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

Report No.: 50-416/90-06

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

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

Facility Name: Grand Gulf Nuclear Station

Inspection Conducted: March 17 through April 13, 1990

Inspectors: Peter A Balmain for H. O. Christensen, Senior Resident Inspector — 4-26-90 Date Signed

Peter A Balmain for J. L. Mathis, Resident Inspector — 4-26-90 Date Signed

Approved by: W. Cantrell for F. S. Cantrell, Chief — 4-26-90 Date Signed
Reactor Projects Branch 1
Division of Reactor Projects

SUMMARY

Scope:

The resident inspectors conducted a routine inspection in the areas of operational safety verification; maintenance observation; surveillance observation; engineered safety features system walkdown; licensee self-assessment capability; action on previous inspection findings; and reportable occurrences. The inspectors conducted backshift inspections on March 28, 30, April 6, 12 and 13, 1990.

Results:

Two non-cited violations (NCV) were identified during this inspection period. The first NCV is licensee identified for failure to verify senior operator license application information, paragraph 3. The second NCV is NRC identified for failure to adequately control equipment locking devices, paragraph 3. These non-cited violations do not appear to be programmatic problems. One unresolved item was identified concerning the control room emergency filtration system emergency fresh air intake valves, paragraph 8.

In the inspection areas of safety verification, maintenance observation, surveillance observation and engineered safety features system walkdown, the licensee met the safety objectives of these areas.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

J. G. Cesare, Director, Nuclear Licensing
W. T. Cottle, Vice President, Nuclear Operations
D. G. Cupstid, Manager, Plant Modifications and Construction
*L. F. Daughtery, Compliance Supervisor
J. P. Dimmette, Manager, Plant Maintenance
*C. W. Ellsaesser, Operations Superintendent
S. M. Feith, Director, Quality Programs
C. R. Hutchinson, GGNS General Manager
F. K. Mangan, Director, Plant Projects and Support
L. B. Moulder, Acting Manager, Plant Support
*J. V. Parrish, Manager, Plant Operations
*J. C. Roberts, Manager, Plant & System Engineering
S. F. Tanner, Manager, Quality Services
F. W. Titus, Director, Nuclear Plant Engineering
*M. J. Wright, Manager, Nuclear Training
*G. Zinke, Superintendent, Plant Licensing

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

*Attended exit interview

F. Cantrell, Section Chief, Division of Reactor Projects, was on site April 3 and 4, 1990, to conduct a general plant tour and hold discussions with the resident inspectors and plant management.

2. Plant Status

The plant began and ended the inspection period in mode 1, power operations.

3. Operational Safety, (71707, and 93702)

The inspectors were aware 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. The observations included: verification of instrument readings, setpoints and recordings; review of operating system status and equipment tagging controls; verification of annunciator alarms, review limiting conditions for operation and temporary alterations; and review of daily journals, data sheet entries, control room manning, and access control.

On a weekly basis, selected engineered safety feature systems were confirmed operable. The inspectors verified that accessible valve flow path alignment was correct, power supply breaker and fuse status was correct and instrumentation was operational. The inspectors verified the following systems operable: ADS, SPMU and SBLC.

The inspectors conducted plant tours weekly. 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. Additionally, the inspectors observed the status of fire protection equipment, the control of activities in progress, the problem identification systems, and the readiness of the onsite emergency response facilities.

The inspectors observed health physics managements involvement and awareness of significant plant activities, and observed plant radiation controls. Periodically the inspectors verified the adequacy of physical security control. Additionally, senior plant management was observed making routine tours of the plant.

The inspectors reviewed safety related tagouts, 900486 (LPCS Test Return Valve E21F012), 900520 (FW Tank B P64A001B) and 900509 (B Diesel Driven Fire PMP C003B), 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 reviewed the activities associated with the events listed below.

On March 29, 1990, at approximately 7:35 a.m., a voltage and frequency transient occurred on the power grid. The cause of the transient was a loss of several power plants to the south. Grand Gulf's frequency dropped to 58.5 Hz and grid voltage dropped to 440KV. Division 1 and 2 load shedding and sequencing system (LSS) sensed the transient as a bus under voltage, but did not initiate due to the short duration of the transient. Additionally, several Halon panels went into alarm due to low voltage. There were no other effects observed by the licensee.

On March 29, 1990, a senior operations training instructor was on shift as the shift supervisor (SRO). He was reviewing his training status card and noted that a required course, Mitigation of Core Damage, was overdue. He was removed from shift duties and a review was conducted to determine the status of the course. The licensee determined that the individual was given credit for the course based on training received from another facility. However, the documentation for the training could not be located and the other facility no longer retained the records. The licensee initiated a quality deficiency report to correct the problem.

The licensee submitted an application for a SRO licensee in October 30, 1988. The application stated that the individual received requalification training at another facility, which included training in mitigation of core damage. 10 CFR 55.31 (a) (4), states, provide evidence that the applicant has successfully completed the facility licensee's requirements to be licensed as a senior operator. An authorized representative of the facility licensee shall certify this evidence on Form NRC-398. Contrary to the above, the licensee failed to have documented evidence of successful completion of mitigation of core damage training. The individual performed a supervised self study program and was examined. He passed with a score of 81.4 percent. This licensee identified violation is not being cited because criteria specified in Section V.G.1 of the NRC Enforcement Policy were satisfied (NCV 90-06-01).

On April 2, 1990, the licensee identified a potential concern with motor operated valve E21F012, LPCS test return valve. A review of MOV limiting components information and motor actuator torque switch setting data indicated that the required torque switch settings for E21F012 would allow the actuator to deliver a thrust force exceeding the calculated thrust value for the valve limiting component, the key bushing set screws. The valve successfully passed its quarterly surveillance on March 31, 1990. However, E21F012 is a containment isolation valve, with questionable material condition. The licensee deenergized and tagged the valve closed. The plant is investigating the long term repair.

During a plant tour on April 4, 1990, the inspector noted that bags of blue tie-wraps were in an unlocked cabinet outside the control room. Additionally, another bag was found in a cabinet in the division one diesel generator room. The blue tie-wraps are used as equipment locking devices, i.e to lock valves in required positions. Operations sections procedure 02-S-01-9, Key Control, states, that use of operations locks are only for use by operations department. These locks may be used to lock closed or lock open components specified in the system lineups and the preferred locking devices are blue tie-wraps. Administrative Procedure 01-S-06-2, Conduct of Operations, states, that the locked components program is established to ensure that components to be locked are administratively controlled. The lack of access control to colored tie-wraps is a failure to administratively control locking devices. Technical Specifications 6.8.1.a, Procedures and Programs, requires written procedures be established, implemented and maintained covering the applicable procedures recommended in Appendix "A" of Regulatory Guide 1.33, Revision 2, dated February 1978. Appendix "A" requires procedures for equipment control (e.g., locking and tagging). The failure to adequately control equipment locking devices is a violation of TS 6.8.1.a. This NRC identified violation is not being cited because criteria specified in Section V.A of the NRC Enforcement Policy were satisfied (NCV 90-06-02).

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; and the observation of work and/or retesting.

MWO	Description
I03177	Replace right bank turbocharger temperature element on division 2 D/G.
M07277	Semi-annual inspection of SSW pump B.
W01975	Check calibration of division 2 D/G lube oil pressure switches (N167 A, B & C).
W07237	Adjust tappet clearance on standby diesel starting air compressor.
W08046	Rework demineralized water jockey pump.
W08184	Replace water accumulator rework/replace diaphragm and seat in F126 and scram valve F127.
W08557	Inspect lower containment airlock pneumatic air system accumulators for water.

No violations or deviations were identified. The results of the inspection in this area indicate that the maintenance program was effective with respect to meeting safety objectives.

5. Surveillance Observation (61726)

The inspectors observed the performance of portions of the surveillances listed below. The observation included a review of the procedures for technical adequacy, conformance to technical specifications and LCOs; verification of test instrument calibration; observation of or part of the actual surveillance; removal and return to service of the system or component; and review of the data for acceptability based upon the acceptance criteria.

08-S-03-21,	Sampling Instrument Air Supply to ADS.
06-OP-1C41-M-0001,	Standby Liquid Control Operability.
06-OP-3P75-M-0002,	Standby Diesel Generator 12 Functional Test.

06-1C-1E12-M-1011,	Interface Valve Pressure Functional Test.
06-OP-1E22-Q-0005,	HPCS Quarterly Functional Test.
06-OP-1E51-Q-0003,	RCIC System Quarterly Pump Operability Verification.
06-OP-1P75-M-0001,	Standby Diesel Generator 11 Functional Test.

On March 30, 1990, during the performance of the standby liquid control operability surveillance, the B pump bearing temperature would not stabilize. The licensee's investigation revealed that a grayish sludge was mixed with the oil. The pump bearings appeared normal. The oil was replaced and a sample analyzed. Additionally, the licensee replaced the pump bearings. The pump successfully passed the surveillance retest. The A pump oil was replaced as a preventive measure. A review of the pump's maintenance records indicated that the oil had never been replaced. However, the oil was routinely being analyzed. The oil sample from the B pump indicated it had particulate contamination, and the crankshaft did not have the proper clearances. The licensee is continuing the investigation.

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 division 1 standby diesel generator. 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-P75-1, Standby Diesel Generator System, Revision 35, and piping and instrument diagram (P&ID) M-1070 A and C.

The licensee was given a list of labels missing from components during the system walkdown. The correction of these discrepancies will be identified as inspector followup item (90-06-03).

No violations or deviations were identified. The results of the inspection in this area indicate that the division 1 standby diesel generator is operable. The licensee is maintaining it in a ready condition.

7. Evaluation of Licensee Self-Assessment Capability (40500)

The licensee conducted a safety system functional assessment on the fuel pool cooling and cleanup system (FPCC). The report, dated March 12, 1990, concluded that the FPCC system was functional and would perform its intended safety function. The SSFA identified 19 items, the more significance ones are listed below:

1. Instrument sensor lines attached to structural steel members are encased in a cementitious fire proofing material. The seismic and thermal analyses for the tubing does not address this installation anomaly.

2. Motor start thermal overload relays (49 devices) are bypassed during normal operations and design basis accidents. Design analyses do not demonstrate that electrical equipment and components have the capability to protect circuits and preclude a fire during a design basis event.

3. Deficiencies were noted in the program for sampling and analyzing contaminated lube oil

4. No documentation existed to substantiate the setting for the fuel pool and upper containment pool skimmer elevation.

5. A weakness was found in controlling and verifying the fuel pool high level alarm setpoints.

6. A portable temperature indicating device was installed without proper documentation.

The review of the licensee's corrective actions will be an inspector followup item (90-06-04).

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, the corrective action taken or planned, the existence of potential generic problems and the relative safety significance of each event. The inspectors used the NRC enforcement guidance to determine if the event met the criterion for licensee identified violations.

(Open) LER 90-003, Loss of ESF division 1 power could effect long-term post-LOCA core spray. This issue was documented in NRC inspection report 90-02, paragraph 7. This item will remain open pending the review of long-term corrective actions.

On April 3, 1990, the licensee identified a control room emergency filtration system concern, which was documented in MNCR 32-90. Technical Specification 4.7.2.d.2. requires the control room emergency filtration subsystem isolation valves to close in 4 seconds upon receiving an emergency isolation signal. FSAR Table 18.1-2 lists the isolation valves. Also, the FSAR requires valves Z51F007 and F016 to have a maximum closing time of 4 seconds. Both of these valves have always been tested with a maximum isolating time requirement of 69.2 and 74.9 second respectively. The most current stroke times were 51.4 and 55.4 seconds. The licensee ensured the valves were closed and placed them under administrative controls.

After completing a design review, the licensee concluded that valves Z51F007 and Z51F016 were not control room emergency isolation valves and do not nave to isolate within 4 seconds. The licensee considers the valves as emergency fresh air intake valves, that are normally closed. An isolation signal is applied to the valves to prevent inadvertent opening in the first 10 minutes of a design bases accident. As a result of the review, the licensee identified an additional concern with these valves. They may not meet single failure requirement for the emergency fresh air subsystems. If Z51F007 or Z51F016 were open and failed to close the control room envelope would not isolate. The licensee is reviewing these issues and will submit a TS revision, if appropriate. The inspector informed the licensee that a review by the NRC of the isolation requirements for valves Z51F007 and Z51F016 will be an unresolved item (90-06-05).

On April 6, 1990, the licensee determined that surveillance procedure 06-OP-1000-W-0001, Weekly Operating Logs, was only measuring the pressure on one containment airlock seal air flask. The air locks have two air flask that are separated by check valves. If a check valve fails the other air flask would not be tested and T.S.4.6.1.3.D.2 would not be met. The procedure was revised and the air flask successfully tested.

No violations or deviations were identified.

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

(Closed) Inspector Followup Item 90-02-01, Review the revision to procedure 01-S-16-2, Modification Work Permit, to provide better guidance for documenting operational impact reviews. The operational impact check list was revised to provide improved guidance. This item is closed.

(Closed) Violation 89-29-01, Inadequate review of a quality deficiency report by the PSRC. The licensee admitted the violation in response dated February 2, 1990. Administrative procedure 01-S-01-3, Plant Safety Review Committee, was revised to establish minimum guidelines to be followed when reviewing deficiency documents. This item is closed.

(Closed) Violation 89-17-02, Failure to take adequate corrective actions to prevent RHR system strainer clogging. The licensee admitted the violation in a response dated August 25, 1989. ECCS pump quarterly functional test procedures were revised to include suction strainer cleaning requirements. The PSRC procedure was revised to assign action due dates to PSRC action items. The MNCR procedure was revised to address root cause requirements and a repetitive task program procedure was initiated to clean the suppression pool. This item is closed.

(Closed) Violation 89-17-01, Failure to implement SOI resulting in RCIC/RWCU isolations. The protective tagging procedure, 0-1S-06-1, was revised to require better controls on manual valves within a red tag boundary. All shift superintendents were instructed, via Night Orders, to control the amount of work performed at one time to a level they can properly oversee. The corrective action is adequate to close out this item.

(Closed) Inspector Followup Item 90-03-02, Revise Temporary Alteration procedure to require the General Manager's authorization for temporary alterations that will not be incorporated during the next refueling outage. TCN 21 to procedure 01-S-06-3 requires the General Manager's permission to allow temporary alterations to extend past the next refueling outage. This item is closed.

(Closed) Inspector Followup Item 89-23-03, Revise 01-S-06-2 to require prompt removal of unqualified operator from duty. The licensee revised procedure 01-S-06-2, Conduct of Operations, by TCN 20 to remove an individual from licensed duties upon notification of examination failure. This item is closed.

10. Exit Interview (30703)

The inspection scope and findings were summarized on April 13, 1990, with those persons indicated in paragraph 1. 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:

Item Number	Description and Reference
NCV 90-06-01	Licensee identified violation for failure to verify license application information, paragraph 3.
NCV 90-06-02	NRC identified violation for failure to control equipment locking devices, paragraph 3.
IFI 90-06-03	Division one diesel generator ESF walkdown items, paragraph 6.

IFI 90-06-04	Followup on FPCC system SSFA items, paragraph 7.
URI 90-06-05	Resolve control room emergency filtration system fresh air intake valve status, paragraph 8.

11. Acronyms and Initialisms

ADS - Automatic Depressurization System
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
FPCC - Fuel Pool Cooling and Cleanup System
HPCS - High Pressure Core Spray
HPU - Hydraulic Power Unit
I&C - Instrumentation and Control
IFI - Inspector Followup Item
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
P&ID - Piping and Instrument Diagram
PSW - Plant Service Water
QDR - Quality Deficiency Report
RCIC - Reactor Core Isolation Cooling
RHR - Residual Heat Removal
RWCU - Reactor Water Cleanup
RWP - Radiation Work Permit
SBLC - Standby Liquid Control
SERI - System Energy Resource Incorporation
SOI - System Operating Instruction
SPMU - Suppression Pool Make-up
SRV - Safety Relief Valve
SSFA - Safety System Functional Assessment
SSW - Standby Service Water
TCN - Temporary Change Notice
TS - Technical Specification