



**UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-4005**

May 5, 2003

George A. Williams, Acting Vice President,
Operations - Grand Gulf Nuclear Station
Entergy Operations, Inc.
P.O. Box 756
Port Gibson, Mississippi 39150

SUBJECT: GRAND GULF - NRC INSPECTION REPORT 50-416/03-05

Dear Mr. Williams:

On April 3, 2003, the NRC completed an inspection at your Grand Gulf Nuclear Station. The enclosed report documents the inspection findings which were discussed on April 3, 2003, with Mr. C. Bottemiller and other members of your staff.

This inspection was an examination of activities conducted under your license as they relate to the identification and resolution of problems, and compliance with the Commission's rules and regulations, and with the conditions of your operating license. Within these areas, the inspection involved selected examination of procedures and representative records, observation of activities, and interviews with personnel.

On the basis of the sample selected for review, there were no findings of significance identified during the inspection. The team concluded that problems were properly identified, evaluated and resolved within the problem identification and resolution programs.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Anthony T. Gody, Chief
Operations Branch
Division of Reactor Safety

Entergy Operations, Inc.

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Docket: 50-416

License: NPF-29

Enclosure:

NRC Inspection Report

50-416/01-06

cc w/enclosure:

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SOE:OB	SOE:OB	SOE:OB	RI:GG	C:OB	C:PBA	C:OB
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/RA/	/RA/	/RA/	/RA/	/RA/	/RA/	/RA/
4/11/03	4/11/03	4/22/03	5/5/03	5/1/03	5/5/03	5/5/03

ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket: 50-416
License: NPF-29
Report No.: 50-416/03-05
Licensee: Entergy Operations, Inc.
Facility: Grand Gulf Nuclear Station
Location: Waterloo Road
Port Gibson, Mississippi
Dates: March 3 through April 3, 2003
Inspector: T. McKernon, Lead Inspector, Operations Branch
M. Murphy, Senior Operations Engineer, Operations Branch
P. Gage, Senior Operations Engineer, Operations Branch
R. Deese, Resident Inspector, Project Branch A
Approved By: A. Gody, Chief
Operations Branch
Division of Reactor Safety

SUMMARY OF FINDINGS

IR 05000416-03-05; Entergy Operations, Inc., 3/3-4/3 /2003, Grand Gulf Nuclear Station, Identification and Resolution of Problems.

The inspection was conducted by three regional senior operations engineers and one resident inspector. The inspection identified no findings of significance. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

Identification and Resolution of Problems

The licensee adequately identified problems and put them into the corrective action program. The licensee adequately used risk in prioritizing the extent to which individual problems would be evaluated, assigning ownership, and establishing schedules for implementation of corrective actions. Licensee audits and assessments critically reviewed the licensee's problem identification and resolution activity and identified needs for improvement, particularly, related to latent issues. During inspection interviews, workers at the site expressed no reservations to input safety issues into the problem identification and resolution program. The licensee implemented corrective actions in a timely manner with the exception of some latent issues. The licensee implemented effective corrective actions to prevent recurrence of significant conditions adverse to quality (Section 40A2).

Report Details

4. OTHER ACTIVITIES (OA)

4OA2 Identification and Resolution of Problems

a. Effectiveness of Problem Identification

(1) Inspection Scope

The team reviewed items selected across the seven cornerstones of safety to determine if problems were being properly identified, characterized, and entered into the corrective action program for evaluation and resolution. Specifically, the team's review included a selection of approximately 200 condition reports that had been opened or that related to issues of regulatory noncompliance since August 31, 2001. The team also reviewed a total of 15 licensee audits and assessments, trending reports, system health reports, and various other reports and documents related to the problem identification and resolution program. The team compared the audit and assessment results with self-revealing and NRC-identified issues to determine the effectiveness of the audits and assessments.

The team evaluated the condition reports to determine the licensee's threshold for identifying problems and entering them into the corrective action program. Also, the licensee's efforts in establishing the scope of problems were evaluated by reviewing pertinent work orders, engineering requests, self-assessment results, and action plans.

The team also conducted limited plant walkdowns and interviewed plant personnel, and attended plant meetings to identify other processes by which problems and issues were identified and dispositioned.

(2) Issues and Findings

The team determined that the licensee was effective at identifying problems and entering them into the corrective action program. This was evidenced by the relatively few deficiencies identified by external organizations (including the NRC) that had not been previously identified by the licensee during the review period. Licensee audits and assessments were self-critical and thorough and identified issues similar to those that were self-revealing or raised during NRC inspections. The team identified no instances where conditions adverse to quality were being handled outside the corrective action program.

Of note, was the licensee's efforts to identify and resolve long-standing issues at the facility. For example, the reactor recirculation system flow control valves have had a history of difficult operation during startups when the operators shifted to fast speed on the recirculation pumps and attempted to open the valves off their minimum positions. During startups, conducted over the past 17 years, the operators needed to increase hydraulic power unit pressure and pulse the valves several times in order to move them off the minimum positions. During the last startup, operators were required to pulse the valves between 35 to 50 times. The team observed that while these actions eventually

worked to open the valves off their minimum positions, it was not a corrective action to resolve the valves from sticking, but rather an operator workaround. Over the years, the workaround was memorialized and considered normal practice. It was not until the last startup that the high number of pulsing attempts made the problem with the sticking valves so patently obvious.

The licensee's investigation into similar problems at other facilities indicated that the issue had been an industry issue. However, other facilities had corrected the problem with maintenance and changing the minimum position specifications. Subsequent operations at those facilities did not require pulsing the flow control valves hydraulic systems.

The team questioned the licensee as to the current health of the hydraulic power units and sub-loop piping systems. While the licensee had performed an in-depth root cause analysis, CR-GGN-2003-0352, and had planned to correct the flow control valve problems during the upcoming refueling outage, corrective actions to review the hydraulic power units and sub-loops had been overlooked.

As a result of the team's concerns, the licensee committed to add corrective actions to open condition report (CR-GGN-2003-0352) to address the concerns. While the reactor recirculation system and the hydraulic power units for the flow control valves are not safety related systems, the pulsing of the flow control valves represented an operator workaround vis-a-vis a corrective action to resolve a hardware problem. The finding was considered minor since a break in the hydraulic fluid system or the reactor coolant system as a result of pulsing the valves was unlikely. The team considered the licensee's actions acceptable.

No specific findings of significance relating to effectiveness of problem identification were identified.

b. Prioritization and Evaluation of Issues

(1) Inspection Scope

The team reviewed approximately 100 condition reports and supporting documentation, including analyses of the problem causes, to ascertain whether the licensee's evaluation of the problems identified considered the full extent of conditions, generic implications, common causes, and previous occurrences. In addition, the team reviewed the licensee's evaluation of selected industry experience information to assess if issues applicable to Grand Gulf were appropriately identified and addressed.

(2) Issues and Findings

Based on a review of the licensee's records, the team concluded that the licensee effectively evaluated and prioritized issues. Issues, which needed addressing, were discussed and evaluated at various meetings including the condition review group and assigned to the responsible departments. For the more risk significant condition reports, the team determined that the evaluations were of sufficient depth and breadth.

Non-cited violations were adequately tracked through resolution. Open action items had reasonable due dates based on the significance of the item, plant conditions, and outage schedules. Root cause determinations were comprehensive, risk aspects of the conditions had been appropriately considered, and documentation was sufficient to support independent review of the corrective action response.

No specific findings relating to effectiveness of problem identification were identified.

c. Effectiveness of Corrective Actions

(1) Inspection Scope

The team reviewed the condition reports and other supporting documentation related to problem identification and resolution described in Section 4OA2.a.(1) above to verify that corrective actions were effective and implemented in a timely manner commensurate with safety, including corrective actions to address common cause or generic concerns. The team also conducted limited plant walkdowns and interviewed plant personnel to independently verify and assess the completion and effectiveness of corrective actions implemented by the licensee.

(2) Issues and Findings

The team concluded that the licensee generally implemented corrective actions in a timely manner with the exception of some latent issues. The licensee was effective in correcting problems to preclude recurrence once problems were fully identified and understood.

Root cause analyses were documented in sufficient detail and performed in a timely manner consistent with program expectations. The associated corrective actions appropriately addressed the identified cause(s).

No specific findings were identified in the area of effectiveness of corrective actions.

d. Assessment of Safety-Conscious Work Environment

(1) Inspection Scope

During interviews with approximately 15 individuals from the licensee's staff, which represented a cross-section of functional organizations and supervisory and non-supervisory personnel, the inspectors assessed the individual's willingness to identify safety issues and enter those issues in the corrective action process. These interviews assessed whether conditions existed that would challenge the establishment of a safety-conscious work environment.

(2) Issues and Findings

The team concluded, based on information collected from these interviews, that employees were willing to identify issues and accepted the responsibility to enter safety issues into the corrective action program.

No specific findings were identified in the area of assessment of safety-conscious work environment.

4OA6 Exit Meeting

The team discussed these findings and other observations with Mr. Bill Eaton, Vice President, Operations, and other members of the licensee's staff on March 20, 2003. Licensee management provided some additional information regarding the reactor recirculation flow control valves and their hydraulic power units during the week of March 24, 2003. A telephonic exit was conducted on April 3, 2002 with Mr. C. Bottemiller, Manager, Licensing and other members of the staff. The licensee provided no further comment on other findings or issues.

Licensee management did not identify as proprietary any materials examined during the inspection.

ATTACHMENT

PARTIAL LIST OF PERSONS CONTACTED

Licensee

C. Abbott, Quality Assurance Supervisor
A. Barfield, Manager, Design Engineering
R. Barnes, Manager, Training and Development
C. Bottemiller, Manager, Licensing
R. Courtney, Manager, Corrective Action and Assessment (Acting)
M. Cumbest, Fire Protection Engineer
A. Dahl, Human Performance Coordinator
W. Eaton, Vice President
M. Ellis, OE Coordinator
C. Ellsaesser, Manager, Corrective Action and Assessment
G. Ingram, Licensing Engineer
M. Juarsen, Senior Licensing Specialist
C. Lambert, Director, Engineering
L. Patterson, Manager, Planning and Scheduling/Outage
J. Roberts, Director, Nuclear Safety Assurance
D. Wilson, Engineering Supervisor

NRC

T. Hoeg, Senior Resident Inspector
R. Deese, Resident Inspector

PARTIAL LIST OF DOCUMENTS REVIEWED

The following documents were selected and reviewed by the inspectors to accomplish the objectives and scope of the inspection and to support any findings:

Procedures

LI-102, Corrective Action Process, Revision 2.

01-S-03-9, GGNS Corrective Action Review Board, Revision 1

01-S-06-5, Reportable Events or Conditions, Revision 105

01-S-06-44, Operability Assessment, Revision 105

02-S-01-4, Shift Relief and Turnover, Revision 31.

SOI-04-01-B33-1, Reactor Recirculation System, Revision 117

06-OP-1P45-Q-0002, Floor Equipment and Chemical Drain Isolation Valve Operational Check, Revision 106

06-OP-1C41-M-0001, Standby Liquid Control System Operability, Revision 108

06-OP-1B21-R-0006, Containment, Drywell and Auxiliary Building Isolation Valves Functional Test, Revision 105

06-OP-1D17-M-0006, Off-Gas Post Treatment Radiation Monitor Functional Test, Revision 100

06-OP-1D17-Q-0004, Fuel Handling Area Ventilation Radiation Monitor Functional Test, Revision 101

06-OP-1P81-V-0003, HPCS Diesel Generator 13 Operability Verification, Revision 104

06-OP-1P75-M-0001, "Standby Diesel Generator 11 Functional Test," Revision 112

06-OP-1P75-M-0002, "Standby Diesel Generator 12 Functional Test," Revision 111

06-OP-1P75-R-0003, "Standby Diesel Generator 11: 18 Month Functional Test," Revision 106

06-OP-1P75-R-0004, "Standby Diesel Generator 12: 18 Month Functional Test," Revision 106

04-1-01-P75-1, "System Operating Instruction: Standby Diesel Generator System," Revision 57

04-1-03-P75-1, "Equipment Performance Instruction: Division 1 / 2 Diesel Generator Unexcited Run," Revision 3

04-1-01-N71-1, Circulating Water System, Revision 57

04-1-01-E51-1, Reactor Core Isolation Cooling System, Revision 115

04-1-01-E22-1, High Pressure Core Spray, Revision 105

05-1-02-VI-2, Hurricanes, Tornadoes and Severe Weather, Revision 104

01-S-06-2, Conduct of Operations, Revision 111

01-S-06-5, Reportable Events or Conditions, Revision 105

10-S-03-3, Control of Ignition Sources, Revision 9

10-S-03-4, Control of Combustible Material, Revisions 10, 11 and 12

01-S-07-9, Housekeeping, Revision 21

01-S-10-1, Fire Protection Plan, Revision 101

01-S-08-8, ALARA Program, Revision 17 and 18

01-S-08-2, Exposure and Contamination Control, Revision 111

01-S-08-8, ALARA Program, Revision 19

01-S-08-27, Radiological Practices for Controlled Areas, Revision 7

01-S-08-34, Radiological Work Planning Performance and Reviews, Revision 4

01-S-17-11, Repetitive Task Program, Revision 9

01-S-17-38, Root Cause Evaluation Process, Revision 4

01-S-10-4, Emergency Preparedness Drills and Exercises, Revision 9

10-S-01-35, Core Damage Assessment, Revision 1

Condition Reports

CR-GGN-2002-02473	CR-GGN-2001-0169	CR-GGN-2003-0039
CR-GGN-2002-02512	CR-GGN-2001-00255	CR-GGN-2003-0055
CR-GGN-2002-02514	CR-GGN-2001-00672	CR-GGN-2003-0100
CR-GGN-2002-02548	CR-GGN-2001-00674	CR-GGN-2003-0147
CR-GGN-2002-02669	CR-GGN-2001-00736	CR-GGN-2003-0279
CR-GGN-2002-02775	CR-GGN-2001-00994	CR-GGN-1994-0160
CR-GGN-2003-00069	CR-GGN-2001-00996	CR-GGN-1997-0463
CR-GGN-2002-01447	CR-GGN-2001-01088	CR-GGN-2000-0181
CR-GGN-2002-02253	CR-GGN-2001-01115	CR-GGN-2000-0273
CR-GGN-2002-02469	CR-GGN-2001-01371	CR-GGN-2000-0701
CR-GGN-2001-01916	CR-GGN-2001-01906	CR-GGN-2000-1161
CR-GGN-2002-00515	CR-GGN-2002-2239	CR-GGN-2001-0187
CR-GGN-2002-00684	CR-GGN-2002-2259	CR-GGN-2001-0493
CR-GGN-2002-00842	CR-GGN-2002-2463	CR-GGN-2001-1294
CR-GGN-2002-01040	CR-GGN-2002-2465	CR-GGN-2001-1756
CR-GGN-2002-01050	CR-GGN-2002-2521	CR-GGN-2002-0045
CR-GGN-2002-01176	CR-GGN-2002-2543	CR-GGN-2002-0690
CR-GGN-2002-01248	CR-GGN-2002-2547	CR-GGN-2002-1523
CR-GGN-2002-01258	CR-GGN-2002-2554	CR-GGN-2002-1951
CR-GGN-2003-0605	CR-GGN-2002-2570	CR-GGN-2002-2015
CR-ECH-2001-0047	CR-GGN-2002-2608	CR-GGN-2002-2134
CR-ECH-2001-0056	CR-GGN-2002-2618	CR-GGN-2002-2199
CR-ECH-2001-0057	CR-GGN-2002-2625	CR-GGN-2002-2237
CR-GGN-2000-0895	CR-GGN-2003-0001	

Licensee Event Reports

LER 2001-0006, Annual Assessment of GGNS Security Department
LER 2001-0123, Pre-1982HK and K-line control devices
LER 2001-01246, Potential problem with Rosemont Transmitter
LER 2001-01752, Terry Turbine Trip & Throttle Valve stem material issues
LER 2001-01753, Division 3 ground detection on panel 1H22-P118
LER 2002-00328, Review of AMETEK documents BF-02-020 and BF-02-020-03

Maintenance Action Items (MAI)

283945	289413	297636	302718	314065
284157	294041	300951	260137	320784
284406	296089	300953	287097	320946
289057	297594	302453	297509	320980
289144				

Assessments and Audits

Multi-site Audit of the corrective action program, QA-3-2001-RBS-1-Multi-site;5/7-6/14/01
QA Surveillance; Effectiveness of corrective actions; 6/19-7/24/02
QA Surveillance; Effectiveness of corrective actions; 2/6/01
QA Surveillance; Effectiveness of corrective actions; 6/25-8/30/01
QA Surveillance; Effectiveness of corrective actions; 11/29-12/17/01
Organizational Effectiveness Self-assessment; 7/22-7/25/02
Quarterly Trend Report; December 2002
Executive Summary for Dec 2002
Executive Summary for November 2002
1st Qtr 2002 Trend Report
2d Qtr 2002 Trend Report
3d Qtr 2002 Trend Report
4th Qtr 2001 Trend Report
2d & 3d Qtr 2001 Trend Report
QA-3-2001-RBS-1-Multi-site Audit of Corrective Action Program. 7/3/01
QS-2001-GGNS-018, 8/30/01
QS-2001-GGNS-030, 12/17/01
Organizational Effectiveness Self Assessment, 7/25/02

Miscellaneous

CR-GGN-2000-01764; "3 Failures of the Electronic Generator Protection circuits for the Mn. Gen. Bushing Flow," 11/30/2000 and assoc'd MAIs 288529, 289701, 289927.

Root Cause Evaluation Report, "Flow Control Valves Stuck in Min. Position after Recirc Pumps Shifted to Fast Speed" CR-GGN-2003-0352.

Root Cause Evaluation Report, "Manual Scram Initiation Due to Loss of All Condensate Flow,"
CR-GGN-2003-0300

NTR 0603-000-2002, "Residual Heat Removal System Elbow Surface Examination Report,"
dated September 26, 2002

Emergency Preparedness Reports

4 th quarter 2002 Emergency Preparedness Training Drill Report	12/9/02
3 rd quarter 2002 Emergency Preparedness Training Drill Report	8/8/02
2 nd quarter 2002 Emergency Preparedness Training Drill Report	6/17/02
2 nd quarter 2002 Backup Emergency Operations Facility Drill Report	6/15/02

Information Request 1

Grand Gulf PIR Inspection (IP 71152) (Inspection Report #50-416/2003-05)

The inspection will cover the period of *September 1, 2000 to March 3, 2003*. All requested information should be limited to this period unless otherwise specified. The information may be provided in either electronic or paper media or a combination of these. Information provided in electronic media may be in the form of e-mail attachment(s), CDs, or 3 ½ floppy disks. The agency's text editing software is Corel WordPerfect 8, Presentations, and Quattro Pro; however, we have document viewing capability for MS Word, Excel, Power Point, and Adobe Acrobat (.pdf) text files.

Please provide the following information to (*team leader*) in the Region IV Arlington office by February 3, 2003:

1. Summary list of all currently open/active items for:
 - condition reports of significant conditions adverse to quality
 - operator work-arounds
 - engineering review requests
 - maintenance requests
 - temporary modifications
 - procedure change requests
 - training needs request/evaluation
 - control room and safety system deficiencies
2. Summary list of all items completed/resolved/closed since *September 1, 2000* for:
 - condition reports of significant conditions adverse to quality
 - operator work-arounds
 - engineering review requests
 - maintenance requests
 - temporary modifications

procedure change requests
training needs request/evaluation
control room and safety system deficiencies

3. Summary list of all condition reports generated during the specified period and sorted by:

chronology
initiating organization
responsible organization

4. All quality assurance audits and surveillances of corrective action activities since September 1, 2000.

5. All corrective action activity and functional area self-assessments and Non-NRC third party assessments since *September 1, 2000*.

6. Corrective action performance trending/tracking information generated since (*date of last inspection*) and broken down by functional organization.

7. Current revision of the following procedures:

(Review the list of documents from the last PIR inspection and included those related to the PIR process.)

8. Any additional governing procedures/policies/guidelines for:

Condition Reporting
Corrective Action Program
Root Cause Evaluation/Determination
Operator Work-Arounds
Work Requests
Engineering Requests
Temporary Modifications
Procedure Change Requests
Deficiency Reporting and Resolution
Training Needs Request/Evaluation

9. For each of the items (applicable to GG) listed below please provide the following:

- j. Full text of the condition report (please indicate any findings that did not result in a condition report or corrective actions)
k. Any "Roll-up" or "Aggregating" Conditions Reports related to the generic communication or condition report.
l. Root Cause analysis report (if applicable)
m. Risk significance assessments
n. Probable Cause evaluation (if applicable)
o. Approved corrective actions

- p. Basis for extending originally approved due dates
 - q. Evidence of corrective action completion (work packages, design change documentation, temporary modifications, training lesson plans/material, training attendance records, procedure revisions, etc.)
1. Part 21 Reports yyyy-## through yyyy-## (*issued during the period covered by the inspection*)
 - b. NRC Information Notices yyyy-## through yyyy-## (*issued during the period covered by the inspection*)
 - c. All LERs issued since *September 1, 2000*.
 4. All NCVs and Violations issued since *September 1, 2000*.