

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

Report No.: 50-416/88-14 Licensee: System Energy Resources, Inc. Jackson, MS 39205 Docket No.: 50-416 License No.: NPF-29 Facility Name: Grand Gulf Nuclear Station Inspection Conducted: June 25 thru July 15, 1988 22 Inspectors: eno Senior Resident Inspector Butcher, 7/22 88 Date Signed Mathis. Resident Inspector Approved by: -H. C. Dance, Section Chief, Division Date Signed 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, Operating Reactor Events, Inspector Followup and Unresolved Items, and Design, Design Changes and Modifications.

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

REPORT DETAILS

1. Persons Contacted

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Licensee Employees

*J. G. Cesare, Director, Nuclear Licensing

D. G. Cupstid, Superintendent, Technical Support

*L. F. Daughtery, Compliance Supervisor J. P. Dimmette, Manager, Plant Maintenance

S. M. Feith, Director, Quality Programs

*C. R. Hutchinson, GGNS General Manager

R. H. McAnulty, Electrical Superintendent A. S. McCurdy, Technical Asst., Plant Operations Manager

L. B. Moulder, Operations Superintendent

J. H. Mueller, Mechanical Superintendent

J. V. Parrish, Chemistry/Radiation Control Superintendent

J. L. Robertson, Superintendent, Plant Licensing

R. F. Rogers, Manager, Special Projects

*S. F. Tanner, Manager, Quality Services L. G. Temple, I & C Superintendent

F. W. Titus, Director, Nuclear Plant Engineering

M. J. Wright, Manager, Plant Support

J. W. Yelverton, Manager, Plant Operations

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

*Attended exit interview

2. Licensee Action on Previous Enforcement Matters (92702)

(Closed) Violation 416/86-20-04. The licensee received a Technical Specification change removing the isolation function of the chlorine detectors. Surveillance procedure 06-IC-SZ51-SA-0001 was superseded by 07-S-53-Z51-8 which requires isolation valves Z51F079 and Z51F080 to be locked open. The inspectors reviewed the licensee's temporary alteration program (See paragraph 10 of this report) and found no discrepancies. This item is closed.

Operational Safety, Radiological Protection and Physical Security 3. Verification (71707, 71709 and 71881)

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 the inspectors were onsite, selected Engineered Safety Feature (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, problem identification systems, and containment isolation. The licensee's onsite emergency response facilities were toured to determine facility readiness.

The inspectors reviewed at least one Radiation Work Permit (RWP), observed health physics management involvement and awareness of significant plant activities, and observed plant radiation controls. The inspectors verified licensee compliance with physical security manning and access control requirements. Periodically the inspectors verified the adequacy of physical security detection and assessment aids.

On July 7, 1988 SERI announced that the current security contract at Grand Gulf was advertised and requests for bids were sought Wackenhut Corporation was awarded the security services contract at Grand Gulf Nuclear Station. Staff representing the Nuclear Security Services Division of Wackenhut will be at the station throughout the transition period. SERI expects the transition to begin during the week of July 11th and culminate with a full takeover effective August 14th, 1988. All current security employees will be contacted during the transition period regarding a personal interview for continued employment with Wackenhut.

No violations or deviations were identified.

4. Maintenance Observation (62703)

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During the report period, the inspectors observed portions of the maintenance activities listed below. The observations included a review of the Maintenance Work Orders (MWOs) and other related 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.

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MWO EL2269, General Maintenance Instruction, 07-S-12-3, Rev. 3, Calibration Checks of AC and DC Voltmeters.

MWO EL2260, General Maintenance Instruction, 07-S-12-7, Rev. 3, Calibration Checks of Frequency Meters.

MWO M82757, Clean EHC Duplex Filters for N33F505B.

MWO M83228, Remove and Replace F Radial Well Pump Seal.

No violations or deviations were identified.

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, 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.

O6-IC-1B21-M-1001, Revision 25, Safety Relief Valve High Pressure Trip/Lo Lo Set Relief/ECCS Vessel Pressure Injection Permissive Functional Test Channel B.

06-0P-1T48-M-0002, Revision 21, Standby Gas Treatment System Operability Test.

06-IC-1E31-M-0021, Revision 25, LPCS/RHR/HPCS Header Differential Pressure Functional Test.

06-ME-1M23-V-0001, Revision 28, Upper Containment Airlock Seal Leak Test.

06-CH-1C4L-M-0001, Revision 27, Standby Liquid Control Boron Concentration.

06-IC-1C11-M-0001, Revision 1, Scram Discharge Volume High Level Float Switch Calibration.

06-IC-E61-M-1004, Revision 21, Containment and Drywell Hydrogen Analyzer Calibration.

06-RE-1C51-0-0001, Revision 27, LPRM C Calibration. No violations or deviations were identified.

6. Engineered Safety Features System Walkdown (71710)

A complete walkdown was conducted on the accessible portions of the Low Pressure Coolant Injection (LPCI) C System. 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.

No violations or deviations were identified.

7. 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, regarding licensee identified violations.

The following License Event Reports (LERs) are closed.

LER No.	Event Date	Event
88-003-01	January 9, 1988	ECCS Delta Pressure Instrumentation not Calibrated in Accordance with TS.
88-008-01	February 8, 1988	MSIV-LCS Dilution Air Inlet Found

Sealed with Tape.

The event of LER 88-003 was addressed in Inspection Report 416/87-40 as violation 416/87-40-01.

(Open) P2187-01, False Trip Signal caused by BBC Brown Boveri 27 N Undervoltage Relay. The 10 CFR 21 report has been reviewed by the licensee and it was determined that during normal plant operating conditions, the false trips that could occur due to the conditions described in the report would have no effect at GGNS due to the built in time delay of 5 minutes that would be actuated by the undervoltage relays. The condition of false trip is only present for 60 msec at which time the relay returns to the normal state of operation. However, it was also determined that during a LOCA, a contact set is closed which bypasses the 5 minute time delay. During this time, if the 27 N relay generated a false trip, off-site power would be removed from the Division 3 (HPCS) bus even though there was no undervoltage condition for off-site power. This would initiate the Division 3 diesel generator and onsite emergency power would be restored to the bus. The licensee's nuclear Plant Engineering recommended administrative controls as an interim measure and modification of the 27 N relays by BBC Brown Boveri as a permanent fix. No actions have been taken at this time. The residents will followup to ensure

proper modifications are made to prevent unnecessarily challenging a safety system during a LOCA event.

No violations or deviations were identified.

8. Operating Reactor Events (93702)

The inspectors reviewed activities associated with the below listed reactor events. 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.

At 5:49 p.m. on July 6, 1988 the B condensate pump tripped. The operators reduced power to approximately 79 percent thermal. Investigation by the licensee showed that the condensate pump trip was due to a failed pressure switch giving a false low suction pressure signal. The licensee had previously determined that as long as the startup suction strainers were not installed in the condensate system the low suction pressure trip for the condensate pump was not required. As an administrative control, the condensate pump pressure switches were isolated to prevent inadvertent condensate pump trips. The failure of the pressure switch still gave a condensate pump trip. The licensee has not determined what corrective actions are necessary at this time. This will be Inspector Followup Item 416/88-14-01.

On July 10,1988 at approximately 10:00 p.m. a control room operator, while reviewing computer points for temperature, noticed a difference of approximately 63°F between reactor feedwater pump turbine (RFPT) A and B active thrust bearing temperture. The shift superintendent informed Mechanical Maintenance that the RFPT-A active thrust bearing temperature was 222°F and in alarm. Active thrust bearing temperature for RFPT-B was approximately 157°F. General Electric Co. was contacted to provide Grand Gulf with the necessary operating parameters for the RFPT thrust bearing. GE advised the licensee that the active thrust bearing metal temperature limits are alarm at 230°F and trip (manual) at 240°F. Temporary Directive 04-1-01-N21-1-temp-2, Feed Pump Monitoring, was written and approved on July 11,1988. This directive gave direction for monitoring feedpump data while investigating high temperature of the thrust bearings. Operations was requested to monitor the RFPT-A lube oil cooler outlet and active thrust bearing metal temperatures to prohibit exceeding the 230°F active thrust bearing metal temperature alarm point. Resolution of thrust bearing high temperature will be tracked as inspector followup item 88-14-02.

9. Inspector Followup and Unresolved Items (92701)

(Closed) Inspector Followup Item 416/87-01-05. The licensee revised Piping and Instrument Drawing (P&ID) M-1085B to reference the correct drawing for the 4 inch pipe in zone G-6. The P&ID Legend, M-0030A, was revised to note that valve position annotation on P&IDs is for information only and the applicable SOI controls valve position. System Operating Instruction 04-1-01-E12-1 was revised to correct valve nomenclature and valve heater breaker position. This item is closed.

(Open) IE Notice 87-43, Gaps in Neutron Absorbing Material in High Density Spent Fuel Storage Racks. In 1986 the licensee installed High Density Fuel Storage Racks (HDFSR) manufactured by the Joseph Oat Corporation. This design change was discussed in Inspection report 416/86-20. Subsequently, concerns have been raised regarding potential problems with HDFSR manufactured by Joseph Oat Corporation. In response to the concerns of IE Notice 87-43 the licensee has initiated a program to conduct blackness testing on the HDFSR to confirm the presence and integrity of the Boraflex absorber material in the spent fuel storage racks. Also, the blackness testing will establish a baseline reference for comparison to future measurements. Temporary Directive 09-S-06-Temp. 2, Revision 0, Spent Fuel Pool Blackness Testing was issued on July 1, 1988 to control testing. Measurements will be conducted only on selected cells. Two sets of rack will be designated for testing purposes. These include a set of 50 unirradiated cells (200 Boraflex panels) to establish baseline readings and 50 irradiated cells to determine the amount of Boraflex degradation. The initial testing of irradiated cells will be performed on the spent fuel pool cells which initially held the spent fuel offloaded in RFO1. These irradiated cells will be designated as the test cells. Each refueling outage the freshly discharged fuel will replace the previous offload in the designated test cells. This will assure that those cells receive the highest cumulative exposure. A test will be performed between refueling outages until a limit to the increase in Boraflex gaps (i.e., the limit to the Boraflex shrinkage) can be established.

10. Design, Design Changes and Modifications (37700)

The inspectors reviewed the licensee's program for temporary modifications, lifted leads and jumpers. The licensee's Administrative Procedure O1-S-O6-3, Revision 21 Control of Temporary Alterations, was reviewed and satisfactorily controls the use of temporary modifications. Formal records are maintained in a temporary alteration book in the control room and independent verification is required for installation and restoration. Monthly spot checks of active temporary alterations is required by the Shift Superintendent. The inspectors observed one minor discrepancy. O1-3-O6-3, attachment 1, block 4 requires the safety evaluation be attached but temporary alteration 88-0001, which did require a safety evaluation, did not have the evaluation attached. The Shift Supervisor requested a copy of the safety evaluation to be attached to the temporary alteration.

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The inspectors reviewed Design Change Package (DCP) 87/4017 which eliminated the Motor Control Center (MCC) single failure concern by powering both the PSW supply valves OSP41F125-A and OSP41F066A-A and the PSW return valves, QSP41F189-B and QSP41F074B-B from MCCs 15B11 and 16B11 rather than 15861 and 16861, respectively. The motor operator for valve F125-A was powered from MCC 15B61, while valve F064-A (SSW Supply Valve) was powered from MCC 15B21. If MCC 15B61 failed during the automatic transfer from PSW to SSW under a Loss of Power (LOP) or LOCA situation, PSW supply valves F125-A and F066A-A would remain open due to the loss of power to their motor operators, SSW supply valve F064-A would automatically open as designed because of the separate power supply. Thus, the single failure associated with MCC 15B61 during LOP/LOCA conditions could align SSW A supply to the PSW supply and result in the loss of Ultimate Heat Sink (UHS) inventory to the PSW system. Likewise, a single failure of MCC 16B61 could align the SSW B discharge from the B control room air conditioning unit to PSW through valves F074B-B and F189-B. DCP 87/4017 eliminated this MCC single failure concern by powering both the PSW supply valve F125-A, and the PSW return valve F189-B from MCCs 15B11 and 16B11 rather than 15B61 and 16B61, respectively.

The DCP was reviewed to ensure the following:

- a. Conformance with the requirements of the Technical Specifications (IS) and 10 CFR 50.59.
- b. A review of completed test records that the licensee conducted a review and evaluation of test results prior to the modification being declared operable and:
 - Test results were within previously established acceptance criteria.
 - (2) Test deviations were reviewed and retesting accomplished as necessary prior to implementation.
- c. Operating procedures modifications were made and approved prior to the modification being declared operable in accordance with TS.
- d. Prior to the modification being declared operable, the controlled copy of all as-built documents used by the plant operators were either revised and distributed, or have been legibly marked-up on an interim basis to show all changes relating to the modification.

No violations or deviations were identified.

11. Exit Interview (30703)

The inspection scope and findings were summarized on July 15, 1988, 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: 416/88-14-01, Inspector Followup Item. Corrective actions for low suction pressure trip on condensate pumps.

416/88-14-02, Inspector Followup Item. Resolution of reactor feedwater pump turbine active thrust bearing high temperature.