



UNITED STATES  
 NUCLEAR REGULATORY COMMISSION  
 REGION II  
 101 MARIETTA STREET, N.W.  
 ATLANTA, GEORGIA 30333

Report No.: 50-416/92-05

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, 1992 through March 13, 1992

Inspectors:	<u>FDE R. W. Wright</u>	<u>3/27/92</u>
	J. L. Mathis, Senior Resident Inspector	Date Signed
	<u>FDE R. W. Wright</u>	<u>3/21/92</u>
	C. A. Hughey, Resident Inspector	Date Signed

Accompanying Personnel: R. Musser, Resident Inspector, Plant Hatch  
 R. Frendenberger, Resident Inspector, Crystal River Plant

Approved by: [Signature] 3/27/92  
 F. S. Cantrell Section Chief Date Signed  
 Division of Reactor Projects

SUMMARY

Scope:

The resident inspectors conducted a routine inspection in the following areas: operational safety verification; maintenance observation; surveillance observation; action on previous inspection findings; and preparation for refueling. The inspectors conducted backshift inspections on February 10 and 24, and March 9, 1992.

Results:

During the inspection period no violations or deviations were identified.

The licensee met the safety objectives in the areas of operational safety verification, maintenance and surveillance activities.

## REPORT DETAILS

### 1. Persons Contacted

#### Licensee Employees

W. Cottle, Vice President, Nuclear Operations  
D. Cupstid, Manager, Plant Projects  
L. Daughtery, Supervisor, Compliance  
M. Dietrich, Director, Quality Programs  
J. Dimmette, Manager, Plant & System Engineering  
C. Ellsaesser, Superintendent, Operations  
\*R. Errington, Superintendent, Reactor Engineering  
\*C. Hayes, Manager, Quality Systems  
\*C. Hutchinson, General Manager, GGNS  
F. Mangan, Director, Plant Projects and Support  
\*M. Meisner, Director, Nuclear Licensing  
\*L. Moulder, Assistant Manager, Maintenance  
D. Pace, Director, Nuclear Plant Engineering  
\*R. Patterson, Technical Assistant to General Manager  
J. Roberts, Manager, Plant Maintenance  
J. Reaves, Manager, Quality Services  
G. Vining, Manager, Plant Modification and Construction  
G. Zinke, Superintendent, Plant Licensing

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

\*Attended exit interview

#### Other Inspections or Meetings

Jon R. Johnson, Deputy Director, Division of Reactor Projects was on site February 13-14, 1992, to meet with licensee management and tour the plant.

Ivan Selin, NRC Chairman; Stewart D. Ebnetter, Regional Administrator (Region II); Floyd Cantrell, Section Chief; and Kenneth E. Brockman, Technical Assistant to the Chairman, were on site February 28, 1992, to meet with licensee management and tour the plant.

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

### 2. Plant Status

The plant operated in mode 1, power operations, throughout this inspection period. Reactor power was reduced to approximately 65 percent on February 22, 1992, for a 76-hour duration to perform a scheduled control rod and sequence exchange. Control rod 24-17 failed both the normal and

slow scram criteria, paragraph 3. On March 9, 1992, power was reduced to 80 percent while severe thunderstorms moved through the area, paragraph 3. The auto-test feature of the Division 2 load shedding and sequencing panel locked up and was declared inoperable on March 11, 1992, paragraph 3.

February 24-28, Region II Test Programs Section personnel performed a reverification and assessment of the of Postfire Safe Shutdown Capability and reviewed the licensee's Fire Protection Program, Inspection Report (IR) 50-416/92-06.

On March 3-5, Region II Operator Licensing Section personnel conducted an inspection of Licensed Operator Training, IR 50-416/92-07.

March 10-12, Region II Physical Security personnel performed an inspection of the Site Contingency Plan, IR 50-416/92-08.

### 3. Operational Safety, (71707, and 93702)

Daily discussions were held with plant management and various members of the plant operating staff to maintain awareness of the overall operation of the station. The inspectors made frequent visits to the control room to review the status of equipment, alarms, effective LCO's and temporary alteration, instrument readings, and staffing. Discussions were held as appropriate to understand the significance of conditions observed.

Plant tours were conducted weekly that included portions of the control building, turbine building, auxiliary 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.

The inspectors observed/reviewed significant plant including activities radiation protection and security controls.

Weekly selected ESF systems were confirmed operable by verifying that accessible valve flow path alignment was correct, power supply breaker and fuse status were correct and instrumentation was operational. The following systems were confirmed operable using Probabilistic Risk Assessment Based System Inspection Plans:

- a. High Pressure Core Spray
- b. Reactor Core Isolation Cooling

Safety related tagouts, 92050 (IDES Battery Charger L51S002B) and 920252 (SGTS A Rad Monitor) were reviewed to ensure that the tagouts were properly prepared, and performed.

MNCRs and QDRs were reviewed to verify that TS were met, corrective actions as identified in the reports were accomplished or being pursued for completion, and that operability was not affected. The following MNCRs were reviewed:

- 043-92 ASME Class 3 valves placed in a Class 1 application
- 040-92 Penetrations AP-39 and AP-28B found in a degraded condition
- 032-92 Generic failure of seal water lines on CRD pumps
- 027-92 P71F056 solenoid valve model not installed per drawing

The inspectors reviewed the activities associated with the events listed below:

- a. On February 22 during the performance of Surveillance Procedure 06-RE-SC11-V-0402, Control Rod Scram Testing, control rod 24-17 failed both the normal and slow scram time criteria. Licensee investigation revealed that the HCU accumulator associated with control rod 24-17 was at a reduced pressure prior to the scram test. The primary cause was identified to be a leaking drain valve (C11F107) in the HCU. Control rod 20-17 was scram tested prior to control rod 24-17. Before the data for control rod 20-17 was analyzed, preparations for scrambling control rod 24-17 were made, including closing the charging water valve (C11F113). Because of difficulties with the data acquisition equipment, a repeat scram test of control rod 20-17 was performed. The repeat scram test of control rod 20-17 delayed testing of control rod 24-17 so that the charging water valve for HCU 24-17 was closed for approximately twenty-five minutes prior to its test. The closed charging water valve combined with the leaking drain valve resulted in depressurizing the accumulator for HCU. The operator stationed at the HCU for the test noted that the water leak from the drain valve stopped prior to the scram test. This observation supports the conclusion that the HCU accumulator was depressurized prior to the test. The accumulator was recharged and control rod 24-17 was retested satisfactorily. The leaking drain valve was replaced on February 23 under WO 50103.

The inspector reviewed the surveillance procedure, associated Technical Specifications, Incident Report 92-02-09, and discussed operator actions with the Shift Superintendent who was on duty during the testing. Plant procedures and the Technical Specifications requirements were met during the control rod scram testing. The licensee's incident report clearly documented observations which supported the conclusion that the leaking drain valve and the depressurized accumulator caused the unsatisfactory control rod 24-17 scram time.

The "HCU fault" alarm was common to several HCU parameters and was an expected alarm during the performance of the control rod scram tests. The alarm printer provided alarm conditions for inputs to the common control panel annunciator. The alarm printer indicated that control rod 24-17 had an "rod accumulator trouble" alarm for approximately twenty-three minutes prior to its scram test. The control room operators identified this alarm condition after the unsatisfactory control rod 24-17 scram test. The inspector concluded that had the control room operators been more attentive to the basis for the alarm condition causing the "HCU fault" alarm, the accumulator condition could have been assessed prior to performing the scram test.

- b. On March 11, 1992, the auto-test feature of the Division 2 load shedding and sequencing (LSS) panel locked up and would not reset after 3 attempts. The LSS system was declared INOPERABLE at about 0607 hours requiring entry into an 8 hour shutdown LCO (TS 3.8.3.1). The LSS panel card file was subsequently removed and replaced with a back-up file from the Unit 2 Division 1 panel that had been previously reworked and preoperationally tested. The inspectors observed this changeout and a successful retest. The panel was declared OPERABLE at 1302 hours.
- c. Because of ARM system susceptibility to lightning induced trips, a standing order was issued to operations to reduce power to 80% and terminate all surveillances which would cause the RPS trip system to be in a tripped condition (1/2 scram) during severe weather. On March 9, 1992, this order was implemented and power was reduced to 80 percent as a severe thunderstorm moved through the area. Power was increased back to 100% after the storm passed.

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.

<u>MWO</u>	<u>DESCRIPTION</u>
56084	Replacement of the Division 11 load shedding and sequencing panel card file.

58143	Electrical inspection of new fuel bridge crane.
61910	Calibrate fuel oil transfer pump B outlet pressure indicator.
62437	Megger heater & clean/inspect breaker to SLC storage tank.
63171	Inspect fuel handling platform assembly.
63358	Clean PSW side of centrifugal chiller.

No violations or deviations were identified. The results of the inspections in this area indicated that the maintenance program was effective. The observed activities were conducted in a satisfactory manner and work was properly performed in accordance with the maintenance work orders and procedures.

#### 5. Surveillance Observation (61726)

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

06-EL-1R21-M-0001,	4.16 KV Degraded Voltage Functional Test and Calibration.
06-OP-1E12-Q-0025,	LPCI/RHR Subsystem C Quarterly Functional Test.
06-OP-1E51-Q-0003,	RCIC System Quarterly Pump Operability Verification.
1F-S-05-E5151,	System Pressure Test - RCIC.

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

#### 6. Action on Previous Inspection Findings (92701, 92702)

(Closed) IFI 89-19-02, Instrument air walkdown items. The inspector reviewed the corrective actions for the items identified during the instrument air walkdown. The first item dealt with the incorrect listing



of valve FZ743 in procedure SOI 04-1-01-P53. This problem was revised via TCN 30 to correct this matter. The second item identified problems with dew point monitors 2P53-MI-R040 and 2P53-MI-R040. The dew point monitors were repaired (in November 1989) in accordance with MWOs 93250 and 93456. The next item identified during the walkdown was that 22 valves on the Unit 1 and 2 instrument air drier system had their packing glands or valve stems painted. The identified valves were inspected and cleaned. Additionally, a memo from Plant Services Superintendent to the Painting Supervisor was reviewed. This memo instructed the painting supervisor to inform personnel (painters) not to paint valve stems or packing glands. The walkdown also identified that the Unit 2 instrument air compressor had several oil leaks. In response to this matter, the compressor was rebuilt in accordance with MWO 93994. Another deficiency identified during the walkdown was the incorrect labeling of electrical breaker 52-154123. Instrument air supply to ADS receivers. A new label was manufactured and placed on the breaker.

During the walkdown of the instrument air system, a review of maintenance planning and scheduling system was performed. The first item identified during this review dealt with failure of operations and chemistry to update the planning and scheduling system for completed maintenance tasks CH1202 and OP1098. This resulted in the failure to perform subsequent semi-annual instrument air samples (See VIO 89-19-01, Part C). Corrective actions for this matter involved performing the surveillance, reviewing current chemistry tasks to ensure sampling commitments were met, and retraining chemistry personnel on the administrative controls for the planning and scheduling of work. Subsequent to this occurrence, the licensee established a new system "SIMS" which controls the scheduling of surveillance and maintenance work. The next deficiency identified during this review was that dew point monitors 1P53-MI-P040 and 2P53-MI-R040 were not included in the PMS program. The dew point monitors have been entered into the repetitive task program and calibration checks are performed on a quarterly basis (See SIMS Task Numbers 022579 and 022578). The final item identified during the walkdown was that general maintenance instruction 07-S-14-26 included steps for the installation of an oil drain line and isolation valve. Since these components were already installed, this step was not necessary and precluded the verbatim following of the procedure. As a result of this finding, GMI 07-S-14-26 has been cancelled and oil change is performed via task number 21742 which specifies the use of a work instruction and procedure 07-S-15-6. Based on the inspectors review of the above items, Inspector Followup Item 89-19-02 is closed.

(Closed) TI 2515/65. The inspectors reviewed the status of TI 2515/65, Action Plan Items and concluded that the inspection verification necessary for closeout of this Temporary Inspection is complete. The remaining two open Action Items I.D.2.2 and I.D.2.3 were closed December 1990 by the licensee's actions described in SERI letter to NRC (AECM-89/0109) dated July 11, 1989.

## 7. Preparation for Refueling (60705)

A total of 272 new fuel assemblies were received on site between February 24 and March 13, 1992. During this period the inspector periodically observed various steps of the new fuel processing procedure (07-S-02-110). These observations included removal of new assemblies from shipping crates, visual inspection of the assemblies for signs of damage and foreign debris, rod spacing verification, radiological surveys, and installation of new fuel channels. Also observed was movement of new fuel between the shipping containers, inspection of and spent fuel pool.

During these inspections, the accelerometers in three shipping containers were found tripped which required a more extensive examination of 6 fuel assemblies. The licensee noted no defective assemblies and the new fuel receipt process was performed in accordance with the procedure. No violations or deviations were identified.

## 8. Exit Interview (30703)

The inspection scope and findings were summarized on March 17, 1991, with those persons indicated in paragraph 1 above. The licensee was informed that IFI 89-19-02, instrument air walkdown items, discussed in paragraph 6 was closed. The licensee did not identify as proprietary any of the materials provided to or reviewed by the inspectors during this inspection. The licensee had no comments.

## 9. Acronyms and Initialisms

ADHRS-	Alternate Decay Heat Removal System
ADS -	Automatic Depressurization System
APRM -	Average Power Range Monitor
ATWS -	Anticipated Transient Without Scram
BWR -	Boiling Water Reactor
CRD -	Control Rod Drive
DCP -	Design Change Package
DG -	Diesel Generator
ECCS -	Emergency Core Cooling System
ESF -	Engineering Safety Feature
FCV -	Flow Control Valve
HCU -	Hydraulic Control Unit
HPCS -	High Pressure Core Spray
HPU -	Hydraulic Power Unit
I&C -	Instrumentation and Control
IFI -	Inspector Followup Item
LCO -	Limiting Condition for Operation
LER -	Licensee Event Report
LLRT -	Local Leak Rate Test
LPCI -	Low Pressure Core Injection
LPCS -	Low Pressure Core Spray
MNCR -	Material Nonconformance Report
MSIV -	Main Steam Isolation Valve



MWO - Maintenance Work Order  
NPE - Nuclear Plant Engineering  
NRC - Nuclear Regulatory Commission  
PDS - Pressure Differential Switch  
P&ID - Piping and Instrument Diagram  
PSW - Plant Service Water  
QDR - Quality Deficiency Report  
RCIC - Reactor Core Isolation Cooling  
RHR - Residual Heat Removal  
RPS - Reactor Protection System  
RWCU - Reactor Water Cleanup  
RWP - Radiation Work Permit  
SBLC - Standby Liquid Control  
SOI - System Operating Instruction  
SRV - Safety Relief Valve  
SSW - Standby Service Water  
TCN - Temporary Change Notice  
TS - Technical Specification