the inspector that the action plan for the Grand Gulf Nuclear Station Thermo-Lag resolution includes upgrading the Thermo-Lag to provide a 1-hour rating where required; in the mean time, appropriate compensatory measure (five watches) were being implemented. The inspector determined that this upgrade applies to the Thermo-Lag wrap for the Division 2 cables in Compartment CC202.

1.6 Quality Assurance Audit

The inspector reviewed Audit Report QPA-09.01-95, "Annual Fire Protection Audit," conducted January 24 through February 24, 1995. The licensee conducted this audit to assess the implementation and effectiveness of the fire protection program. The scope of the audit included a review of documentation, plant walkdowns and performance based observations to assess and evaluate the effectiveness of the fire protection program. The audit included a fire protection engineer from Houston Lighting and Power Company's South Texas Project as a technical specialist. The audit identified program deficiencies regarding training records, missing surveillance package data sheets, fire watch training, and the use of chemical control permits. The licensee corrected these deficiencies and issued quality deficiency reports for further evaluation. The licensee audit found the fire protection programs and support programs were properly implemented, with the exceptions of the above deficiencies.

2 FOLLOWUP - PLANT SUPPORT (92904)

(Closed) Violation 416/9405-01: Failure to Update Fire Protection Program and Documents

Background

This violation involved two examples of failure to follow and implement design change process controls for plant modifications and failure to follow and implement fire protection procedures necessary to maintain the provisions of the approved fire protection program.

In the first example, the inspector identified that operations section reviews of procedures, programs, or material requirements affected by Design Change Packages 85-0050 and 88-0050 failed to identify that certain features of the fire protection program, operations section, were affected by the design changes.

The second example identified by the inspector was the failure of the operations section to annually review and update the status of the fire preplans as required in Procedure 02-S-01-18, "Control of Fire Preplans," Revision 4, dated November 8, 1991.

Inspector Followup

The inspector reviewed the licensee's response to this violation, which was documented in Letter GNRO-94/00049 to the NRC, dated March 28, 1994. The licensee stated that it would take the following corrective actions to prevent recurrence:

- Fire protection personnel would be added to the review cycle of all modifications that went to operations for impact review.

- All fire preplans would be reviewed and appropriate changes made. In addition, the document control organization would issue a notice for the annual review.

- The incident described in this violation would be routed to appropriate personnel in accordance with the required reading program.

The inspector reviewed Quality Deficiency Report 050-94, which was initiated on March 3, 1994, to document, implement, and track the corrective actions addressed in the first two items above. The quality assurance organization closed this item on July 7, 1995, by documenting on the quality deficiency report summary sheet that the following corrective actions were verified to have been completed: (1) all design change packages were routed to the fire protection coordinator, (2) all design change packages since 1986 and related documents that impacted the fire hazards analysis have been reviewed and the appropriate change made to the fire preplans, and (3) the licensee's Commitment Tracking System A16828 would be used to remind them of the need to perform the annual review of fire preplans. The inspector reviewed these actions taken in Quality Deficiency Report 050-94 and verified that the corrective actions were completed.

The inspector also reviewed the reading reports that were given to the training and the operations departments. The subject of these required reading sessions was on the licensee's response to this violation for failure to review and update fire protection elements and documents. The inspector verified that the required reading was provided to appropriate personnel in the training and operations departments.

The inspector determined that the licensee had implemented appropriate corrective actions to assure that the design change process controls for plant modifications includes fire protection program reviews, and that fire preplans were updated to reflect any design changes affecting the plant fire hazard analysis. The inspector determined that these actions should prevent recurrence of the problems addressed in this violation.

ATTACHMENT 1

1 PERSONS CONTACTED

1.1 Licensee Personnel

T. Barfield, Supervisor Electrical System
D. Bost, Director, Design Engineering
C. Brooks, Senior Licensing Specialist
W. Brown, Fire Program Trainer
W. Cade, Operations Assistant
M. Cumbest, Senior Lead Technical Specialist
J. Czaika, Nuclear Specialist
L. Daughtery, Technical Coordinator
W. Deck, Security Supervisor
M. Dietrich, Manager, Nuclear Training
J. Dimmette, Manager, Operations
C. Dugger, Manager, Operational Maintenance & Work Control
C. Hayes, Director, Quality Programs
C. Hollifield, Licensing Engineer
R. Hutchinson, Vice President, Nuclear Operations
S. Kirby, Fire Protection System Engineer
C. McCas, Quality Auditor
M. McDoniell, Superintendent, Operations
M. Meisner, Director, Nuclear Safety & Regulatory Affairs
W. Mosby, Technical Specialist, Quality Programs
J. Owens, Licensing Specialist
D. Pace, General Manager, Plant Operations
S. Saunders, Manager, Electrical/Instrumentation & Controls

1.2 NRC Personnel

J. Donohew, Project Manager for Grand Gulf Nuclear Station
J. Tedrow, Senior Resident Inspector

The personnel above attended the exit meeting. In addition to the personnel listed above, the inspector contacted other personnel during this inspection period.

2 EXIT MEETING

An exit meeting was conducted on January 26, 1996. During this meeting, the inspector reviewed the scope and findings of the report. The licensee did not express a position on the inspection findings documented in this report. The licensee did not identify as proprietary any information provided to, or reviewed by, the inspector.

ATTACHMENT 2

PROCEDURES REVIEWED

01-S-07-9, "Housekeeping," Revision 19

01-S-08-1, "Respiratory Protection Program," Revision 19

01-S-10-01, "Fire Protection Plan," Revision 100

10-S-03-3, "Fire Prevention: Control of Ignition Sources," Revision 8

10-S-03-4, "Fire Prevention: Control of Combustible Material," Revision 8

10-S-03-7, "Fire Protection Training Program," Revision 5

10-S-03-8, "Firewatch Program," Revision 4

05-1-02-II-1, "Shutdown from the Remote Shutdown Panel," Revision 22

Nuclear Plant Engineering Procedure 317, "Fire Protection Review of Design/Design Changes," Revision 11

UFSAR, Section 7.4.1.5, "Alternate Shutdown System"

UFSAR, Section 9.5.1, "Fire Protection System"

UFSAR, Appendix 9A, "Fire Hazards Analysis Report"

UFSAR, Appendix 9B, "Fire Protection Program"

UFSAR, Appendix 9C, "Analysis of Safe Shutdown"