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

Report No.: 50-416/88-04

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

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

Facility Name: Grand Gulf

Inspection Conducted: March 7-11, 1988

Inspector: R. Moore, Team Leader — Date Signed: 4/21/88

Accompanying Personnel: E. Lea

Approved by: G. Belisle, Chief — Date Signed: 4/21/88
Quality Assurance Programs Section
Division of Reactor Safety

SUMMARY

Scope: This routine, announced inspection was conducted in selected aspects of operations, design control and licensee action on previously identified inspection findings.

Results: No violations/deviations were identified.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

C. Burgess, Manager of Methods and Procedures
*J. Cross, Site Director
*D. Cupstid, Technical Support Superintendent
*L. Daughtery, Compliance Supervisor
*J. Dinnette, Jr., Manager, Plant Maintenance
*C. Dutchin, General Manager
*W. Eiff, Principal Quality Engineer
*C. Ellsaesser, Operations Coordinator
*S. Feith, Director Quality Program
*C. Hicks, Operations Assistant
*R. McAnulty, Electrical Superintendent
*A. McCurdy, Manager, Plant Operations
*R. Moomaw, Technical Assistant to Manager Maintenance
*J. Summers, Compliance Coordinator
*S. Tanner, Manager, Quality Services
*M. Wright, Manager, Plant Support
*J. Yelverton, Technical Assistant

Other licensee employees contacted included engineers, technicians, operators, mechanics, and office personnel.

NRC Resident Inspectors

*R. Butcher, Senior Resident Inspector
*J. Mathis, Resident Inspector

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on March 11, 1988, with those persons indicated in paragraph 1 above. The inspector described the areas inspected and discussed in detail the inspection findings. No dissenting comments were received from the licensee. The licensee did not identify as proprietary any of the materials provided to or reviewed by the inspector during this inspection.

Note: A list of abbreviations used in this report is located in the last paragraph of the report.

Item Number	Status	Description/Reference Paragraph
416/86-18-1	Closed	IFI- Publication of nuclear production division procedures and correction to lower tier procedures (paragraph 9)
416/86-22-1	Closed	URI- Timeliness of correction actions (paragraph 8)

3. Licensee Action on Previous Enforcement Matters

This subject was not addressed in the inspection.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. General

The purpose of this inspection was to review the effectiveness of licensee actions to correct weaknesses identified in the September 1986 QA Operational Assessment Inspection, NRC Inspection Report No. 50-416/86-25. The Operational Assessment Inspection reviewed quality assurance effectiveness in selected functional areas; i.e. operations, maintenance, design control and QA/QC via various plant operational performance indicators. The operational assessment inspection team examined 15 performance indicators associated with these functional areas for absolute value, significant trends, and management response to these trends. That inspection identified weaknesses in the operations and design control functional areas. This inspection, reviewed the licensee's corrective action effectiveness for the Operational Assessment identified weaknesses and additionally reviewed licensee closure action on previously opened items.

6. Operations

An operations functional area weakness identified by the assessment team was the number of reactor scrams attributed to procedural inadequacies and personnel error. The inspector reviewed the licensee's mechanisms to resolve operational problems and the effectiveness of these mechanisms by reviewing licensee's analyses performed of subsequent reactor scrams/trips.

Eight trips had occurred since the last QA inspection report was issued. Four were at power trips. Each at power trip occurred due to mechanical or electrical malfunctions. The remaining four trips occurred during subcritical conditions. Two of the trips, which occurred while the reactor was subcritical, were due to personnel error. The cause of the two trips and their corrective actions were identified in the following LERs:

LER 87-25 RPS fuse improperly replaced while performing "Main Steam Line Isolation Valve Closure Calibration".

Corrective Actions: The responsible individuals were reprimanded for their failure to correctly install the fuse. The incident was brought to the attention of others by placing the LER in the required reading program.

LER 88-01 Use of a nonconducting tool, in an Upper Cable Spreading Room panel, resulted in a ground between a power supply and cabinet.

Corrective Actions: Procurement of nonconducting tools is being pursued. Protective guards will be installed on the heat sinks of the two power supplies. SERI will evaluate the feasibility of installing a time delay in the logic. The individuals involved were reprimanded.

A somewhat similar event, such as the one identified in LER 88-01 was reported in LER 86-34. The corrective actions stated in LER 86-34 was that edge guards were installed on the rectifier fins and on three similar units to preclude recurrence of grounding rectifier circuits. This event occurred in a control room panel. No other grounding problems have occurred in the control room panels since the edge guards were installed. The licensee attempted to locate documentation on the installment of edge guards, but were unable to do so. The inspector expressed a need for improved documentation.

Based on the inspector's review of post trip analysis and LERs, it appears that operator error and procedural inadequacies have been significantly reduced as a source of reactor trips.

Within this area, no violations or deviations were identified.

7. Design Control

The inspector reviewed licensee corrective actions on design control weaknesses identified in the Quality Assurance Effectiveness Inspection, in September 1986. Problems identified included; the volume of CNs on approved DCPs, identified deficiencies in configuration control, lack of adequate documentation to substantiate performance of engineering evaluations and equipment qualification, quality of contractor engineering design services, and the sequencing of activities during the design process. Corrective actions were incorporated into various long term programs and actions to resolve associated CARs. Additionally, the inspector examined a sample of safety related DCPs to assay the effectiveness of the licensee's corrective actions.

A pilot program was initiated following CN problem identification by the licensee previous to the September 1986 NRC inspection. The pilot program was to evaluate CNs generated during RFO 1, determine the cause, and assess if the CNs were avoidable and indicative of weaknesses in the design process. The pilot program appeared to be ineffective in reducing the volume of CNs as evidenced by only a slight reduction between RFO 1, 389 CNS, and RFO 2, 360 CNS. The licensee methodology for CN evaluation appeared inadequate because the reviewers were often the responsible engineers evaluating their own activity. They were originators of the DCPs and the CNs. Additionally, there were a relatively large number of personnel evaluating the CNs thereby resulting in an inconsistency in cause code interpretation. The lack of both CN evaluator independence and consistent cause code interpretation limited the effectiveness of the CN pilot program.

To achieve a more accurate assessment of CN generation, the NPE group reviewed all CNs produced during RFO 2. These CNs were catergorized into 17 different cause codes and discipline responsibility assigned. This evaluation appeared to provide justification for the volume of CNs rather than a noncompromising effort to identify methods to improve the front end design change process and reduce field modifications to approved design change packages. A portion of RFO 2 CNs were field enhancements and other CNs were unavoidable due to various plant conditions. Some CNs, however, were avoidable and indicated a lack of attention to detail at some level in the design development or implementation process. Although utilization of the CN process does not necessarily indicate a failure in the licensee design process, it does represent an aspect of design process quality. It appeared that the CN condition at the present is relatively unchanged from that condition identified in the 1986 QA operational Assessment Inspection and that licensee action has been ineffective in improving their self-imposed goal to reduce the number of CNs issued.

A previously identified weakness which appeared to have improved, was in the configuration control area. Initially identified by the licensee in CAR 2232 for specifically identified deficiencies, this item was tracked via CARs 2244 and 2245 for resolution of the generic problem. Corrective actions included reviewing DCPs, drawing walkdown and reverification by NPE and PM&C, procedure changes, and personnel training. CAR 2245, which addressed training, remains open due to a priority shift during RFO 2 but CAR 2244, which addressed the reverification and programatic problem, was closed on January 7, 1988, based on completed corrective actions. The effectiveness of the corrective actions was determined via audit QSA 88/0012, Document Control and CARs 2244 and 2245, which was completed recently. The audit report had not been officially released but discussions with the audit group indicated that plant performance in the configuration control area had improved. The inspectors' review of the audit data supported this conclusion.

An identified weakness relating to missing or inadequate documentation to qualify equipment and evaluations has been in the resolution process for the last two years. The item has been tracked via CAR 2209. The longevity of this open item appeared to be primarily due to priority shifts from refueling outages. Corrective action has continued and tracking by the QA group appeared adequate. An initial review in 1986 identified 109 piping drawings for detailed review and analysis to verify qualifications. Performance of stress analysis on 41 piping runs identified 36 stress problems of which 15 have been resolved and the remaining committed to resolution by December 30, 1988.

In 1986, the licensee identified that engineering design vendor services had inconsistent quality. This item was assessed as a weakness in the September 1986 inspection. Corrective action for this problem was to reduce the volume of design vendor services, upgrade vendor performance, and improve vendor interface by requiring the vendor to utilize licensee procedures. Previously, the bulk of design activity was performed by vendors, supplemented by the in-house design organization. Discussions with design management indicated a policy of the licensee acquiring a greater responsibility for design activity. Design activity for RFO 3 will primarily be the responsibility of the in-house design organization with vendor supplementation. Associated with this increased site design responsibility, the licensee was in the process of developing safety-related system design criteria which will reduce the dependency on the A/E (Bechtel Eastern Power Company) or other vendors for design basis information. Vendor design service's quality has been enhanced by including a performance factor in the vendor contract. A grading system was used to measure performance. A letter from the Bechtel Project Engineer to the licensee's NPE organization dated January 28, 1988, stated that the quality and productivity of Bechtel services had improved due to specific Bechtel initiatives to improve performance. The design process interface improvement was achieved by requiring Bechtel to utilize SERI design procedures thus reducing the interface discontinuity from attempting to convert the Bechtel design format into the SERI format. Use of SERI procedures provides greater assurance that SERI commitments are met.

The discrepancy associated with design activity sequencing was tracked and closed via CAR 2236. The finding stated that design input and design verification documentation were not always clear or complete. For example, there were DCPs in which the design verification was signed off before the design preparation or the design input completion after the design preparation. This CAR was closed on March 3, 1987. The inspector's review of sample DCPs from 1987 did not identify any discrepancies in the design process sequence; however, the reiterations involved in the review process resulted in a number of signatures arrayed on the verification documentation in a disorganized manner.

The inspector reviewed a sample of safety-related design change packages implemented in 1987. Selected aspects of the design process review included: documentation of design input requirements, 10 CFR 50.59 evaluations, post modification testing and effectiveness of licensee corrective actions for those weaknesses previously discussed. The sample of DCPs included the following:

82 0252
84 0016
84 3221
85 4053
87 0017
87 0091

The design process aspects reviewed were adequately performed and documented. Corrective actions initiated by the licensee to address the identified design control process weakness identified during the September 1986 inspection appeared to be of a magnitude and effectiveness to resolve those program deficiencies.

Within this area, no violations or deviation were identified.

8. License Action on Previously Identified Enforcement Action (92701)

(Closed) Unresolved Item 416/86-22-01: Timeliness of Corrective Actions

A previous inspection conducted in July 1986, identified a weakness in the licensee's ability to effectively implement corrective actions for material nonconformance reports (MNCRs) in a timely manner. The report also stated that the licensee had established a task force to reduce the number of outstanding MNCRs.

The inspector reviewed 30 open and 30 closed MNCRs to determine corrective action timeliness. The open MNCR volume has been significantly reduced since the last review. On July 21, 1986, there were 657 open MNCRs, of which 254 were open for more than a year. As of March 4, 1988, there were only 159 MNCRs open, of which 83 were open for more than one year. Additionally, the inspector reviewed Administrative Procedure 01-S-03-3, Rev. 21, Material Nonconformance Report, and SERI Policy No. 8.510 Rev. 0, Condition Identification and Evaluation. Measures taken by the task force to correct programmatic deficiencies were adequate. Based on the above information, the task force has effectively reduced the outstanding MNCR number.

9. Licensee Action on Previous Inspection Findings (92702)

(Closed) Inspector Followup Item 416/86-18-01. Publication of Nuclear Production Division Procedures and Corrections to Lower Tier Procedures.

A previous inspection identified discrepancies in paragraph numbers referenced in lower-tier quality implementing program documents for commitments delineated in the NPD Policy and Organization Manual. These

discrepancies were caused by replacing the NPD Policy and Organization Manual with the NPD Policy Manual and the NPD Procedures Manual. At that time, correction of the discrepancies required completing the phase-out of the NPD Policy and Organization Manual and editorial corrections of the lower-tier quality implementing procedures.

The inspector reviewed the SERI Operating Manual and interviewed SERI personnel in response to this item. The SERI Operating Manual resulted from reorganization within Mississippi Power and Light and replaces the NPD Policy and Organization Manual, NPD Policy Manual, and NPD Procedures Manual. One additional section, Master Issue List, was in draft and awaiting final management approval. This section is not an NRC commitment. Those sections that contain NRC commitments were complete. Cross references to previous plant documents were provided and training sessions are planned for SERI employees on the new manual and procedures.

10. Abbreviations

A/E	Architect Engineer
CAR	Corrective Action Request
CN	Change Notices
DCP	Design Change Package
IFI	Inspector Follow-Up Item
INPO	Institute of Nuclear Power Operations
MNCRs	Material Nonconformance Report
MWO	Maintenance Work Orders
NO.	Number
NPRDS	Nuclear Plant Reliability Data System
NPD	Nuclear Production Department
NRC	Nuclear Regulatory Commission
PM&C	Plant Maintenance and Construction Group
QA	Quality Assurance
QC	Quality Control
RFO	Refueling Outage
RPS	Reactor Protection System
SERI	System Energy Resources, Inc.
URI	Unresolved Item