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

Report No.: 50-416/85-28

Licensee: Mississippi Power and Light Company
Jackson, MS 39205

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

Facility Name: Grand Gulf

Inspection Conducted: July 20 - August 16, 1985

Inspectors: R. C. Butcher, Senior Resident Inspector — Date Signed: 8/27/85

J. L. Caldwell, Resident Inspector — Date Signed: 8/27/85

Approved by: V. W. Panciera, Section Chief, Division of Reactor Projects — Date Signed: 8/29/85

SUMMARY

Scope: This routine, unannounced inspection entailed 175 inspector-hours at the site in the areas of Operational Safety Verification, Maintenance Observation, Surveillance Observation, ESF System Walkdown, Reportable Occurrences, Operating Reactor Events, and Startup Testing.

Results: Of the seven areas inspected, no apparent violations or deviations were identified in six areas; one apparent deviation and one apparent violation were found in one area.

REPORT DETAILS

1. Persons Contacted

   Licensee Employees

   J. E. Cross, General Manager
   *C. R. Hutchinson, Manager, Plant Maintenance
   *R. F. Rogers, Technical Assistant
   *J. D. Bailey, Compliance Coordinator
   M. J. Wright, Manager, Plant Operations
   *L. F. Daughtery, Compliance Superintendent
   D. Cupstid, Start-up Superintendent
   R. H. McAnulty, Electrical Superintendent
   R. V. Moomaw, I&C Superintendent
   B. Harris, Compliance Coordinator
   *J. L. Robertson, Operations Superintendent

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

   *Attended exit interview

2. Exit Interview

   The inspection scope and findings were summarized on August 16, 1985, 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 dissenting comments on the following inspection findings:

   a. Deviation (50-416/85-28-01); Failure to Issue Surveillance Procedure 06-OP-1C61-R-0002 as committed to in AECM 84/0418 dated August 20, 1984. (Paragraph 5.c)

   b. Violation (50-416/85-28-02); Failure to Document Entering an LCO. (Paragraph 5.d)

   c. Inspector Followup Item (50-416/85-28-03); Water Collection in Diesel Generator Fuel Oil Storage Tank Fill and Drain Valve Pit. (Paragraph 8.b)

   d. Inspector Followup Item (50-416/85-28-04); Clarify Procedures for Operator-at-the-Controls. (Paragraph 5.b)

3. Licensee Action on Previous Enforcement Matters (92702)

   Not Inspected.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. 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, a selected ESF system is 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 turnovers; sampling program; houskeeping 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:

a. Operating license condition 2.C.(29) specifies that a shift advisor with substantive previous BWR experience shall be assigned to each operating shift until the plant achieves and demonstrates full power operation. In a letter dated July 1, 1985, the licensee stated that the requirements of license condition 2.C.(29) had been met and requested the NRC concur in releasing the shift advisors. In a letter from Mr. Novak, NRC, to Mr. Richard, MP&L, dated July 23, 1985, the NRC concurred that the requirements in license condition 2.C.(29) had been satisfied and the shift advisors could be released. This license condition is complete.

b. On July 23, 1985, while touring the control room, the inspector found the Control Room Operator (CRO) outside the control area. When the inspector asked the Shift Supervisor (SS) where the CRO was, the SS stated that he was watching the control panels while the CRO was taking a panel reading (outside the control area but inside the control room).

The inspector informed the SS that procedures did not allow for the CRO to leave the control area when operating. The CRO was absent from the control area for just a short time. Technical Specifications (TS) Paragraph 6.2.2, Unit Staff, requires at least one licensed reactor operator in the control room when fuel is in the reactor. In addition, while the reactor is in Operational Condition 1, 2 or 3, at least one licensed Senior Reactor Operator shall be in the control room. At the Grand Gulf Nuclear Plant, both the SS and the Shift Superintendent are licensed Senior Reactor Operators. Administrative Procedure (AP) 01-S-06-02, Conduct of Operations, paragraph 6.4.2.b.(2), states "the operator-at-the-controls will not leave the respective part of the control area for the unit to which he is assigned for any non-emergency reasons without a licensed operator relieving him of operator-at-the-controls responsibility. For example, the operator should not routinely enter areas behind control panels where plant performance cannot be monitored." Paragraph 6.4.2.b.(3) states "In the event of an emergency affecting the safety of operations, the operator-at-the-controls may momentarily be absent from the control area in order to verify the receipt of an annunciator alarm or initiate corrective action provided he remains within the confines of the Control Room." Administrative Procedure 01-S-06-4, access and conduct in the Control Room, defines the control area and the Control Room limits. The control area is physically marked with yellow tape in the Control Room. The Shift Superintendent stated that their interpretation of AP-01-S-06-2 would permit the CRO to be relieved by the SS temporarily to take readings or respond to an annunciator on a back panel (outside the control area but inside the control room) in order to determine if an emergency condition did exist. Discussions with RII Management indicated that the licensee's interpretation is acceptable if properly controlled by procedures. Specifically, the SS should assume the operator-at-the-controls duties and cease processing of maintenance work orders, clearances, etc., so as to devote his full attention to the control panel. Also, the SS should position himself so that he has full view of the control panel. The inspector informed the licensee of the Region II position. The licensee will clarify procedures to ensure the operator-at-the-controls is procedurally defined. This will be an Inspector Followup Item (50-416/85-28-04).

c. On August 6, 1985, while discussing with the licensee an item concerning the operability of certain controls on the Remote Shutdown Panel (RSP) and their relation to the Technical Specification (TS) requirements, the inspector discovered that Surveillance Procedure 06-( ) 1C61-R-0002 had not been issued. This Surveillance Procedure (SP) will be the procedure used by the licensee to comply with the surveillance requirements of TS 4.3.7.4.2. The licensee had been given a deviation in 1984 in inspection report 84-11 for not testing the controls on the Remote Shutdown Panel as committed to in the FSAR. The response by the licensee to this deviation (84-11-05) was to perform the required surveillance on the RSP controls using a temporary procedure, 06-OP-1C61-Temp 1, and issue a permanent SP 06-OP-1C61-R-0002 when Amendment 13 to NPF13 was issued August 31, 1984. SP

06-OP-1C61-R-0002 still had not been issued by the licensee. The inspector was able to determine that 06-OP-1C61-Temp 1 was completed in July of 1984 and since the TS Surveillance requirement is for 18 months, the requirements of TS have not been violated. The failure of the licensee to issue SP 06-OP-1C61-R-0002 in August of 1984, as committed to in their response to deviation 84-11-05 in letter AECM-84/0418 dated August 20, 1984, will be identified as a deviation (50-416/85-28-01).

d. During normal operation Safety Relief Valve (SRV) weepage is discharged to the suppression pool creating an increase in suppression pool water level over a period of time. When the suppression pool water level reaches a high level, the High Pressure Core Spray (HPCS) suction valve to the Condensate Storage Tank (CST) automatically closes and the HPCS suction valve to the suppression pool automatically opens. Due to the difference in water quality, the licensee prefers to be lined up to the CST. Therefore, it has been the practice when receiving the suppression pool high water level alarm, to close the suppression pool suction valve and open the CST suction valve by the use of handswitches on the control panel. On August 1, 1985, the inspectors questioned that if an event occurred such that the CST water level reached the low level, would HPCS suction automatically switch over from the CST to the suppression pool. The licensee reviewed the applicable electrical schematics and determined that if the suppression pool level was still high and the CST level went low, then the automatic switch from the CST to the suppression pool would not occur. This would make the HPCS system inoperable since it would require manual realignment during accident conditions. Although the Reactor Core Isolation Cooling (RCIC) system operation is similar to the HPCS system (i.e., the RCIC suction automatically switches from the CST to the suppression pool on either CST low water level or suppression pool high water level) the logic is different in that RCIC automatically switches back to the suppression pool when the override handswitch is released. To ensure that operations personnel are aware of the possibility of making HPCS technically inoperable by manually aligning the HPCS suction to the CST when the suppression pool water level is high, the licensee issued this information in the night orders log. Also, a TS position statement is being prepared identifying that HPCS must be declared inoperable under the condition noted above. TS action statement 3.5.1.c requires with ECCS division 3 inoperable, provided that ECCS divisions 1 & 2 and the RCIC are operable, restore ECCS division 3 to operable status within 14 days or be in hot shutdown within the next 12 hours and in cold shutdown within the following 24 hours. Operations Section Procedure 02-S-01-17, Control of Limiting Conditions for Operations, paragraph 6.1, requires the shift supervisor fill out a Limiting Condition for Operation (LCO) report anytime the plant enters the action statement of a TS. Failure to document entering an LCO is a violation (50-416/85-28-02).

6. Maintenance Observation (62703)

During the report period, the inspector observed selected maintenance activities. 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.

In the areas inspected, no violations or deviations were identified.

7. Surveillance Testing Observation (61726)

The inspector observed the performance of selected surveillances. 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.

In the areas inspected, no violations or deviations were identified.

8. ESF System Walkdown (71710)

A complete walkdown was conducted on the accessible portions of the High pressure Core Spray (HPCS) Diesel Generator (DG). The walkdowns 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 following items were noted and the licensee informed of the inspectors concerns where appropriate.

a. The emergency fill connection for the diesel generator fuel oil storage tank is located inside the HPCS DG room and is a 2 inch pipe. The drawing (M-1093A) shows a cap on this pipe but there was no cap installed. The pipe is subject to collecting debris. The licensee subsequently capped the line.

b. The fuel oil storage tank is located in an open area in the protected zone and the valves for fill and drain are located in a recessed (below grade level) concrete pit. The inspectors have observed that when opened, the concrete pit is full of water and therefore the caps and valves in this area are covered with water. This appears to be undesirable since moisture could find a leak path into the fuel oil storage tank. The licensee stated that they would review the situation and see if water collection could be prevented. This will be identified as Inspector Followup Item (50-416/85-28-03).

c. System Operating Instruction 04-1-01-P81-1, Revision 22, appears to have the following discrepancies:

(1) In attachment I, valve P81-F007 is listed in area 12 at elevation 133 feet. Valve P81-F007 is actually located in the yard area below grade level.

(2) On attachment III, breaker 52-170115 is listed for engine A soakback pump, but is actually for engine B soakback pump. Breaker 52-170119 is listed for engine B soakback pump, but is actually for engine A soakback pump.

(3) Breaker 52-1P71121 is listed on attachment III twice with different titles.

In the areas inspected, no violations or deviations were identified.

9. Reportable Occurrences (90712 and 92700)

The below listed Licensee Event Reports (LERs) were reviewed to determine if the information provided met 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 LERs were reviewed using the guidance of the general policy and procedure for NRC enforcement actions. The following LERs are closed.

LER NO.	REPORT DATE	EVENT
*85-027-1	August 9, 1985	Reactor Scram Resulting From Low Condenser Vacuum.

LER 85-027 is associated with scram No. 29 described in paragraph 10 below.

In the areas inspected, no violations or deviations were identified.

10. Operating Reactor Events (93702)

The inspectors reviewed activities associated with the below listed reactor scrams. The review included determination of cause, safety significance, performance of personnel and systems, and corrective action. The inspectors examined instrument recordings, computer printouts, operations journal entries, scram reports, and had discussions with operations maintenance and engineering support personnel as appropriate.

a. Scram No. 27 occurred at 5:50 a.m. on June 4, 1985, with the reactor operating at approximately 97% power. Just prior to the scram the Steam Jet Air Ejector (SJAE) system started experiencing flow problems. These flow problems caused an isolation of the steam supply to the

operating SJAE. This isolation resulted in a buildup of non-condensable gases in the main condenser, reducing the vacuum to the low vacuum trip setpoint of the main turbine. This low vacuum trip of the main turbine caused the reactor to scram. The licensee had determined that the condenser vacuum indication available in the control room does not accurately reflect relatively quick changes in condenser vacuum. An annunciator with a sensor in the same line as the low vacuum trip sensor has been installed in the control room to warn the operator of an impending loss of condenser vacuum. The licensee is also looking into additional instrumentation and annunciators for the monitoring of SJAE operations.

b. Scram No. 28 occurred at 12:52 a.m., on June 27, 1985, with the reactor operating at approximately 98% power. The initiating event was a high high level alarm in the high pressure feed water heater 5B. This high high level ultimately caused high levels and isolations of all sources to the feed water heater drain tank, resulting in a low heater drain tank level. The low heater drain tank level caused the heater drain pumps to go into recirculation resulting in a loss of feed pump suction flow of approximately 25%. The condensate pumps increased flow to make up for the loss of the heater drain tank flow and caused a low level in the Intermediate Pressure (IP) condenser hotwell. This low level in the condenser hotwell tripped the condensate pumps. At this point the operators recognized that the loss of the condensate pumps would result in a low vessel level automatic scram of the reactor, so they manually scrammed the reactor by placing the mode switch in shutdown followed by pushing the manual Scram buttons. The vessel level dropped below level 2 (-41.6 inches) automatically initiating HPCS. RCIC had already been initiated manually. All safety systems responded as expected. Licensee investigation subsequent to the event discovered that the high high level trip of the 5B heater was due to a failure of the micro-switch in the level switch assembly. This switch has been replaced and the licensee is looking into lowering the IP condenser low level trip of the condensate pump and other modifications to the condenser to help maintain sufficient level in the condenser hotwell during transients.

c. Scram No. 29 occurred at 6:17 a.m. on July 3, 1985, with the reactor operating at approximately 100% power. The initiating event was the inadvertent trip of the B Circulating Water Pump which caused condenser vacuum to decrease. The operators immediately commenced reducing power in an attempt to avoid the low vacuum trip of the main turbine. However, this power reduction was not fast enough and a low condenser vacuum trip of the main turbine occurred resulting in the reactor scram. Six safety relief valves lifted to reduce the resulting reactor pressure increase and operated as the low-low set function logic required. All other safety systems functioned as expected. Investigation by the licensee discovered the trip of the B circulating water pump was due to a faulty rotor temperature monitor thermocouple. The vendor informed the licensee that the function of the temperature trip is to protect the pump during multiple pump starts. Presently the

licensee will administratively control the circulating water pump starts and has performed a temporary alteration jumpering out the temperature trip. A design change request has been generated to allow activation of the temperature trip logic only during pump start evolutions. Also the licensee is considering other methods of power reduction to prevent future scrams. One of these is to trip the recirculating water pump to their low frequency (15 Hertz) motor generator sets. A startup test will be performed in the near future which will trip both recirculation water pumps with the reactor operating at 100%. This startup test will serve to demonstrate whether or not the plant can handle a dual recirculating water pump transfer to the low frequency motor generator set at 100% power.

In the areas inspected, no violations or deviations were identified.

11. Startup Testing (72528C)

The inspector observed all or part of the conduct, or preparation for conduct, of the below listed startup procedures and operations. The observation included a review of the procedure for meeting all test prerequisites, initial conditions, test equipment and calibration requirements. The overall crew performance was observed to ensure that minimum crew requirements were being met, that appropriate revised procedures were in use, that crew actions appeared to be correct and timely, that all data was collected by the proper personnel for final analysis, and that quick summary analysis showed proper plant response to the test. Where test results were available, in preliminary or final form, they were verified to be consistent with observations or that acceptance criteria had been met.

1-B33-SU-30-6	Reactor Recirculation System (Step 4.6 which was the trip of the A recirculation pump with plant operating at 100% power and 107.6% core flow)

In the areas inspected, no violations or deviations were identified.