



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

Report No.: 50-416/89-29

Licensee: System Energy Resources, Inc.
Port Gibson, MS 39150

Docket No.: 50-426 License No.: NPF-29

Facility Name: Grand Gulf Nuclear Station

Inspection Conducted: November 18 - December 15, 1989

Inspectors:	<u><i>H. O. Christensen</i></u>	<u>1/4/90</u>
	H. O. Christensen, Senior Resident Inspector	Date Signed
	<u><i>J. L. Mathis</i></u>	<u>1/4/90</u>
	J. L. Mathis, Resident Inspector	Date Signed
Approved by:	<u><i>F. S. Cantrell</i></u>	<u>1/4/90</u>
	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, evaluation of licensee self-assessment capability, action on previous inspection findings, and reportable occurrences. The inspectors conducted backshift inspections on November 22 and 23, 1989.

Results: Within the areas inspected one violation was identified for failure of the plant safety review committee to perform an adequate review of a quality deficiency report (paragraph 6). This violation does not represent a programmatic problem with the PSRC review process. In the areas of safety verification, maintenance observations and surveillance observations (paragraph 3, 4 and 5), no problems were identified. The licensee's programs were effective with respect to meeting the safety objectives in these areas. The inspection of the licensee self-assessment capability for the plant safety review committee indicated that the meeting discussions were in depth, detailed and generally address all plant safety concerns.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *J. G. Cesare, Director, Nuclear Licensing
- W. T. Cottle, Vice President, 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, Superintendent, Electrical
- *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

On November 30, 1989, the following NRC personnel were on site to present the Grand Gulf SALP:

- S. D. Ebnetter, Regional Administrator, Region II (RII)
- C. W. Hehl, Deputy Director, Division of Reactor Projects, RII
- D. M. Verrelli, Branch Chief, Division of Reactor Projects, RII
- E. Adensam, Director, Project Directorate II-1, NRR
- L. Kintner, Project Manager, Project Directorate II-1, NRR

Chairman K. Carr; L. Norrholm, Technical Assistant; and J.L. Milhoan, Deputy Regional Administrator, RII, toured the site on December 6, 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: LPCS, RCIC, SPMU, and containment vent systems. Additionally, the inspector walked down the reactor protection system, using SOI 04-1-01-C71-1, Reactor Protection System. No deficiencies were identified.

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, 894043 (HPU 16-21) and 894034 (TBCW Pump) 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 management makes routine tours to the plant and the control room.

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

On December 13, 1989, at approximately 4:00 a.m., Claiborne County Sheriff's Department reported an Alert Notification System siren in alarm. The Claiborne County Civil Defense officer on call responded. The spurious alarm was verified to have terminated at approximately 4:20 a.m. The alarm stopped without intervention. After further investigation by the licensee, it was determined that the siren was not part of the Grand Gulf alert notification system but a fire department siren of Newellton, Louisiana.

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>
000758	Rod control information system.
112089	Calibrate loop 1A pool exhaust fan A delta pressure.
112889	Replace air regulator on instrument air.
11300	Clean PSW side of CCW heat exchanger C.
113089	Clean/replace filter on standby diesel air dryer after filter.
EL0091	Inspect division 1 1A3 battery.
W01183	Replace solenoid on valve T42F019.

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

The mechanical indicator and the indicator lights for the vent valve and latch indicated the inner door was closed, but the indicator light for the inner door indicated that the door remained opened. This prevented the outer door from being opened electrically; however, the personnel were able to open the outer door manually. When the outer door was opened, the inner door was observed to be open about 8 inches. They entered the airlock and immediately closed the outer door. The ramp was removed and the inner door was properly closed.

The cause of this event involved a personnel error in the failure to close the inner door after entering containment. Procedure SOP-14, Containment Access System, requires both personnel airlock doors to be closed upon entering or exiting the containment. The licensee identified this event, Incident Report No. 1-89-387 was promptly written, the licensee evaluated the circumstances associated with this event and determined the appropriate actions to prevent reoccurrence. This licensee identified violation is not being cited because criteria specified in Section V.G.1 of the NRC Enforcement Policy were satisfied. This item is identified as NC4 348/89-31-02, Failure to maintain containment integrity via open containment air lock. The licensee is issuing an LER on this event.

(3) Unit 2 Reactor Trip

On November 18, at 4:33 p.m., Unit 2 tripped while operating at 100 percent power. The cause of the trip was due to a malfunction in the DEH. The malfunction resulted in an erroneous electrical overspeed turbine trip signal and a loss of DEH power signal. These signals called for a turbine trip which then caused a reactor trip. The malfunction was due to a power supply voltage spike that occurred in the DEH power supply inverter. All plant systems functioned satisfactorily during the reactor trip and shutdown operations.

The unit was returned to power on November 18 at 10:16 p.m. and reached 100 percent power on November 20 at 5:00 a.m. The licensee plans to issue an LER following completion of an evaluation to determine the cause of the trip.

(4) Unit 1 Uncoupled Main Turbine Governor Valves

On November 17, at approximately 10:30 p.m., a system operator found governor valve No. 1 on the Unit 1 main turbine uncoupled from the valve actuator. The unit was operating at about 94 percent power. The licensee initiated an evaluation to determine the action required to close this valve. Governor valves are required to be operable to meet the turbine overspeed protection requirements of TS 3.3.4. At approximately 2:45 p.m. on November 18, governor valve No. 1 was manually closed from the

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-IC-1B21-M-1003, Reactor Vessel Low/Hi Water Level (RPS) Functional Test.

06-IC-1B21-M-2010, Reactor Vessel Water Level (HPCS) Functional Test - Channel G.

06-IC-1C11-M-0003, Scram Discharge Volume High Water Level Float Switches (RPS) Channel D.

06-OP-1M71-M-0003, Post Accident Monitor, Instrument Channel Check.

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

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

6. Evaluation of Licensee Self-assessment Capability (40500)

The inspector reviewed the requirements for the Plant Safety Review Committee (PSRC). Additionally the inspector observed several committee meetings, reviewed selected meeting minutes, and reviewed PSRC actions on previously identified concerns.

The PSRC meetings were well attended and they met the TS quorum requirements. The committee meets approximately twice a week, which exceeds the TS requirement of once per month. The meeting discussions are in depth, detailed and generally address all plant safety concerns. The meeting minutes documented items approved, disapproved and reasons for disapproval. Additionally, all PSRC action items are assigned to responsible individuals and the status is tracked.

The inspector reviewed Quality Deficiency Report (QDR) 237/89 to determine if the PSRC adequately reviewed the report. The QDR documented that the analytical basis supporting the FSAR pipe break analysis for the RWCII system was incorrect. The analysis assumed an isolation time of 50 seconds for high room temperature and high delta flow signals. However, the isolation time for the delta flow signal is 80 seconds and some RWCU rooms have no temperature monitoring or isolation instrumentation. NPE performed an evaluation which identified two inconsistencies. The first was that the RWCU isolation circuit contains no room temperature or delta temperature isolation signals for rooms normally having RWCU piping with water temperature of less than or

equal to 120F (cold piping). These isolation signals were deleted in a 1984 technical specification change. The second inconsistency was that the RWCU valve nest room, 1A443, has no temperature monitoring instruments and that the intended temperature instruments were inadvertently installed in the RWCU heat exchanger room. The valve nest room is also a cold piping area. To support the as-built configuration, NPE performed a new pipe break analysis using the 80 second delta flow isolation signal. The new analysis showed that the RWCU pipe break is still bounded by the existing FSAR analytical margins.

The PSRC on October 26, 1989, concluded that the as-built configuration of the plant is acceptable and there is no concern for plant safety. The inspector reviewed the QDR on November 15, 1989, and noted that the valve nest room, which is defined in FSAR Section 6.2.1.2.2.a.6, and Figures 6.2-62 and 6.2-63, is required to have temperature isolation instrumentation in accordance with TS Table 3.3.2-2.4.c.3 and d.3. When the discrepancy was brought to the licensee's attention, a justification for continued operation was issued on November 16, 1989. The JCO states, that the RWCU valve nest room, 1A443, contains only cold RWCU piping and this is adequately protected using the existing high delta flow instrumentation alone. The licensee stated they plan to request a TS change to clarify the instrumentation requirements for the valve area in the heat exchanger room. Additionally, the licensee performed a 10 CFR 50.59 evaluation which determined that the as-built design did not constitute an unreviewed safety question.

TS 6.5.1.6.i, requires the PSRC review all recognized indications of an unanticipated deficiency in some aspect of design or operation of safety related structure, systems, or components. Contrary to the above, the PSRC inadequately reviewed QDR 237/89, in that they failed to determine that instrumentation required by TS was not installed in the required location, this is violation 89-29-01.

7. 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 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.

(Open) LER 89-015, Failure to retest isolation dampers following maintenance. This event was documented in NRC inspection report 89-28. Corrective actions will be verified after issuance of the final LER.

(Open) LER 89-016, Lighting induced spike causes APRM scram. This event was documented in NRC inspection report 89-29.

(Closed) LER 89-010, Reactor scram caused by lighting strike. This LER is administratively closed and the corrective actions will be tracked under LER 89-016.

No violations or deviations were identified.

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

(Closed) Inspector Followup Item 88-14-01, Corrective action to prevent inadvertent condensate pump trips on low suction pressure. The licensee determined that low suction pressure trips for the condensate pumps were not required when startup suction strainers are not installed. Minor Change Package 89/1086 was issued to install key operated switches in the low pressure trip circuitry. This will allow disabling the circuitry when the strainers are removed from the system. This item is closed.

(Closed) Inspector Followup Item 89-27-01, MSIV leakage control system walkdown discrepancies. The noted discrepancies have been corrected. This item is closed.

(Closed) Violation 89-14-03, Inadequate feedwater system procedure results in loss of feedwater control and reactor scram. The licensee admitted the violation in letter dated July 13, 1989. The following corrective actions have been completed. The SOI was revised, the training simulator manual speed changers were modified to run back in slow speed and licensed operator retraining was completed. This item is closed.

(Closed) TI 2515/104. The resident inspectors attended selected licensee Fitness for Duty (FFD) training sessions to determine whether required training is being conducted to implement the program. The licensee FFD training sessions are set up for supervisors and a joint session is set up for awareness training and escort training for non-supervisory personnel. The training session fulfilled the requirements of 10 CFR 26. The licensee procedures had not been implemented at the time of the training sessions, however the procedures are scheduled to be in place by the end of the year.

9. Exit Interview (30703)

The inspection scope and findings were summarized on December 15, 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>
89-29-01	Violation	Failure of the PSRC to perform an adequate review of a QDR. (paragraph 6)

10. Acronyms and Initialisms

APRM	-	Average Power Range Monitor
ECCS	-	Emergency Core Cooling System
ESF	-	Engineering Safety Feature
FCV	-	Flow Control Valve
FFD	-	Fitness For Duty
FSAR	-	Final Safety Analysis Report
I&C	-	Instrumentation and Control
IFI	-	Inspector Followup Item
JCO	-	Justification for Continued Operation
LCO	-	Limiting Condition for Operation
LER	-	Licensee Event Report
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
PSRC	-	Plant Safety Review Committee
PSW	-	Plant Service Water
QDR	-	Quality Deficiency Report
RCIC	-	Reactor Core Isolation Cooling
RPS	-	Reactor Protection System
RWCU	-	Reactor Water Cleanup
RWP	-	Radiation Work Permit
SERI	-	System Energy Resource Incorporation
SOI	-	System Operating Instruction
SPMU	-	Suppression Pool Makeup
TS	-	Technical Specification