



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

Report No.: 50-416/92-09

Licensee: Entergy Operations, Inc.
Jackson, MS 39205

Docket No.: 50-416

License No.: NPF-29

Facility Name: Grand Gulf Nuclear Station

Inspection Conducted: March 14 through April 10, 1992

Inspectors: *[Signature]* 5/6/92
J. L. Mathis, Senior Resident Inspector Date Signed

[Signature] 5/6/92
C. A. Hughey, Resident Inspector Date Signed

Accompanying Personnel: F. X. Talbot, Reactor Engineer (Intern)

Approved by: *[Signature]* 5/6/92
F. S. Cantrell, Chief Date Signed
Project 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; engineering safety features (ESF) system walkdown; and action on previous inspection findings. The inspectors conducted backshift inspections on March 23, and April 6, 8, and 9, 1992.

Results:

During this inspection period two violations were identified. The first violation was for an inadequate procedure for controlling work (paragraph 3). The second violation consisted of three examples of failure to follow procedures (paragraph 3).

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These violations do not appear to be programmatic in nature; however, they are indicative of inattention to detail and the failure to properly recognize and enter LCOs.

In other areas, the licensee met the objectives in the areas of safety verification, and maintenance and surveillance activities (paragraphs 3, 4, 5).

REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *W. Cottle, Vice President, Nuclear Operations
- *M. Dietrich, Director, Quality Programs
- J. Dimmette, Manager, Plant and System Engineering
- *C. Dugger, Manager, Plant Operations
- *C. Ellsaesser, Operations Superintendent
- *C. Hutchinson, General Manager
- F. Mangan, Director, Plant Projects and Support
- *M. Meisner, Director, Nuclear Licensing
- *D. Pace, Director, Nuclear Plant Engineering
- *J. Roberts, Manager, Plant Maintenance
- *R. Ruffin, Licensing Specialist
- *T. Williamson, Chemistry Superintendent

NRC Personnel

- *P. W. O'Conner, Sr. Project Manager Office of Nuclear Reactor Regulation
- *D. M. Verrelli, Branch Chief, Division of Reactor Projects, Region II

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

*Attended exit interview

P. O'Conner, Project Manager (NRR), and D. Verrelli, Branch Chief (Region II) were on site April 8, 9, and 10, 1992, to meet with licensee management and tour the plant.

B. Boger, Director, Division of Reactor Projects, III, IV, V (NRR) and J. Larkins, Director, Project Directorate IV-1 (NRR) were on site April 8, 1992, to meet with licensee management and tour the plant.

S. Ebnetter, Region Administrator (Region II), was on site April 9, 1992, to tour the plant, meet with licensee management, and present operator license certificates at the Operations Awards Banquet.

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

2. Plant Status

The plant operated in Mode One, power operations, throughout this inspection period. Power was reduced to 80 percent for a short durations on March 23, 25, and 30, 1992, due to severe thunderstorms in the area.

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 alteration, 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.

On a weekly basis, selected ESF systems were confirmed operable by verifying that accessible valve flow path alignments were 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. Residual Heat Removal A
- b. Low Pressure Core Spray
- c. High Pressure Core Spray

The inspectors reviewed safety related tagouts, 940622 (Turbine building exhaust Fan B) and 920619 (IRM channel 'E') to ensure that the tagouts were properly prepared, and performed.

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

- a. On April 1, 1992, mechanical maintenance technicians worked a sample pump associated with the Fuel Handling Area (FHA) Flow Monitoring and Isokinetic Sampling Panel (FM&IS) (Work Order No. 69019). Following work on the pump, per engineering instructions, the scope of the work order needed to be changed/expanded to include troubleshooting by I&C personnel. The work order was returned to the planner for review; however, it was not returned to the control room to be re-approved by the shift supervisor. This troubleshooting resulted in de-energizing the FM&IS panel, which was required to be operable per TS 3.3.7.12. It was not until approximately 11 hours (April 2, 1992) later that operations was notified that the monitor was inoperable. TSS require that the FHA stack flow be estimated every 8 hours when the FM&IS panel is inoperable.

Procedure 01-S-07-1, Control of Work on Plant Equipment and Facilities, Revision 25, discussed the process for authorizing work on plant equipment. This procedure was inadequate in that it allowed the scope of a work order to be changed without re-approval by the control room prior to resuming work. In the example discussed above, operations was not aware of an LCO for about 11 hours which resulted in a missed TS surveillance. This procedure inadequacy will be documented as Violation 50-416/52-09-01.

- b. On March 27, 1992, a non-licensed operator was sent to the field with Red Tag Clearance No. 920547 to open breaker 52-16404 (Hydrogen Recombiner B power switch). This breaker was located on LCC panel 16BB4. Because of a question concerning breaker position, the operator left the panel and contacted the control room to clarify instructions. Upon returning to the panel, the operator inadvertently opened breaker 52-16403, which was the feeder breaker to MCC 16B41. This resulted in a power loss to the MCC panel and subsequently a power loss to the various components associated with the panel, including the auxiliary building (secondary containment) isolation valves (Division II) for the floor and equipment drain system, and the plant chilled water system. Upon opening the wrong breaker, the operator immediately realized his error and reclosed the breaker, restoring power to the isolation valves.

Administrative procedure 01-S-06-1, Protective Tagging System, Rev. 26, paragraph 6.3.2.a, requires the operator to take the equipment clearance form and tags with him, and position switches, valves, fuses, gag, blank flange, etc., in the protective position as indicated on the equipment clearance form, and follow any tagging order or special instructions as written in the Special Instructions/Remarks.

Administrative Procedure 01-S-06-2, Conduct of Operations, Rev. 26, paragraph 6.2.10.f, states that one of the specific responsibilities of non-licensed operators is to ensure that the placing and removal of red tags authorized by the plant supervisor or shift supervisor are completed correctly.

By accidentally opening a breaker that was not indicated on the equipment clearance form, an inadvertent Engineered Safety Feature (ESF) actuation occurred (Partial secondary containment isolation). This failure to follow the directions given in the above discussed procedures is the first example of Violation 50-416/92-09-02.

- c. Technical Specification Surveillance requirement 4.11.2.7.2 requires, in part, that the gross radioactivity release rate of the noble gases from the main condenser air ejector shall be determined to be within the limits of T.S. 3.11.2.7 by performing an isotopic analysis of a representative sample of gases taken at the offgas recombiner effluent. This is required within 4 hours following an increase of greater than 50 percent in the nominal steady state fission gas release from the primary coolant as indicated by the offgas pretreatment monitor after factoring out increases due to changes in thermal power level.

Data Sheet III of surveillance procedure 06-OP-1000-D-0001, Daily Operating Logs, Rev. 40, requires the operator to plot percent (%) of rated thermal power versus offgas pretreatment radiation monitor reading (mR/hr) every four hours to ensure that the adjusted radiation monitor reading has not increase greater than 50 percent.

On March 28, 1992, at 1600 hours, an operator incorrectly plotted the rad monitor reading versus 100 percent power when actual reactor power was only 70 percent. This misplotted point was well below 50 percent increase curve on the graph, indicating that no sample was required. At 2000 hours, the rad monitor reading was correctly plotted against 70 percent of Rated Thermal Power. This point was above the 50 percent increase line indicating that an isotopic analysis was required within 4 hours and that an isotopic analysis should have been performed within 4 hours after 1600 hours. Chemistry was notified to collect a sample at 2010 hours. The plotting of the 1600 hours radiation monitor reading against the incorrect percent of rated thermal power resulted in an isotopic analysis of the offgas recombiner effluent not being performed within 4 hours as required by TS 4.11.2.7.2.b. This failure to plot these parameters per procedure is the second example of Violation 50-416/92-09-02.

- d. On March 25, 1992, at 0737 hours a Reactor power reduction was commenced from 100 percent to 80 percent due to severe weather(thunderstorms) per Operations Standing Order 92-0024 (Reduce susceptibility of APRM system to lightning strikes) This power reduction was achieved at 0745 hours. At 0825 hours the bad weather had cleared and reactor power was returned to 100 percent. At 0913 hours the chemistry group initiated isotopic analysis of the radwaste building ventilation exhaust per TS 3.11.2.1 which requires an analysis within 1 hour after a thermal power change exceeding 15 percent of rated thermal power. The results of this analysis were used to calculate a new setpoint for the radwaste building vent exhaust monitor. TS 3.3.7.12 requires this monitor, along with other gaseous effluent monitors, to be operable with their alarm/trip setpoint set to ensure that the limits of TS 3.11.2.1 are not exceeded and also requires the alarm/trip setpoints to be determined in accordance with the Offsite Dose Calculation Manual (ODCM). Action statement 3.3.7.12.a. states that with a radioactive gaseous effluent monitoring instrumentation channel alarm/trip setpoint less conservative than required by the above specification (3.3.7.12), immediately suspend the release of radioactive gaseous effluents monitored by this channel or declare the channel inoperable.

Section 2.1 of the ODCM states that setpoint adjustments are not required to be performed if the existing setpoint level corresponds to a count rate that is less than or equal to +25 percent of the calculated value.

The results of the isotopic analysis (1050 hours) collected by the chemist indicated that the setpoint was indeed less conservative than required thus requiring the monitor to be declared INOPERABLE per TSS until the setpoint could be changed. Procedure 08-S-03-22, "Installed Radiation Monitoring System Alarm Setpoint Determination and Control", Rev. 2, paragraph 6.1.4.c, requires a Condition Identification (CI) to be initiated to adjust the setpoint, and also, requires that the chemist performing the calculation recommend to the Shift Superintendent that the monitor be declared inoperable until the new setpoint is incorporated. The chemist initiated a CI at 1417 hours per 08-S-03-22 but did not recommend to the shift superintendent that the monitor be declared INOPERABLE. It was not until 2050 hours, after a supervisory/peer review of the monitor setpoint documentation, that operations was notified that the radwaste building vent exhaust monitor should be declared INOPERABLE. This failure to follow the instruction given in procedure 08-S-03-22 is documented as the third example of Violation 50-416/92-09-02.

- e. During efforts by the Nuclear Plant Engineering group to establish the required torques/thrusts to open and close safety related motor operated valves based on design differential pressure and flow rates in accordance with NRC Generic Letter 89-10, the licensee determined that the actual maximum calculated flow through the Suppression Pool Makeup (SPMU) Valves is higher than assumed in the initial design calculation. This could have resulted in torque values of up to 200 percent of rated actuator capacity. Based on torque requirements provided by the vendor, the actuators on the suppression pool makeup dump valves (E30F001A/B and E30F002 A/B) must operate at torques that exceed their design rating by up to 100 percent in order to stroke these the valves. The safety function of the SPMU is to transfer water from the upper containment pool to the suppression pool through two butterfly valves in series.

The butterfly valves use Limitorque SMB-000 actuators. The SPMU valves have only been stroked under loaded conditions during pre-operational testing. As part of its operability determination process the licensee inspected the actuator internals for excessive gear wear and cracking. Although no wear or cracking was noticed during the internal inspection, the actuators were replaced with similar type SMB-000 actuators. These SMB-000 actuators will be replaced during refueling outage five with SMB-00 type actuators which have a rated capacity that is within the calculated system thrust requirements.

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>
56404	Replace motor for turbine bldg. cooling water pump P43-C00A.
67071	Rework CRD pump A.
67405	Repair water leak into panel 1H22P107 (offgas system heat tracing control panel).
MCP 192/1010	Install ferrite beads on cables for lightning protection (cabinet H13P713D).

No violations of deviations were identified. The results of the inspection in this area indicate that the maintenance program was effective.

5. Surveillance Observation (61726)

The inspectors observed the performance of portions of the surveillances listed below. The observation 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-CH-1000-Q-0055	Standby Diesel Generator Fuel Oil Tank A003A Sample
06-IC-1B21-M-0014	Safety Relief Valve Tail Pipe Pressure Switch Functional Test
06-EL-1R65-R-0001	MOV Thermal Overload Protective Device Functional Test
06-OP-1C41-Q-0001	Standby Liquid Control Functional test (pump B)
08-S-04-754	RHR & PASS Sampling

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

6. Engineered Safety Features System Walkdown (71710)

The inspectors conducted a complete walkdown on the accessible portions of the Standby Liquid Control System. This walkdown consisted of the following: confirmation that the system lineup procedure matches the plant drawing and the as-built configuration; identification of equipment condition and items that might degrade performance; verification of correct valve positions as required by procedure and that local and remote position indications were functional; verification of proper breaker positions and control boards indications; and verification instrument calibrations.

All valves and related breakers were lined up in their correct position with proper indication, and appropriate valves were locked opened or closed as required.

A spot check was made of SLCS surveillance procedures 06-OP-1C41-0-001, SLCS Monthly Operability Test; 06-ME-1C41-R-0001-02, SLCS Relief Valve Functional Testing; 06-OP-1C41-R004, SLCS Piping and Valve Operability Test; and 06-1C41-R-0002-01, SLCS Injection Test. All procedures were completed within the TS required time span. A review of the test data sheets from each procedure indicated that all components operated within required parameters and M&TE calibrations for tools used for these procedures were completed within required time intervals.

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

(Closed) VIO 91-13-01, Failure to follow procedures for analyzing grab samples within 24 hours. During maintenance which required the fission products monitor to be isolated, the Action Statement for TS 3.4.3.1 was entered. This action required grab samples of the drywell atmosphere to be obtained and analyzed within 24 hours. As part of the licensee corrective actions, surveillance procedure 06-CH-1D23-V-0040, Sampling the Drywell Atmosphere D-2s System, was revised to establish administrative controls which require the sample to be obtained and analyzed in a more timely manner. Additionally, the revised procedure requires the chemist to initial the data package after obtaining the sample and again upon completion of the analysis. This item is considered closed.

(Closed) VIO 91-18-01, Failure to perform TS surveillance for the End of Cycle Recirculation Pump Trip (EPC/RPT) response time within 18 months. This missed surveillance was the result of a procedure used in 1986 for scheduling surveillances which contained inadequate guidance regarding the EOC/RPT response time surveillance scheduling requirements. Performance of the surveillance was conducted successfully on October 5, 1991, on the affected trip system channels to comply with TS 4.3.4.2.3 requirements. Procedure 17-S-05-8 has been amended to include verification of compliance with TS scheduling requirements for staggered surveillance schedules which exceed the capability of the onsite computerized maintenance system. This item is considered closed.

8. Exit Interview (30703)

The inspection scope and findings were summarized on April 10, 1992, with those persons indicated in paragraph 1 above.

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 comment on the following inspection findings:

<u>Item Number</u>	<u>Description and Reference</u>
50-416/92-09-01	Inadequate procedure
50-416/92-09-02	Failure to follow procedures

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
HPCS	-	High Pressure Core Spray
HPU	-	Hydraulic Power Unit
I&C	-	Instrumentation and Control
IFI	-	Inspector Followup Item
LCC	-	Load Control Center
LCO	-	Limiting Condition for Operation
LER	-	Licensee Event Report
LLRT	-	Local Leak Rate Test
LPCI	-	Low Pressure Core Injection
LPCS	-	Low Pressure Core Spray
MCC	-	Motor Control Center
MNCR	-	Material Nonconformance Report
MOV	-	Motor Operated Valve
MSIV	-	Main Steam Isolation Valve
MWO	-	Maintenance Work Order
NPE	-	Nuclear Plant Engineering
NRC	-	Nuclear Regulatory Commission
PASS	-	Post Accident Sampling System
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
SLCS	-	Standby Liquid Control System
SOI	-	System Operating Instruction
SRV	-	Safety Relief Valve
SSW	-	Standby Service Water
TCN	-	Temporary Change Notice
TS	-	Technical Specification