



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

Report No.: 50-416/94-07

Licensee: Entergy Operations, Inc.  
Jackson, MS 39205

Docket No.: 50-416

License No.: NPF-29

Facility Name: Grand Gulf Nuclear Station

Inspection Conducted: February 1, 1994 through February 26, 1994

Inspectors: Charl A. Hughey 3/11/94  
for R. H. Bernhard, Senior Resident Inspector Date Signed

Charl A. Hughey 3/11/94  
C. A. Hughey, Resident Inspector Date Signed

Approved by: F. S. Cantrell 3/11/94  
F. S. Cantrell, Chief Date Signed  
Reactor Projects Section 1B  
Division of Reactor Projects

SUMMARY

Scope:

The resident inspectors conducted a routine inspection in the following areas: operational safety verification, maintenance observation, surveillance observation, engineered safety features walkdown, and actions on previous inspection findings. The inspectors conducted backshift inspections on February 7, 14, 15 and 16, 1994.

Results:

Although not previously a problem, an increased use of repeat back techniques and general control room professionalism has been noted. (Paragraph 3)

All senior reactor operators, reactor operators, and non-licensed operators will convert to a common 12 hour shift rotations beginning February 28, 1994. (Paragraph 3)

Painting and cleaning of the RCIC room was begun. (Paragraph 3)

Good communications and teamwork were observed during maintenance and surveillance activities. (Paragraphs 4 and 5)

The non-outage corrective maintenance backlog continued to decrease to very low levels. (Paragraph 4)

No significant deficiencies were observed during a walkdown of the RHR "A"/LPCI "A" system. (Paragraph 6)

## REPORT DETAILS

### 1. Persons Contacted

#### Licensee Employees

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

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 inspection period. At the end of the period, the unit had been on line for 84 consecutive days.

Mr. A. F. Gibson, Director, Division of Reactor Safety, Region II, was on site February 15, 1994, to meet with the licensee and the inspectors, and to tour the facility.

Dr. B. S. Mallett, Deputy Director, Division of Radiation Safety and Safeguards, Region II, was on site, February 14 and 15, 1994, to meet with the licensee and the inspectors, and to tour the facility.

Mr. F. S. Cantrell, Chief, Section 1B, Division of Reactor Projects, Region II, was on site February 23-24, 1994, to review resident inspector activities and for discussions with licensee personnel.

During the week of February 14, 1993, Region II personnel from the Division of Radiation Safety and Safeguards conducted an inspection in the area of radiological effluents and radioactive wastes transportation (NRC Inspection Report 50-416/94-06).

Jerry Roberts, Manager of Plant Maintenance, will be transferring to Energy Corporate Licensing effective March 7, 1994. Larry Moulder will be temporarily assigned as Maintenance Manager pending the selection of a permanent replacement.

Inspectors from the International Atomic Energy Agency were on site February 14-18, 1994, to follow up on item identified during an August 1992 inspection.

3. Operational Safety (71707 and 93702)

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 status of fire protection equipment, the control of activities in progress, the problem identification systems, and the readiness of the onsite emergency response facilities. No deficiencies were identified.

During the inspection period, thorough cleaning and painting of the RCIC room was begun. Additional cleaning and painting in other areas of the turbine and auxiliary buildings combined and contributed to a significant improvement in overall plant appearance.

An increased use of repeat back techniques by control room operators have been recently observed by the inspectors. Although not previously identified as a problem, the inspectors have also observed a step increase in general control room professionalism.

The appropriate union approvals were completed on February 25, 1994, for 12 hour shift rotations for the reactor and non-licensed operators. Shift assignments have been completed and the licensee anticipated all SROs, ROs, and non-licensed operators to be on common 12 hour shifts beginning February 28, 1994. Previously, SROs worked 12 hour shifts, and ROs and non-licensed operators worked 8 hour shifts with a separate rotation schedule.

No violations or deviations were identified.

4. Maintenance Observation (62703)

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.

- a. MWO 116270, Trouble shooting associated with Division II EDG auxiliary lube oil pump noises.

The inspectors observed troubleshooting, maintenance, and retesting activities after loud banging noises were heard coming from the auxiliary lube oil piping on February 10, 1994. The problem was found to be a broken snap ring in the control valve (TCV 1P75-F500B) which controls lube oil flow to the lube oil cooler. The valve was replaced with an in stock replacement. During retesting the auxiliary lube oil pump was run with no noises or banging coming from the piping. The inspectors also observed the subsequent maintenance run of the EDG and observed that lube oil temperatures stabilized within the proper range indicating proper functioning the new control valve. Operation personnel properly followed SOI 04,1-01-P75-1, Rev. 38, Standby Diesel Generator System. Retesting was adequate and no deficiencies were observed. Operations, maintenance and engineering personnel worked closely during the entire evolution to minimize EDG out-of-service time.

- b. MWO 115173, Adjust tappet clearance on Division I EDG standby air compressor

The tools needed for the job were readily available at the job site. The work package was readily available at the job site and was being used by maintenance personnel. When questioned, maintenance personnel were knowledgeable of the job at hand. No deficiencies were observed.

- c. The non-outage corrective maintenance backlog continued to trend downward since peaking after RFO6 (which ended December 1993) at just under 600 open work orders. As of February 21, 1994, there were 517 total items.

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

5. Surveillance Observation (61726)

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.

06-IC-1C51-SA-0001, Rev. 29	APRM Calibration (Channel G)
06-IC-1E12-M-0001, Rev. 24	LPCI System Discharge Line High/Low Pressure Functional Test (Division I)
06-IC-1E21-M-0004, Rev. 24	LPCS Interface Valve Pressure Functional Test
06-IC 1E12-M-1011, Rev. 25	(RHR) Interface Valve Pressure Functional Test

The inspectors observed good communications and coordination between the I&C technicians in the field and the control room. Except for the APRM calibration, adjustments during the calibrations were not required due to minimal instrument drift since the last calibrations.

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

No violations or deviations were identified.

6. Engineered Safety Features System Walkdown (71710)

The inspectors conducted a partial walkdown of the "A" Residual Heat Removal System/LPCI "A" system to verify correct valve positions, breaker positions, and control board indications per SOI 04-1-01-E12-1, Residual Heat Removal System, Rev. 50, and to identify equipment conditions or items which might degrade performance. All valves and related breakers were positioned per the SOI with proper indication. Appropriate valves were locked opened or closed as required. No significant material deficiencies were observed.

No violations or deviations were identified.

7. Action on Previous Inspection Findings (92701 and 92702)

- a. (Open) Inspector Followup Item 50-416/92-16-06, Followup to root cause investigation of RWCU isolations.

The root cause investigation of this and other system isolations, caused by spurious actuation of Riley Panalarm Temperature Switches in the Leak Detection System, still was ongoing at the end of this inspection period. There have been failures of several similar temperature switches in the leak detection logic of the RWCU and other systems. The replacement of these older style switches (Model 86) with newer style switches (Model 86B) have not resolved these failures. Several Model 86 switches have been sent to an independent laboratory for failure analysis. This item will continue to remain open pending completion of this analysis.



- b. (Closed) Violation 93-16-01, Failure to follow instructions on clearance.

On October 7, 1993, personnel error caused an inadvertent loss of shutdown cooling. This occurred when operators failed to verify the inverters affected by a clearance were not on their alternate supply prior to opening the alternate supply breakers. Special instructions on the clearance indicated the inverters power supply was to be verified prior to opening the breakers. This event is described in inspection reports 50-416/93-15 and 93-16. The inspectors reviewed the licensee response dated January 7, 1994, and verified the corrective actions associated with this event.

Actions taken included counselling of the involved personnel, operations briefings of the event, issuance of a standing order to place a sign on the equipments barrel switch whenever the inverter is on its alternate feeder, and the placement of warning signs on the alternate breakers. The inspectors also reviewed the recommendations made by a "root cause" action group formed to evaluate the loss of shutdown cooling events at the plant. Recommendations were made for a design review of the system logic to decrease the vulnerability to isolations.

Based upon the inspectors review, this item appears to be an isolated event, and the corrective actions adequate to close this item.

#### 8. Exit Interview

The inspection scope and findings were summarized on February 25, 1994, with those persons indicated in paragraph 1 above. Dissenting comments were not received from the licensee.

#### 9. Acronyms and Initialisms

APRM	-	Average Power Range Monitor System
BWR	-	Boiling Water Reactor
DCP	-	Design Change Package
EDG	-	Emergency Diesel Generator
ECCS	-	Emergency Core Cooling System
ESF	-	Engineering Safety Feature
LCO	-	Limiting Condition for Operation
LER	-	Licensee Event Report
LPCS	-	Low Pressure Core Spray System
MCP	-	Minor Change Package
LPCI	-	Low Pressure Coolant Injection
MWO	-	Maintenance Work Order
NRC	-	Nuclear Regulatory Commission
RCIC	-	Reactor Core Isolation Cooling
RFO	-	Refueling Outage
RHR	-	Residual Heat Removal System
RO	-	Reactor Operator

RPV - Reactor Pressure Vessel  
RWCU - Reactor Water Cleanup System  
SOI - System Operating Instruction  
SRO - Senior Reactor Operator