UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W., SUITE 2900
ATLANTA, GEORGIA 30323-0199

Report No.: 50-416/94-11

Licensee: Entergy Operations, Inc.
Jackson, MS 39205

Docket No.: 50-416 License No.: NPF-29

Facility Name: Grand Gulf Nuclear Station

Inspection Conducted: April 24 through May 21, 1994

Inspectors: R. H. Bernhard, Senior Resident Inspector — Date Signed 6/9/94

For R. W. Wright
C. A. Hughey, Resident Inspector — Date Signed 6/9/94

R. W. Wright
R. W. Wright, Project Engineer — Date Signed 6/9/94
April 25-29, 1994

Approved by: F. S. Cantrell, Chief — Date Signed 6/9/94
Reactor Projects Section 1B
Division of Reactor Projects

SUMMARY

Scope:

The resident inspectors conducted routine inspections in the following areas: operational safety verification, maintenance and surveillance observations, engineering, plant support, action on previous inspection findings, and reportable occurrences. The inspectors conducted backshift inspections on May 2 and 16, 1994.

Results:

Operational Safety

The plant operated at or near full power for the report period. The inspectors reviewed the licensee's response to NRC Bulletin 93-01, Supplement 1, "Debris Plugging of Emergency Core Cooling Suction Strainers" and verified that actions addressed in the letter were complete. Actions included the development of a procedure to backflush the ECCS suction strainers and additional administrative controls to reduce sources of potential blockage.

Maintenance

Maintenance personnel were effective in completing and conducting the observed work in accordance with the work instructions and associated procedures. The appropriate tools were readily available. Technicians performing surveillance activities were knowledgeable of the work being performed. Communications among groups was excellent. The surveillances were well planned and executed.

Engineering Activities

A system engineer demonstrated a high degree of familiarity while performing ESF room cooler testing. The status of an engineering evaluation request associated with relief valve set pressures was reviewed and found satisfactory.

Plant Support

An inspector walkdown of the protected area revealed the areas to be free of obstructions, in good condition and properly maintained. Random visits to the central alarm station and secondary alarm station indicated alertness and good communications among security officers. Routine tours of radiologically controlled areas revealed no items of concern.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

*D. Bost, Director, Nuclear Plant Engineering
*C. Bottemiller, Superintendent, Plant Licensing
*J. Czaika, Nuclear Specialist, SMEPA
L. Daughtery, Technical Coordinator, Nuclear Safety and Regulatory Affairs
W. Deck, Security Superintendent
M. Dietrich, Manager, Training
*J. Dimmette, Manager, Performance and System Engineering
*C. Dugger, Manager, Plant Operations
C. Ellsaesser, Technical Coordinator
C. Hayes, Director, Quality Assurance
*C. Hicks, Operations Superintendent
C. Hutchinson, Vice President, Nuclear Operations
M. Meisner, Director, Nuclear Safety and Regulatory Affairs
*R. Moomaw, Manager, Plant Maintenance
*A. Morgan, Manager, Emergency Preparedness
*D. Pace, General Manager, Operations
*R. Ruffin, Plant Licensing Specialist
S. Saunders, System Engineering Superintendent
*M. Shelley, Technical Coordinator

Other licensee employees contacted included superintendents, supervisors, technicians, operators, security force members, and office personnel.

*Attended exit interview

Acronyms and initialisms used throughout this report are listed in the last paragraph.

2. Plant Status

The plant operated in Mode 1, power operations, during the entire reporting period. At the end of the period, the unit had been on line for 47 consecutive days.

Ronald V. Moomaw was selected as the Manager, Plant Maintenance on May 3, 1994. He was previously the Engineering Support Superintendent in Performance and System Engineering.

3. Operational Safety (71707)

a. Daily discussions were held with plant management and various members of the plant operating staff. The inspectors made frequent visits to the control room to review the status of

equipment, alarms, effective LCOs, temporary alterations, instrument readings, and staffing. Discussions were held as appropriate to understand the significance of conditions observed.

Plant tours were routinely conducted and included portions of the control building, turbine building, auxiliary building, radwaste building and outside areas. These observations included safety related tagout verifications, shift turnovers, sampling programs, housekeeping and general plant conditions. Additionally, the inspectors observed the control of activities in progress, and the problem identification systems.

b. The inspectors reviewed Grand Gulf's responses to NRC Bulletin 93-02, Supplement 1, "Debris Plugging of Emergency Core Cooling Suction Strainers" dated April 19, and May 19, 1994. The inspectors verified actions addressed in the letters were complete. One action was development of a procedure for the backflush of the strainers. The inspector reviewed the 50.59 evaluation and the procedure change packages for the backflush. Procedure changes were made to SOI 04-1-01-E12-1, Residual Heat Removal System, and to SOI 04-1-01-E21-1, Low Pressure Core Spray System. The backflush uses the condensate transfer system as the source and motive force for the water. There are two 600 gpm pumps in this system. The flush procedure recommends five to ten minutes of flushing. The inspectors noted that the power supplies for the condensate transfer pumps are powered from sources that are not available if offsite power is lost.

In addition to development of the backflush procedures, the licensee has implemented guidance to control the sources of potential blockage more closely. This included the development of additional administrative and cleanliness controls for work inside containment. Signs have been posted at both containment entrance airlocks to remind workers of these requirements.

c. During a routine plant tour, the inspector observed a tool box chained to a support in the auxiliary building. The box was labeled "ADS Emergency Pressurization Equipment Kit", 05-1-02-V-09, Step 5.6" This was the off-normal procedure for loss of instrument air. In addition, an inventory list label was attached to the box which specified the items to be contained in the box. The inspector compared the inventory list to the actual items contained in the box and found that several wrenches and pipe thread sealant were missing. A review of ONEP 05-1-02-V-09 found that neither step 5.6 or the ONEP mentioned or required the availability or use of the tool kit. Further investigation revealed that the box had been placed by the mechanical

maintenance group to expedite the hook up of emergency bottles for the ADS accumulators if required. The inspectors passed these observations to operations management for resolution.

No violations or deviations were identified.

4. Maintenance Activities (62703 and 61726)

a. Maintenance Observations

During the report period, the inspectors observed portions of the maintenance activities listed below. The observations included a review of the MWOs and other related documents for adequacy; adherence to procedure, proper tagouts, technical specifications, quality controls, and radiological controls; observation of work and/or retesting; and specified retest requirements.

(1) MWO 119239, Perform thermal performance test of ESF electrical switchgear room cooler (1T46-B003A).

This testing was performed per GGNSs response to the NRC Generic Letter 89-13, Service Water Problems Affecting Safety-Related Equipment (AECM-90/0007). Since the SSW system is not normally in operation, the control room air conditioning units and the ESF electrical switchgear room coolers are connected to the PSW for cooling during normal operations. Because of this cross connection to the PSW, GGNS has experienced some problems in the past with silting of the ESF switchgear room coolers and has taken actions to address this concern.

The inspector monitored the test performed to verify acceptable heat transfer capability by the subject heat exchanger cooled by service water at LOCA line up flow conditions. Testing disclosed that heat exchanger 1T46B003A had a heat transfer capability of 108,763 BTUs/hr., far exceeding the minimum acceptable requirement of 62,699 BTUs/hr. per FSAR change request 92/0027.

(2) MWO 120592, Control rod drive pump cooler "B" outlet header safety/relief valve inspection.

The inspector witnessed the removal and testing of the subject valve (1P42F023B) in the hot machine shop on the valve test bench per General Maintenance Instruction 07-S-14-54. The subject relief valve was last set at 125 psig in 1986, and retested satisfactorily per work order on April 28, 1994, at this same pressure even though the cold setting stamped on the valve was 130 psig. Subsequent mechanical maintenance craft discussions with NPE regarding this relief valve's set point resulted in NPE directing maintenance to reset the valve to 130 psig, reflecting the

setpoint in the current design for the valve and system. The lower setpoint had been calculated in 1986 using an incorrect assumption of the existence of backpressure on the discharge side of the valve, but was still within the guidance provided by the manufacturer's instructions. The work was performed in accordance with the work package which included instructions to record the pressure setpoint from the valve nameplate, and to resolve any differences between that value and the work package value.

(3) MWO 105261, Replace Division III EDG Soak Back lube oil circulation pump.

The inspectors observed the replacement of the pump and motor. A loud noise had been heard coming from the pump which warranted the replacement. The work package was available at the job site, and when questioned, the mechanics were knowledgeable of the instructions in the package. Tools required were readily available. The pump and motor were aligned in accordance with the procedure specified in the work package. Clearance tags were properly placed and valve positions were as specified on the tags. Work was performed satisfactorily and in accordance with the directions in the work package

No violations or deviations were identified. The results of the observations in this area indicated that maintenance activities were effective.

b. Surveillance Observations

The inspectors observed the performance of portions of the surveillances listed below. The observations included a review of the procedures for technical adequacy, conformance to Technical Specifications and LCOs; verification of test instrument calibration; observation of all or part of the actual surveillance; removal and return to service of the system or component; and review of the data for acceptability based upon the acceptance criteria.

(1) Procedure 06-IC-1C11-Q-0001, Rev. 27, Rod Pattern Control System Lo and High Power Calibration

The inspector noted the lead technician employed a well paced, deliberate control of work activities. The coordination of work required between HP and I&C was performed well in advance to minimize delay of work. Effective communication between groups at locations remote from each other was observed.

(2) Procedure 06-IC-1B21-Q-2008, Rev. 20, Drywell High Pressure Functional Test

The technicians performing this surveillance were knowledgeable of the procedure and the importance of correct setpoints. The surveillance was performed in a controlled and deliberate manner. Because the work was considered "trip critical" a supervisor periodically monitored work activities. Communications between the technicians and the control room operators was good.

(3) Procedure 06-IC-1D17-A-1001, Rev. 26, Fuel Handling Area Ventilation Exhaust Radiation Monitor Calibration

The inspector observed calibration of radiation monitors 1D17-K617A and D which were required to be calibrated every 366 days per Table 4.3.7.1-1.8 of GGNSs TS. The surveillance was performed for both monitors, and they were found to be within TS tolerances. This surveillance activity was somewhat complicated in that it required participation and interaction between I&C testing personnel with control room operators, health physics technicians and security officers. The surveillance was well planned and executed by I&C personnel, and all parties involved were found to efficient, cooperative, and knowledgeable of their responsibilities.

No violations or deviations were identified. The observed surveillance tests were performed in a satisfactory manner and met the requirements of the Technical Specifications.

5. Engineering Activities (37551)

The inspectors reviewed the activities of the engineering staff as they interfaced with the other plant organizations in those activities examined this inspection period. These reviews included resolution of Engineering Evaluation Requests, 10 CFR 50.59 reviews, engineering input to operability determinations, completeness of design change documents, and effectiveness of system engineering.

a. The inspectors monitored a heat exchanger performance test (reference paragraph 4.a.1.). The system engineer performing the testing demonstrated a high level of familiarity with the ongoing service water testing program and followed established Performance and System Engineering Procedure 17-S-06-22, Rev. 3.

b. Based upon activities observed in paragraph 4.a.2., the inspector conducted interviews with plant engineering and maintenance personnel on EER 92/6090 concerning relief valves setpoint discrepancies. Review of all safety-related relief valve setpoints was complete, but nonsafety-related relief valves were being completed on an as needed or lower priority basis.

Maintenance indicated that engineering was responsive to their requests when discrepancies arose during the performance of their work packages. General Maintenance Instruction 07-S-14-395, Safety and Relief Valve Program, indicated the Inservice Test engineer is to be contacted if the valve set pressures are not provided in the procedure attachment. All parties interviewed were familiar with the current incomplete status of the EER, and of the interim process for obtaining correct set pressures.

No violations or deviations were identified.

6. Plant Support Activities(71750)

During tours of the plant the inspectors verified proper radiological posting of areas, that access to radiologically controlled areas was properly restricted, and that radiological procedures and practices were used by plant personnel during conduct of activities. The inspectors verified proper compliance of security procedures by plant personnel observed performing their duties. In addition the inspectors verified, as part of their plant tours, the condition of the fire protection equipment, emergency lighting, fire barriers and fire doors, and the accessibility of fire fighting equipment. As part of the review of maintenance activities, the inspectors verify proper use of combustibles and permits.

The inspectors performed a walkdown of the protected area boundary. The areas inspected were free from obstruction and in good condition. Changes were made this month to expand the restricted area around the fence near the SSW basins. The exclusion zones were well marked. Tours of the Central Alarm Station were made. The inspectors noticed good communication techniques and constant alertness maintained by the crews. When questioned, the security officers were knowledgeable of their duties.

No violations or deviations were identified.

7. Reportable Occurrences (92700)

The event reports listed below were reviewed to determine if the information provided met the NRC reporting requirements. The determination included adequacy of event description, the corrective action taken or planned, the existence of potential generic problems and the relative safety significance of each event. The inspectors used the NRC enforcement guidance to determine if the event met the criterion for licensee identified violations.

a. LER 94-001-00, Technical Specification Log Readings Not Taken Within Required Time Period (CLOSED).

On January 27, 1994, control room operators discovered TS required log readings were four hours overdue. The inspectors reviewed this event and identified NCV 50-416/94-04-02 to document it.

Inspection Report 50-416/94-04 discusses licensee corrective actions associated with the event. The inspectors reviewed the corrective actions taken, and verified them complete.

b. LER 94-004-00, Multiple Control Rods Failing Technical Specification Scram Time Requirements (CLOSED).

On March 26, 1994, TS required scram time testing discovered five slow control rods. Plant management required a plant shutdown because of the potential for a common mode failure of the CRDs. Inspection report 50-416/94-10 discusses the event and the corrective actions taken by the licensee. The inspectors reviewed the results of the post maintenance testing associated with the SSPV replacements and other corrective actions and found no discrepancies. The inspectors will continue to monitor the use of thread sealants on site as part of their normal inspection activities. This item is closed.

c. LER 93-010-01, Loss of Shutdown Cooling and ESF Actuation During Unit Outage Due to Class 1E Bus Voltage Oscillations (CLOSED).

On October 4, 1993, a faulty current limiting card in one of the plants battery chargers caused initiation of the containment isolation function of Valve 1E12-F008. This resulted in the automatic trip of the RHR B pump, causing a five minute loss of shutdown cooling. This event is discussed in inspection reports 50-416/93-15 and 93-16. The inspectors have verified the corrective actions associated with this LER.

d. LER 93-012-01, Spurious ESF Actuation of Secondary Containment Isolation Valves during Unit Outage (CLOSED)

On October 14, 1993, secondary containment valves automatically closed upon receipt of a isolation signal of unknown cause. Investigation could not determine the cause of the signal. Inspections were performed by the licensee on the circuits, but no physical damage or discrepancies were observed. Plant computer records did not indicate any trip unit actuations which could have caused the event. As of February, 1994, additional information on the cause of the event had not been found. The inspectors reviewed actions taken by the licensee to date and determined the investigations to be adequate in scope to have determined the probable cause of this event. The probable causes are documented in revision one of the LER.

e. LER 93-16-01, ESF Actuation While Performing Surveillance (CLOSED)

On November 8, 1993, an automatic closure of the plant's containment isolation valves occurred due to an accidental contacting of test equipment leads to a terminal during a surveillance. The licensee's investigation revealed a similar event during RF05 in May, 1992. The corrective action from the

previous event was to include installation of permanent test jacks in the circuit. Installation of the test jacks was included in the scope of work to be performed November 8, but the isolation occurred prior to the steps detailing the installation. Corrective actions included installation of the jacks, and training for plant I&C technicians on the event. The I&C supervisors were counselled in the importance of adequate prejob briefings, and the need to include information on lessons learned from previous events. This item is closed.

10. Action on Previous Inspection Findings (92901, 92902, 92903, and 92904)

(Closed) Violation 50-416/93-15-01, Failure to follow work instructions. On October 11, 1993, a contract I&C technician erroneously cut 59 LPRM detector cables while performing undervessel work. The inspectors reviewed the licensee's response to the violation dated December 20, 1993, and verified the corrective actions discussed in the response which included immediately stopping all work and repair of the affected LPRMs. The individual involved was relieved of duties. Additional corrective actions were identified by the licensee through root cause determination (change and barrier analyses). The inspectors considered the corrective actions to be sufficient for closure.

11. Exit Interview

The inspection scope and findings were summarized on May 20, 1994, with those persons indicated in paragraph 1 above. Dissenting comments were not received from the licensee. Proprietary information is not contained in this report.

12. Acronyms and Initialisms

ADS	-	Automatic Depressurization System
BTU	-	British Thermal Unit
CAS	-	Central Alarm Station
CRD	-	Control Rod Drive
EDG	-	Emergency Diesel Generator
ECCS	-	Emergency Core Cooling System
EER	-	Engineering Evaluation Request
ESF	-	Engineered Safeguard Feature
FSAR	-	Final Safety Analysis Review
GGNS	-	Grand Gulf Nuclear Station
GPM	-	Gallon per minute
HP	-	Health Physics
I&C	-	Instrumentation and Controls
LCO	-	Limiting Condition for Operation
LOCA	-	Loss of Coolant Accident
LPRM	-	Local Power Range Monitor
MWO	-	Maintenance Work Order
NCV	-	Noncited Violation
NPE	-	Nuclear Plant Engineering
NRC	-	Nuclear Regulatory Commission

ONEP	-	Off Normal Emergency Procedure
PSIG	-	Pounds per square inch - gauge
PSW	-	Plant Service Water
RHR	-	Residual Heat Removal
RF	-	Refueling Outage
SAS	-	Secondary Alarm Station
SMEPA	-	Southern Mississippi Electrical Power Association
SOI	-	System Operating Instruction
SSPV	-	Scram Solenoid Pilot Valve
SSW	-	Standby Service Water
TS	-	Technical Specifications