



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

Report No.: 50-416/89-28

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

Docket No.: 50-416

License No.: NPF-29

Facility Name: Grand Gulf Nuclear Station

Inspection Conducted: October 21 through November 17, 1989

Inspectors: Peter A. Balmain 12-12-89
for H. O. Christensen, Senior Resident Inspector Date Signed

Peter A. Balmain 12-12-89
for J. L. Mathis, Resident Inspector Date Signed

Approved by: F. S. Cantrell 12-13-89
F. S. Cantrell, Section Chief Date Signed
Division of Reactor Projects

SUMMARY

Scope:

The resident inspectors conducted a routine inspection in the following areas: operational safety verification, maintenance observation, surveillance observation, cold weather preparations, action on previous inspection findings, and reportable occurrences. The inspectors conducted backshift inspections on October 25 and November 10 and 16, 1989.

Results:

One licensee identified violation was identified during this inspection period. The violation was for failure to perform post maintenance testing on several preventive maintenance task items, paragraph 4.

During this inspection period, the unit scrambled due to a lightning strike. The licensee is installing a new lightning dissipation system, which will be completed by the end of 1989.

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. McNulty, 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

The following NRC personnel toured the site on November 2, 1989, and attended a licensee self evaluation presentation on November 3, 1989.

C. W. Hehl, Deputy Director, Division of Reactor Projects, Region II (RII)
K. E. Perkins, Acting Director, Division of Reactor Safety, RII
E. Adensam, Director, Project Directorate II-2, Office of Nuclear Reactor Regulation (NRR)
L. Kintner, Project Manager, Project Directorate II-1, NRR
F. Cantrell, Section Chief, Division of Reactor Projects, RII

2. Plant Status

The plant operated in mode one, power operations, during this inspection period. On November 7, 1989, the unit scrammed due to a lightning strike and returned to power operation on November 9, 1989.

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: Emergency Electrical Power System, SSW System and LPCI "A", "B" and "C".

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 safety related tagouts 893851, SSW to CCW crosstie valve and 893852, SSW to fuel pool heat exchanger outlets 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 have noted that senior plant managers make routine tours to the plant and the control room.

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

On November 7, 1989, a severe electrical storm passed over Grand Gulf Nuclear Station at 5:43 p.m. During the storm, the reactor automatically scrammed due to a high neutron flux signal on APRMs. Additionally, a

spike to the RCIC logic was received, however RCIC did not start because the turbine trip throttle valve was closed in preparation for an I&C surveillance (06-IC-1E31-M-0023). The APRM neutron flux signal was not caused by an actual high neutron flux, but by a voltage surge due to the lightning strike. Reactor level decreased to -18.4 inches and was restored by the using the feedwater system. Pressure was controlled using the main bypass control valves.

A channel check of APRM indications was performed prior to the plant restart to ensure that all APRMs would perform their intended function. All APRMs functioned properly during the surveillance. No abnormalities were observed. The post trip analysis concluded that the cause of the instrumentation signal spikes was an induced voltage and/or ground potential spike caused by lightning activity at the site.

Similar events were reported in LER 88-12 and LER 89-10. In LER 89-10 the licensee stated that they had requisitioned a specialist in lightning protection to perform a plant survey and study of the existing plant lightning protection system. As a result of the study, a new lightning protection system composed of lightning dissipation arrays was proposed. Current progress indicates that implementation of the lightning protection system will be completed by December 31, 1989.

The inspectors witnessed the startup and noted criticality was achieved in a controlled manner. Criticality was achieved on November 8, 1989, at approximately 6:22 p.m. on step 73 with a reactor period of 189 seconds. The generator was synchronized to the grid at approximately 4:17 a.m. on November 9, 1989.

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.

<u>MWO</u>	<u>DESCRIPTION</u>
IN5118	Calibrate loop 7A control room A/C.
M92850	SJAE 'B' Intercondenser, clean/citric acid flush.
M95528	Service air compressor "B"

M95743 Rework cooling water piping leakage for CRD pump A.

ME5405 Inspect RCIC check valve E51F030.

During a review of maintenance data on Bettis air actuators, the licensee determined that seven actuators had not received retesting after preventive maintenance was performed. The preventive maintenance was to rebuild the actuators during the third refueling outage. The licensee reviewed subsequent surveillance data and determined that only two of the thirteen valves still needed stroke time testing. These two valves, M41F015 and M41F016, drywell air purge supply and exhaust, were successfully tested on October 31, 1989. The licensee reviewed all of refueling outage three preventive maintenance tasks cards and the maintenance task cards for the last quarter. No other deficiencies were found. To prevent returning a component to operation without a required post maintenance retest, the licensee is attaching retest control forms to all task cards and will modify the task cards to identify retest requirements. The failure to perform required post maintenance retest is a licensee identified violation and is not being cited because criteria specified in section V.G.1 of the NPC Enforcement Policy were satisfied (NCV 89-28-01).

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-CH-1D17-A-0024, Offgas Post Treatment Gaseous Monitor B Calibration.

06-IC-1C71-M-2002, Turbine Stop Valve Trip Fluid Low Pressure (RPS) Functional Test Channel D.

06-IC-1E31-M-0001, RCIC Main Steam Tunnel Isolation Delay Timer Functional Test and Calibration.

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

06-IC-1E31-M-1001, RWCU High Room and High Differential Room Temperature (RWCU Isolation Functional Test).

06-IC-1E31-M-1016, RCIC Steam Supply Low Pressure.

06-IC-1E32-M-1009, MSIV Leakage Control System Dilution Flow Functional Test.

06-IC-SD17-A-1026, Accident Range Monitor AXM-1 Calibration, Containment Ventilation.

06-OP-SP64-W-0001, Fire Pump Weekly Operability Test.

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 high pressure core spray 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 instruction 04-1-01-E22-1, HPCS System, and piping and instrument diagram (P&ID) M-1086, HPCS.

The following discrepancies were noted during the walkdown of high pressure core spray system.

1. On the electrical lineup checksheet in S01 04-1-01-E22-1, the component description for component E31 SV-F503 reads F005 Leak Off Isolation, however the label in the field reads 1H22-P178 Power Supply.
2. Attachment II, Remote Operated Valve Lineup Checksheet, for valve E31-SV-F503 indicates there is a valve position indication on panel P178, however there is only a handswitch open/close position.

These discrepancies will be addressed under the licensee's relabeling program.

No violations or deviations were identified.

7. Cold Weather Preparations (71714)

During this inspection period the residents verified implementation of the licensee's cold weather preparation program for protective measures for extreme cold weather. The inspectors reviewed Equipment Performance Instruction 04-1-03-A30-1, Revision 2, Cold Weather Preparation to

verify that actions outlined were taken prior to cold weather conditions. The inspectors verified that selected breakers listed in Data Sheet II to procedure 04-1-03-A30-1 were in the required position. The breakers energized space heaters and heat tracing equipment.

No violations or deviations were identified.

8. Reportable Occurrences (90712, 92700)

The event reports listed below were reviewed to determine if the information provided met the NRC reporting requirements. The determination included adequacy of event description and corrective actions 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.

(Closed) LER 89-14, RWCU Isolation during surveillance due to personnel error. This event occurred on September 29, 1989, and was documented in NRC inspection report 89-23. This LER is administratively closed and the corrective actions will be tracked under violation 89-23-01.

No violations or deviations were identified.

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

(Closed) Unresolved Item, 88-11-01, Review the adequacy of existing drywell/containment differential pressure instrumentation for meeting the requirements of Regulatory Guide 1.97, Revision 2, which requires monitoring drywell pressure on a narrow range of 12 psia to 3 psig for a type D variable. A type D variable is used to indicate operation of individual safety systems and other systems important to safety. The safety system associated with the need to monitor drywell pressure over a narrow range is the combustible gas control system which includes the drywell purge and vacuum relief subsystems. GGNS has existing narrow range differential pressure transmitters and computer points which measure and provides indication of drywell-to-containment pressure over a range of +2 psid to -2 psid. System operation and valve opening pressures for the CGCS are based on setpoints which are within +1 psid to -1 psid. Therefore, the licensee concludes a drywell pressure instrumentation range of +2 psid to -2 psid is sufficient to monitor CGCS operation. Furthermore, the licensee plans to add descriptions of the instrumentation to the FSAR (Section 7.5) via NPE-FSAR 88/53.

10. Exit Interview (30703)

The inspection scope and findings were summarized on November 17, 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 findings:

<u>Item Number</u>	<u>Description and Reference</u>
NCV 89-28-01	Failure To Perform Post Maintenance Testing On Preventive Maintenance Task, Paragraph 4.

11. 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
CGCS -	Combustible Gas Control System
CRD -	Control Rod Drive
DCP -	Design Change Package
DG -	Diesel Generator
ECCS -	Emergency Core Cooling System
ESF -	Engineering Safety Feature
FCV -	Flow Control Valve
FSAR -	Final Safety Analysis Report
GGNS -	Grand Gulf Nuclear Station
HPCS -	High Pressure Core Spray System
HPU -	Hydraulic Power Unit
I&C -	Instrumentation and Control
IFI -	Inspector Followup Item
LCO -	Limiting Condition for Operation
LEC -	Lightning Eliminators and Consultants
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
SRV - Safety Relief Valve
SSW - Standby Service Water
TCN - Temporary Change Notice
TS - Technical Specification