



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

Report No.: 50-416/86-20

Licensee: Mississippi Power and Light Company
Jackson, MS 39205

Docket No.: 50-416

License No.: NPF-29

Facility Name: Grand Gulf Nuclear Station (GGNS)

Inspection Conducted: June 13 - July 14, 1986

Inspectors: *R. C. Butcher* 7/25/86
for R. C. Butcher, Senior Resident Inspector Date Signed
W. F. Smith 7/25/86
for W. F. Smith, Resident Inspector Date Signed
Approved by: *H. C. Dance* 7/25/86
H. C. Dance, Section Chief Date Signed
Division of Reactor Projects

SUMMARY

Scope: This routine inspection was conducted by the resident inspectors at the site in the areas of Licensee Action on Previous Enforcement Matters, Operational Safety Verification, Maintenance Observation, Surveillance Observation, ESF System Walkdown, Reportable Occurrences, Inspector Followup and Unresolved Items, Information Meetings with Local Officials, Design Changes and Modifications, and Spent Fuel Storage Racks.

Results: One Violation with two examples were identified: 1) Inadequate surveillance procedure in that isolation valves were not required to be restored to the locked open position; and 2) Failure to follow procedures when initiating temporary alterations.

8608180041 860728
PDR ADOCK 05000416
Q PDR

REPORT DETAILS

1. Licensee Employees Contacted

J. E. Cross, GGNS Site Director
*C. R. Hutchinson, GGNS General Manager
R. F. Rogers, Manager, Unit 1 Projects
#A. S. McCurdy, Manager, Plant Operations
*J. D. Bailey, Compliance Superintendent
*M. J. Wright, Manager, Plant Support
*L. F. Daughtery, Compliance Superintendent
D. G. Cupstid, Start-up Supervisor
R. H. McAnulty, Electrical Superintendent
*R. V. Moomaw, Manager, Plant Maintenance
W. P. Harris, Compliance Coordinator
J. L. Robertson, Licensing Superintendent
L. G. Temple,, I & C Superintendent
J. H. Mueller, Mechanical Superintendent
#J. L. Moore, Vice-President, Corporate Communications
#L. F. Dale, Director, Nuclear Licensing & Safety
*L. B. Moulder, Operations Superintendent

NRC Personnel

H.C. Dance, Chief, Projects Section 2B, RII

*Attended exit interview

#Attended local public meeting

2. Exit Interview

The inspection scope and findings were summarized on July 14, 1986, 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:

- a. 416/86-20-01, Inspector Followup Item. Wrong location of control rod drive temperature recorder noted in the UFSAR. (paragraph 4)
- b. 416/86-20-02, Inspector Followup Item. Discrepancies noted during walkdown of the Division III diesel generator. (paragraph 7)
- c. 416/86-20-03, Inspector Followup Item. Inability of Division III diesel generator to accept emergency loading during ten minute shutdown cycle. (paragraph 9)

- d. 416/86-20-04, Violation. First example: Inadequate surveillance procedure in that isolation valves were not required to be restored to the locked open position. (paragraph 11) Second example: Failure to follow procedures when initiating temporary alterations. (paragraph 11)
- e. 416/86-20-05, Inspector Followup Item. Review spent fuel movement control procedure for adequacy regarding licensee commitments. (paragraph 12)

3. Licensee Action on Previous Enforcement Matters (92702)

(Closed) Violation 416/85-33-02. The General Manager issued a letter to all Superintendents, Supervisors and the Plant Safety Review Committee emphasizing verbatim compliance with all safety-related procedures.

(Closed) Violation 416/85-22-05. The Electrical Superintendent issued a letter to Electrical Engineers, Planners & Supervisors defining required actions to prevent a recurrence of inadequate retest instructions. No further action is required.

4. Operational Safety Verification (71707)

The inspectors kept themselves informed on a daily basis of the overall plant status and any significant safety matters related to plant operations. Daily discussions were held with plant management and various members of the plant operating staff.

The inspectors made frequent visits to the control room such that it was visited at least daily when an inspector was on site. Observations included instrument readings, setpoints and recordings, status of operating systems, tags and clearances on equipment controls and switches, annunciator alarms, adherence to limiting conditions for operation, temporary alterations in effect, daily journals and data sheet entries, control room manning, and access controls. This inspection activity included numerous informal discussions with operators and their supervisors.

Weekly, when onsite, selected ESF systems were confirmed operable. The confirmation is made by verifying the following: Accessible valve flow path alignment, power supply breaker and fuse status, major component leakage, lubrication, cooling and general condition, and instrumentation.

General plant tours were conducted on at least a biweekly basis. Portions of the control building, turbine building, auxiliary building and outside areas were visited.

Observations included safety related tagout verifications shift turnover, sampling program, housekeeping and general plant conditions, fire protection equipment, control of activities in progress, radiation protection controls, physical security, problem identification systems, and containment isolation.

The following comments were noted: An error in the Updated Final Safety Analysis Report (UFSAR) was noted by the inspectors. Paragraph 4.6.1.1.2.4.2.4, Cooling Water Header, states that the temperature of each control rod drive is recorded in the control room and excessive temperatures are annunciated. This statement is in error in that control rod drive temperatures are recorded on a recorder located on elevation 133 in the auxiliary building. Excessive temperatures are annunciated in the control room on panel 680. The licensee was notified of this discrepancy. This will be followed as inspector followup item 416/86-20-01.

No violations or deviations were identified.

5. Maintenance Observation (62703)

During the report period, the inspector observed portions of the maintenance activities listed below. The observations included a review of the work documents for adequacy, adherence to procedure, proper tagouts, adherence to technical specifications, radiological controls, observation of all or part of the actual work and/or retesting in progress, specified retest requirements, and adherence to the appropriate quality controls.

MWO E63826, NSSS Inboard Isolation Reset Switch B21HSM631B.

MWO I63894, Troubleshoot Subloop 2 of HCU B, Operation Erratic.

MWO E64051, DG 12 Tripped During Performance of 06-OP-1P75-M-0002.

No violations or deviations were identified.

6. Surveillance Observation (61726)

The inspector 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, verification of test instrument calibration, observation of all or part of the actual surveillances, removal from service and return to service of the system or components affected, and review of the data for acceptability based upon the acceptance criteria.

06-ME-1M23-V-0001, Rev.25, Containment & Drywell Airlock Seal Leak Test.

06-OP-1P41-Q-0005, Rev.25, Standby Service Water System Valve & Pump Operability Test.

06-ME-1M61-V-0001, Rev.27, Local Leak Rate Test (M41F034 & M41F035).

06-EL-SP64-SA-0002, Rev.23, Diesel Generator Building Deluge System Heat Detector Functional Test.

06-IC-1C34-M-0001, Rev.23, Reactor Vessel Water Level High (Level 8) MT/RFPT Trip Functional Test.

06-OP-1P75-M-001, Rev.29, Standby Diesel Generator (SDG) 11 Functional Test.

No violations or deviations were identified.

7. Engineered Safety Features System Walkdown (71710)

A complete walkdown was conducted on the accessible portions of the High Pressure Core Spray (HPCS) Diesel Generator. The walkdown consisted of an inspection and verification, where possible, of the required system valve alignment, including valve power available and valve locking, where required; instrumentation valved in and functioning; electrical and instrumentation cabinets free from debris, loose materials, jumpers and evidence of rodents, and system free from other degrading conditions.

The results of the above inspection were satisfactory; however, the inspector identified the following minor discrepancies. Each item was discussed with a member of the licensee's staff.

- a. System Operating Instruction (SOI) 04-1-01-P81-1, High Pressure Core Spray Diesel Generator, Rev. 26, Attachment I valve lineup checksheet did not have a position specified for the water driven compressor discharge drain valve, F803. In addition, the descriptions for instrument root valves F036A and F039B were not correct, apparently due to a recent equipment modification. In all three cases the valves were in the correct position. The licensee's representative indicated that these discrepancies would be corrected by a change to the procedure.
- b. Three fuel oil day tank instrument root valves, FX001, FX002, and FX003 were on the valve lineup provided by the above SOI, but the valves did not appear on Pipe and Instrument Diagram (P&ID) M-1093A. According to the licensee's representative, all valves that appear on the valve lineup checksheet should also appear on the P&ID, and the licensee would investigate to ensure this problem does not exist on other similar drawings.
- c. There was a thermometer installed in the A HPCS diesel water jacket outlet pipe, however it does not appear on the P&ID nor does it appear to have instrument numbers which assures instrument calibration tracking. The licensee's representative indicated that he would investigate.
- d. The underground fuel oil storage tank fill and drain valves are located in a locked, connector pit below grade level. Due to the design of the cover, the pit was full of water. Valves F009 and F014 were submerged

and appeared to be extremely corroded. Under these conditions, water in-leakage to the fuel tank is a possibility and thus the condition should be corrected. This issue was raised in NRC Inspection Report 50-416/85-28 and is currently open inspector followup item 416/85-28-03. The licensee is installing new covers on the valve pit to prevent the entry of water.

- e. The 120 volt AC breakers in panel number 12P51 that appear on attachment III electrical lineup checksheet in the above SOI are not labeled with the same number. The breakers are labelled with small stick-on paper labels containing two-digit numbers. For example, breaker number 21 is identified on the checksheet as 51-1P25121. Of greatest concern is the possibility of the labels falling off and someone putting them back on the wrong breaker. The licensee's representative stated that there is a program under way which will replace the stick-on labels with permanent plastic nameplates containing the breaker numbers and circuit descriptions. The inspectors verified the program to place permanent nameplates on breakers was in progress.
- f. The HPCS diesel High/Low jacket water temperature alarm tripped when there did not appear to be a problem. The operators explained that there is an overlap between the alarm setpoint and the heater controller deadband. The licensee's representative indicated that this is under review and will be corrected.

Resolution and/or correction of the above discrepancies shall be tracked under inspector followup item 416/86-20-02.

Except for the flooded valve pit described in paragraph 7.d above, discrepancies found during the previous ESF System walkdown, as identified in NRC Inspector Report 50-416/85-28, have been corrected.

No violations or deviations were identified.

8. Reportable Occurrences (90712 & 92700)

The below listed event reports were reviewed to determine if the information provided met the NRC reporting requirements. The determination included adequacy of event description and corrective action taken or planned, existence of potential generic problems and the relative safety significance of each event. Additional inplant reviews and discussions with plant personnel as appropriate were conducted for the reports indicated by an asterisk. The event reports were reviewed using the guidance of the general policy and procedure for NRC enforcement actions.

The following License Event Reports (LERs) are closed:

LER No.	Event Date	Event
*85-041	October 31, 1985	Operability of the alternate decay heat removal not demonstrated within required 24 hour period.
85-046	December 4, 1985	Isolation valve logic relay contacts not surveilled.
85-049	December 22, 1985	Inadequate review of surveillance of valve isolation times.
*86-012	April 10, 1986	Failed relay causes isolation of shutdown cooling.
*86-015	August 16, 1986	Non-seismically qualified relays installed in control room emergency filtration system.
*86-017	April 30, 1986	Inadvertent actuation of the combustible gas control system.

LER 86-015 is discussed in Report 416/86-04 and violation 416/86-04-03.

LER 86-017 is discussed in Report 416/86-11 and violation 416/86-11-04.

No violations or deviations were identified.

9. Inspector Followup And Unresolved Items. (92701).

(Closed) Inspector Followup Item 416/85-45-12. The licensee initiated temporary change notice 25 to System Operating Instruction 04-1-01-P75-1 to correct the misidentified valves.

(Closed) Inspector Followup Item 416/85-09-02. The licensee revised Surveillance Procedure 06-EL-1L21-0-0001 to require an annual capacity discharge test if any battery has reached 85% of the expected service life for the application or if capacity dropped more than 10% of rated capacity from its average on previous performance tests. The licensee revised Surveillance Procedure 06-EL-1L11-Q-0001 to permit omitting equalizing the battery if all cell data has been reviewed for the equalizing requirements of IEEE-450, 1980 by Maintenance Engineering.

The inspectors followed up on a deficiency identified at the Watts Bar nuclear plant which affected the capability of the standby diesel generators to assume required loads if an emergency start signal is received during the 10 minute engine idle period during the normal shutdown cycle. This deficiency was issued as Potential Generic Item (PGI) 86-04. The Division III, HPCS diesel generator control system at GGNS appears to have the same deficiency. GGNS has a General Motors diesel generator. Procedures specify after running at the normal synchronous speed of 900 rpm, the HPCS diesel is normally shutdown to an idle speed of 450 rpm for 10 minutes, thereby allowing temperatures to level off, after which a timer automatically shuts the diesel generator completely down. As the speed decreases through 150 rpm, a relay automatically resets the field flashing circuit. Thus, if a station power failure occurs during the 10 minute cooldown period, the control circuit will override and bring the diesel back up to 900 rpm but the field won't flash. The licensee initiated Incident Report (IR) 86-6-10 to document the discrepancy. As immediate corrective action, Temporary Change Notices (TCN) were issued against System Operating Instruction 04-1-01-P81-1 and Surveillance Procedure 06-OP-1P81-V-0003 directing the operator, when shutting down the HPCS diesel generator, to manually depress the voltage shutdown reset pushbutton on panel 1H22-P118 to enable the generator output breaker to properly close upon receipt of a LOCA signal. The licensee is investigating possible design changes. This will be followed as inspector followup item 416/86-20-03.

IE Circular 77-09 discussed a potential fuse coordination problem in the control system for the Standby Liquid Control (SLC) system. It is possible to have smaller fuses in the control power circuit than those supplied by General Electric for the explosive (squib) valves, thus if a squib valve fires and short circuits, the main control power fuses could blow first and control power for the system would be lost. The inspectors followed up to assess the fuse configuration at GGNS, and found no problems. GGNS utilizes 5.6 ampere slow-blow fuses in the control power circuit with 2.0 ampere slow-blow fuses on the squib valves. In addition, the circuit contains 40 ohm current limiting resistors so that if a short circuit was caused by the squib valves, the circuit load would not exceed 3 amperes. This is sufficient to blow the squib valve fuses, but not enough to blow the control power fuses.

No violations or deviations were identified.

10. Information Meetings With Local Officials (94600).

On June 12, 1986 the resident inspectors and Mr. H. Dance, NRC RII Section Chief, attended a meeting at the Claiborne County Courthouse. This meeting was organized by Mr. A.C. Garner, Port Gibson/Claiborne County Civil Defense Director, to answer local citizens questions regarding the recent nuclear accident at the Chernobyl nuclear site in the Soviet Union. Other groups represented at this meeting were the Mississippi Power and Light Company (MP&L), Mississippi Emergency Management Agency and the Mississippi State Department of Health. The MP&L representatives presented known differences

in the design of the Chernobyl nuclear plant and the Grand Gulf nuclear plant and explained how the two technologies were different. The meeting was then opened to questions from the public. The meeting appeared to have satisfied the public's questions regarding the possibility of a similar event occurring at GGNS.

11. Design, Design Changes and Modifications (37700)

The inspectors reviewed Design Change Implementation Package (DCIP) 86/4017 which modified the control room chlorine detection sample pump piping to aid the sample pump in drawing a sample. Material Non-Conformance Report (MNCR) 301-86 was written to document that the control room Heating, Ventilating and Air Conditioning (HVAC) chlorine detectors could not draw an adequate sample of air as presently designed because the HVAC duct static pressure was lower than the sample fan was capable of pulling. The original design of the chlorine detection system had the sample pump suction off the control room HVAC fan inlet duct and the sample pump discharge was routed to the safeguard switchgear & battery rooms ventilation system duct. Due to the low static pressure in the control room HVAC duct the sample pump was not capable of drawing an adequate sample. The DCIP incorporated isolation valves in the inlet piping to the sample pump suction to provide for calibration of the chlorine detectors and the outlet piping from the sample pump was routed directly back into the control room HVAC duct downstream of the sample pump inlet piping. The design change had been reviewed and approved by the appropriate personnel, a safety evaluation had been performed and drawing changes had been incorporated. Drawing M-0049, Control Room HVAC System had been revised to reflect the added isolation valves Z51F079 and Z51F080 which are shown as locked open valves. The System Operating Instruction (SOI) 04-S-01-Z51-1, Control Room HVAC System, specifies Z51F079 and Z51F080 are to be locked open but Surveillance Procedure 06-IC-SZ51-SA-0001, Chlorine Detector Calibration, specifies only that valves Z51F079 and Z51F080 are to be opened. On June 30, 1986 the inspector checked isolation valves Z51F079 and Z51F080 and found them unlocked in the open position. Technical Specification 6.8.1 requires that the applicable procedures recommended in Appendix A of Regulatory Guide 1.33, Revision 2, 1978 be established, implemented and maintained. Appendix A of Regulatory Guide 1.33 states that safety-related system procedures should include instructions for the operation of control room heating and ventilation systems. Surveillance Procedure 06-IC-SZ51-SA-0001 was inadequate in that it did not require locking open valves Z51F079 and Z51F080 as specified by drawing M-0049. This is the first example of violation 416/86-20-04. (See also paragraph below). The inspector noted that the heat tracing on some portions of the chlorine sample piping was pulled away from the pipe and held with tape. Also, the room with the HVAC duct and chlorine detector ASW040B had water on the floor, possibly from a recent rain shower. The licensee was notified of the noted discrepancies and initiated corrective action. It was noted that the test connection for chlorine detector ASN040B was located upstream of temperature element TE N038B rather than downstream of TE N038B as shown on drawing M-0049.

The inspectors reviewed the licensee's temporary alteration controls. Administrative Procedure (AP) 01-S-06-3, Control of Temporary Alterations, requires that each temporary alteration request be screened for safety/environmental evaluation applicability and be reviewed by the Operations Superintendent for proper evaluation, determination for actual need, and applicability. Paragraph 6.1.6 states the Shift Superintendent must review the temporary alteration request form and approve by signature. Also, he must issue jumpers as required, make required entries in the jumper log and enter alteration number and information in the temporary alteration log index. The original form is to be placed in the temporary alteration log book. The installation of all temporary alterations must be independently verified except the ALARA committee may recommend otherwise to minimize personnel exposure. A review of the licensee's temporary alteration logs revealed the following discrepancies:

- a. Temporary alteration 84-0016 had jumpers 14, 17 and 20 listed on the temporary alteration request form (attachment 1 to AP 01-S-06-3). The jumper log (attachment III to AP 01-S-06-3) did not list jumpers 14, 17 and 20 as active. A review of the installation of temporary alteration 84-0016 revealed that jumpers 14, 17 and 20 were actually installed. The jumper log failed to list the jumpers.
- b. Temporary alteration 86-0020 lists jumpers J246 and J247. The jumper log lists jumper J246 as installed for temporary alteration 86-0020 and jumper J247 as installed for temporary alteration 86-0023. A review of temporary alteration 86-0023 showed no jumpers were initiated and the jumper log was in error.
- c. The temporary alteration request form for temporary alteration 86-0017 had the Operations Assistant signature completed for the notification of the restoration for any required procedure changes (block 25). AP 01-S-06-3, Rev. 17, paragraph 6.3.6 states the Operations Assistant will notify the Manager, Plant Maintenance and Manager, Plant Operation of restoration of the temporary alteration and then sign block 25. This signature should not have been completed until restoration of the temporary alteration was complete.
- d. Temporary alteration 85-0005 has entries for given tag numbers that fail to identify the type alteration as attachment 1 to AP 01-S-06-3 calls for. Also, under the location and description columns of attachment 1, additional attachments to the temporary alteration request form is referenced. The attachments to the temporary alteration request form have several entries (approximately 20) described as "add wire" which are actually jumpers. No jumper identification was made and there were no entries in the jumper log.
- e. AP 01-S-06-3, paragraph 6.1.6 states that the Shift Superintendent or designee shall issue jumpers as required and make required entries in the jumper log (attachment III). The procedure does not specify how the Shift Superintendent is to assign numbers for jumpers. The jumper log reflects this lack of direction by use of different types of numbers which are derived by each individual involved in issuing the temporary alteration.

Technical Specification 6.8.1 requires that the written procedures recommended in appendix A of Regulatory Guide 1.33, Revision 2, 1978 be established, implemented and maintained. RG 1.33 recommends procedures for the bypass of safety functions and jumper control. The failure to follow procedures as noted in discrepancies a, b, c, and d is a violation. This will be identified as the second example of violation 416/86-20-04 (see also paragraph above).

12. Spent Fuel Storage Racks (50095)

Three Design Change Packages (DCPs) were associated with the removal of Low Density Fuel Storage Racks (LDFSR) and the installation of High Density Fuel Storage Racks (HDFSR). DCP 84/4038 provided instructions for the removal of the LDFSR, and DCP 84/4048 provided for the installation of the HDFSR in the auxiliary building spent fuel pool. DCP 84/4049 provided for the removal of the existing LDFSR and the installation of the HDFSR in the upper containment pool. The HDFSR were designed and manufactured by the Joseph Oat Corporation. The HDFSR installed in the upper containment pool will hold 800 spent fuel assemblies and the HDFSR installed in the auxiliary spent fuel pool will hold 4348 spent fuel assemblies. The review of procurement documents, receipt inspection procedures and findings was satisfactory. The removal and installation instructions were complete and thorough. During the Fall 1985 outage, the inspectors witnessed portions of the installation of the HDFSR in the upper containment pool and the auxiliary building, discussed the installation with licensee personnel and observed that approved procedures and drawings were available and utilized. The poison plates were examined and confirmed to be properly identified. Quality assurance personnel closely followed the modification. A review of several nonconformance reports indicate proper review and dispositioning. The dummy fuel element test for adequate clearances indicated that several cells were not adequate for fuel storage and these cells will be controlled administratively. When the adequacy of the marking of the poison specimen coupons was questioned, a change notice was issued requiring the coupon identification number be Vibra Etched to ensure durable identification of each coupon. This change notice also identified cell number Z-29 in rack A5 as the acceptable location for the poison specimen assembly. Although the HDFSR have been installed, there have been several meetings and correspondence between the licensee and NRR regarding the adequacy of the existing spent fuel pool cooling systems, the level of radiation adjacent to spent fuel pool walls, spent fuel storage pool maximum temperature and other issues. The licensee has proposed TS changes to define these limits and administrative controls, which are not yet released, will be contained in Procedure 09-S-02-300, SNM Movement Control. The inspectors will review this procedure for adequacy when available. This will be identified as inspector followup item 416/86-20-05.

No violations or deviations were identified.