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

Report No.: 50-416/89-27

Licensee: System Energy Resources, Inc.
Jackson, MS 39205

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

Facility Name: Grand Gulf Nuclear Station

Inspection Conducted: September 31 through October 20, 1989

Inspectors: Peter A Balmain for H. O. Christensen, Senior Resident Inspector — 11-17-89 Date Signed

Peter A Balmain for J. L. Mathis, Resident Inspector — 11-17-89 Date Signed

Approved by: F. S. Cantrell, Section Chief, Division of Reactor Projects — 11-17-89 Date Signed

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 October 9, 1989.

Results:

No violations or deviations were identified during this inspection period.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

J. G. Cesare, Director, Nuclear Licensing
W. T. Cottle, Vice President of Nuclear Operations
M. L. Crawford, Manager, Nuclear Licensing
D. G. Cupstid, Manager, Plant Modifications and Construction
*L. F. Daughtery, Compliance Supervisor
J. P. Dimmette, Manager, Plant Maintenance
S. M. Feith, Director, Quality Programs
*C. R. Hutchinson, GGNS General Manager
F. K. Mangan, Director, Plant Projects and Support
R. H. McAnulty, Electrical Superintendent
A. S. McCurdy, Technical Asst., Plant Operations Manager
*L. B. Moulder, Operations Superintendent
W. R. Patterson, Technical Asst., General Manager
*J. C. Roberts, Manager, Plant & System Engineering
G. Smith, Superintendent, Chemistry
*S. F. Tanner, Manager, Quality Services
L. G. Temple, Superintendent, I & C
T. G. Tinney, Superintendent, Mechanical
F. W. Titus, Director, Nuclear Plant Engineering
*M. J. Wright, Manager, Plant Support
*J. W. Yelverton, Manager, Plant Operations
G. Zinke, Superintendent, Plant Licensing

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

*Attended exit interview

Commissioner K. Rogers and E. Merschoff, Deputy Director, Division Reactor Safety, toured the site on October 3, 1989, and met with the resident inspectors and plant management.

2. Plant Status

The unit operated in Mode 1, power operations, throughout the inspection period.

3. Operational Safety (71707)

The inspectors were cognizant of the overall plant status, and of 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. Observations included the verification of 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.

On a weekly basis selected engineered safety feature (ESF) systems were confirmed operable. The confirmation was made by verifying that accessible valve flow path alignment was correct, power supply breaker and fuse status was correct and instrumentation was operational. The following systems were verified operable: RCIC, HPCS, SPMU, and CRD system.

General plant tours were conducted on a weekly basis. Portions of the control building, turbine building, auxiliary building and outside areas were visited. The observations included safety related tagout verifications, shift turnovers, sampling programs, housekeeping and general plant conditions, the status of fire protection equipment, control of activities in progress, problem identification systems, and containment isolation and the readiness of the onsite emergency response facilities.

The inspectors observed health physics management involvement and awareness of significant plant activities, and observed plant radiation controls. Periodically the inspectors verified the adequacy of physical security control.

The inspectors reviewed the following tagouts, "B" Service air compressor (893684); HPU "B" subloop 2 fan motor (893675); Domestic water supply to clean lab valve (893554), to ensure that the tagouts were properly prepared, and performed. Additionally, the inspectors verified that the tagged components were in the required position.

The inspectors verified that the following containment isolation valves were in the required position:

RCIC Turbine Exhaust	E51F077A
Aux. Bldg. Flr & Equip DRN TKS to Supp Pool	P45F274B
RHR Heat Exchanger "A" to LPCI	E12F027AA
RHR Heat Exchanger "B" to LPCI	E12F042BB
Reactor Recirc. Post Accident Sampling	B33F127A
Reactor Recirc. Accident Sampling	B33F125A
Containment Hydrogen Analyzer Sample Return	E61F598B
Drywell Hydrogen Analyzer Sample Return	E61F597B
Supp. Pool Level	E30F592AA
RHR Shutdown Suction Relief Valve Discharge	E12F005
Component Cooling Water Return	P42F067A

The inspectors noted that senior plant management makes routine tours to the plant and the control room.

The inspectors reviewed the activities associated with the event listed below.

On September 1, 1989, the recirculation flow control valve 'A' moved in the closed direction without operator action. The licensee began troubleshooting the Foxboro circuits and installed a six-pen recorder to monitor future events. On September 8, 1989, a temporary alteration was installed to provide a limiter on valve opening via the position demand signal. After extensive troubleshooting and several valve movement events, the licencee located a problem in the power distribution module. This module was replaced on October 12, 1989. Additionally, FCV 'A' subloop 2 exhibited servo error problems, the licensee is troubleshooting. The inspectors will continue to monitor the licensee's progress in resolving FCV problems.

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.

MWO	DESCRIPTION
IN3018	Calibrate engine A/B jacket water outlet temperature high.
IN3025	Calibrate engine B jacket water heater controller.
IN5846	Calibrate engine B fuel oil pressure low switch (N003B).
IN6025	Calibrate temperature indicator (TI-R004B) for engine B jacket water outlet temperature.
IN7953	Calibrate condensate booster pump G axial vibration.
IN9590	Calibrate (N033B) pressure switch.
ME1018	Inspect HPCS Listor SR diesel engine.
ME2195	Take oil sample - HPCS motor driven start air compressor.

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 and LCOs; 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-RE-1C51-0-0001, Local Power Range Monitor Calibration, Attachment I.

06-OP-1P81-M-0002, HPCS Diesel Generator 13 Functional Test.

06-IC-1B21-M-1012, ATWS-Reactor Vessel Level/Reactor Pressure Functional Test.

06-IC-1E31-M-0022, Drywell Air Cooler Condensate Flow Rate Monitoring Functional Test.

06-RE-1J11-V-0001, Power Distribution Limits Verification.

No violations or deviations were identified.

6. Engineered Safety Features System Walkdown (71710)

The inspectors conducted a complete walkdown on the accessible portions of the main steam isolation valve leakage control system and the feedwater leakage control system. The walkdown consisted of the following: confirm that the system lineup procedure matches the plant drawing and the as-built configuration; identify equipment condition and items that might degrade plant performance; verify that valves in the flow path are in correct positions as required by procedure and that local and remote position indications are functional; verify the proper breaker position at local electrical boards and indications on control boards; and verify that instrument calibration dates are current.

The inspectors walked down the system using system operating instructions 04-1-01-E32-1, MSIV Leakage Control System and 04-1-01-E38-1, Feedwater Leakage Control System. Piping and instrument diagrams (P&ID) M-1097 and M-1112 were used in the walkdown.

The following minor discrepancies were noted during the walkdown:

1. Electrical lineup checksheet in SOI 04-1-01-E32-1 Revision 19 (Attachment III) indicates that breaker 52-1P52117 is located on panel 1H13-P655. This breaker is actually located on panel 1H13-P654.

2. The automatic timer did not include the timer description labels on the panels (i.e. Dilution Air Flow Alarm Bypass).

3. The configuration in the plant for a 4 inch line (HBD-169) is not reflected correctly on P&ID (M-1097), Revision 15.

Correction of the walkdown discrepancies will be tracked as IFI 89-27-01.

No violations or deviations were identified.

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

(Closed) IFI 89-12-02, Correct ADHRS walkdown items.
All items identified in the walkdown were corrected with the exception of painting the system. A MWO was written to track the completion of the painting. This item is closed.

(Closed) Violation 88-03-01, Failure to follow procedure, which resulted in the auto-start of a RHR pump and the failure to document work accomplished for installing of a nitrogen blanket on the offgas system. The licensee admitted the violation in a letter dated May 5, 1988. The corrective action listed in the above letter have been completed. This item is closed.

(Closed) P2188-08, Defective intercooler inlet adapter provided as part of IMO Delaval standby diesel engine generator. The licensee discovered this condition September 15, 1988. Both diesel generator intercoolers were replaced and the inlet adapters repaired. This item is closed.

(Closed) P2187-01, False RPS trip signal caused by BBC Brown Boveri 27N undervoltage relays. Four 27N relays were installed on the HPCS diesel generator second level undervoltage protection scheme. The relays were replaced under MWO's E94578, E85243, E90830 and E90841. This item is closed.

(Closed) P2188-04, Reinstalling Foxboro controller circuit cards may cause 100% output and subsequent transient to occur, this controller has been identified in BWR recirculation flow control system. To preclude a similar problem, the card removal and insertion of recirculation flow controller is done with the controller in maintenance mode. Additionally the recirculation flow control system is operated in loop manual mode only. This item is closed.

(Closed) P2188-09, Xomox assembled limitorque actuators with H0BC, H1BC, H2BC, H4BC and H5BC gear boxes on plug and butterfly valves may become disengaged and render the valve inoperable. The licensee does not have any Xomox valve in use in safety related systems. This item is closed.

(Closed) P2189-01, Brown Boveri K-line, K-225 thru K-2000 circuit breakers delivered prior to 1974 need rebound springs added to slow close lever. The K-line circuit breakers utilized by the licensee were all manufactured after the time frame of concern. This item is closed.

(Closed) Unresolved Item 86-29-01, Pump and valve testing criteria. The inspector's concerns with regard to the licensee's inservice testing described in (a) through (d) of inspection report unresolved item 416/86-29-01 was reviewed for closeout. Item (b) of the above unresolved item concerns not testing RHR valves as part of the IST program. The licensee deleted valves Q1E12-F094, F096 and F098 since these valves do not perform a safety function. These valves are part of the containment flooding portion of RHR. Therefore these valves are not required to be tested in accordance with the IST program. Item (c) of unresolved item 86-29-01 concerned whether the licensee had implemented procedures to verify proper functioning of valve position indicators on their remote shutdown panel. Procedures 06-OP-1C61-R-0002 and 06-OP-1E51-R-0005 are used by the licensee to stroke each valve at the remote shutdown panel and check the remote indication of valve movement. Item (d) of unresolved item 88-29-01 concerns exercising of testable check valves as required by ASME Section XI, IWV-3522. Generic Letter 89-04, Guidance on Developing Acceptable Inservice Testing Programs, was received by the licensee and an extension request to the Generic letter was submitted on October 3, 1989. This letter response will be evaluated at a future time. Part (d) will be administratively closed.

(Closed) IFI 87-06-02, Testable Check Valves. The inspector was satisfied that the licensee exercised the testable check valves to the full open position. However the inspector determined that, while his original concern appeared satisfied, he intended to perform a more detailed review of the functioning and testing of these valves in a subsequent inspection. This item will be closed administratively since Generic letter 89-04 requires a response on testing check valves. The licensee response will be evaluated at a later time.

(Closed) Violation 89-04-05, Failure to perform a written safety evaluation prior to storage of ECODEX resin in containment. The licensee admitted the violation in a letter dated April 14, 1989. The corrective actions listed in the above letter have been completed. This item is closed.

8. Exit Interview (30703)

The inspection scope and findings were summarized on October 20, 1989, 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 finding:

Item Number	Description and Reference
IFI 89-27-01	Correction of MSIV Leakage Control System Walkdown discrepancies, Paragraph 6.

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
IST - Inservice Test
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
SERI - System Energy Resource Incorporation
SOI - System Operating Instruction
SPMU - Suppression Pool Makeup System
SRV - Safety Relief Valve
SSW - Standby Service Water
TCN - Temporary Change Notice
TS - Technical Specification