



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION IV  
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June 27, 2000

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

**SUBJECT: NRC'S GRAND GULF NUCLEAR STATION INITIAL EXAMINATION  
INSPECTION REPORT NO. 50-416/00-301**

Dear Mr. Eaton:

On June 6, 2000, the NRC completed initial examinations at the Grand Gulf Nuclear Station facility. The enclosed report presents the results of this inspection. The results of this inspection were discussed on May 25, 2000, with Mr. Gregory Sparks, Manager, Operations, and other members of your staff.

The inspection included an evaluation of two applicants for reactor operator licenses and four applicants for senior operator licenses. We determined that two applicants for senior operator licenses satisfied the requirements of 10 CFR Part 55, and the appropriate licenses have been issued. The two applicants for reactor operator and two of the applicants for senior operator licenses were graded as having failed the written examination and proposed denials of license have been issued.

We are concerned with the low overall scores and high failure rate for this group of applicants. We expect to review the results of your analysis of this high failure rate and your corrective actions in a future inspection.

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/NRC/ADAMS/index.html> (the Public Electronic Reading Room).

Entergy Operations, Inc.

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Should you have any questions concerning this inspection, we will be pleased to discuss them with you.

Sincerely,

**/RA/**

John L. Pellet, Chief  
Operations Branch  
Division of Reactor Safety

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

Enclosure:  
NRC Inspection Report No.  
50-416/00-301

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**ENCLOSURE**

U.S. NUCLEAR REGULATORY COMMISSION  
REGION IV

Docket No.: 50-416  
License No.: NPF-29  
Report No.: 50-416/00-301  
Licensee: Entergy Operations, Inc.  
Facility: Grand Gulf Nuclear Station  
Location: Waterloo Road  
Port Gibson, Mississippi  
Dates: May 19 through June 6, 2000  
Inspectors: M. E. Murphy, Chief Examiner, Operations Branch  
S. L. McCrory, Senior Operations Engineer, Operations Branch  
J. L. Pellet, Chief, Operations Branch  
Accompanied By: A. A. Sanchez, Operations Engineer, Operations Branch  
Approved By: J. L. Pellet, Chief, Operations Branch  
Division of Reactor Safety

**ATTACHMENTS:**

Attachment 1: Supplemental Information  
Attachment 2: NRC's Revised Reactor Oversight Process

## SUMMARY OF FINDINGS

### Grand Gulf Nuclear Station NRC Inspection Report No. 50-416/00-301

NRC examiners evaluated the competency of two applicants for reactor operator licenses and four applicants for senior operator licenses at the Grand Gulf Nuclear Station facility. The facility developed the written and operating examinations using NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 8. The written examinations were administered to all applicants on May 19, 2000, by facility proctors in accordance with instructions provided by the chief examiner. The NRC examiners administered the operating tests on May 22 to 25, 2000.

#### **Cross-Cutting Issues: Human Performance**

- Four of the six initial applicants failed the written examination and overall average scores were low (below passing). This was documented by the licensee in Condition Report CR-GGN-2000-0776 (Section 40A4.1).

## Report Details

### Summary of Plant Status

The plant operated at essentially full power for the duration of this inspection.

#### **4. OTHER ACTIVITIES**

##### 4OA4 Operator Knowledge and Performance

###### .1 Initial License Examination

###### a. Inspection Scope

The licensee developed the written and operating examinations using facility training and operations staff on the security agreement to prepare and validate the examinations. On May 19, 2000, the licensee proctored the administration of the written examination to all six applicants. The licensee staff graded the written examinations, analyzed the results, and presented their evaluation and post-examination comments for examination revision to the NRC on June 5, 2000.

The examination team administered the various portions of the operating examination to the six applicants on May 22 to 25, 2000. Each reactor operator applicant participated in two dynamic simulator scenarios and received a control room and facilities walkthrough test, which consisted of 10 system tasks. The senior reactor operator applicants (all of whom were seeking instant senior operator licenses) each participated in three dynamic simulator scenarios and received a control room and facilities walkthrough test, which consisted of 10 system tasks. Additionally, the examination team tested each applicant on five subjects in four administrative areas with administrative tasks.

###### b. Findings

Two applicants for senior operator licenses passed the written examinations, but the two applicants for reactor operator and two of the applicants for senior operator licenses failed the written examination. The final determination was made using the final answer key and incorporating comments resulting from licensee and NRC post-examination analysis. The average score for the reactor operator applicants was 75.2 percent. Scores for the senior operator applicants ranged from 71.4 to 83.7 percent with an average of 79.1 percent.

During the post-examination review, the licensee recommended that three questions should be modified to accept additional answers or deleted from the written examination. The licensee's post-examination comments are located in the ADAMS system under

Accession No. ML003725074. The chief examiner reviewed the technical basis for the proposed changes and concurred with the licensee's recommendations. The text of the examination questions may be accessed in the ADAMS system under Accession Nos. ML003723202 and ML003723234.

During the post-examination review, the licensee identified 21 written examination questions that were missed by 50 percent or more of the applicants responding to the question. The licensee determined that there were no generic weaknesses of the initial license training program based on its review of these 21 questions. The chief examiner reviewed the 21 written examination questions that were missed by 50 percent or more of the applicants and found the licensee's determination appropriate, based on the specific questions, applicant responses, and other items testing similar systems or areas.

All applicants passed the operating examinations. The applicants demonstrated adequate 3-way communications, alarm response, and peer checking.

Four of the six initial applicants failed the written examination and overall average scores were low (below passing). This was documented by the licensee in Condition Report CR-GGN-2000-0776.

## .2 Initial Licensing Examination Development

The facility training staff developed the written and operating examinations in accordance with NUREG-1021, Revision 8.

### .2.1 Examination Outline and Examination Package

#### a. Inspection Scope

The facility licensee submitted the written and operating examination outlines on December 3, 1999. The chief examiner reviewed the submittal against the requirements of NUREG-1021, Revision 8, and provided comments to the licensee on December 8, 1999. The facility licensee submitted the completed draft examination package on February 3, 2000. The chief examiner and a peer reviewer reviewed the draft submittal against the requirements of NUREG-1021, Revision 8. The chief examiner conducted an onsite validation of the operating examinations and provided comments on the written examination during the week of February 22, 2000.

#### b. Findings

Region IV approved the initial examination outline with minor comments for enhancement and advised the licensee to proceed with the operating examination development.

The chief examiner determined that the written and operating examinations initially submitted by the licensee were within the range of acceptability expected for a proposed examination and satisfactory.

During the validation of the examinations the week of February 22, 2000, the simulator exhibited an operational problem and was unable to complete three of the scenarios. The chief examiner advised the licensee that after repairs were made the scenarios would have to be validated again. The licensee later requested that the NRC delay the examination due to difficulties correcting the simulator problem, combined with the audit examination performance by the applicants. The week of May 22, 2000, was agreed to. No findings were identified.

.3 Simulation Facility Performance

a. Inspection Scope

The examiners observed simulator performance with regard to plant fidelity during the examination validation and administration.

b. Observations and Findings

The simulator exhibited problems in completing the scenarios during initial validation and the licensee requested time to troubleshoot and effect repairs. The simulator performed appropriately during subsequent revalidation and during the examination. No findings were identified.

.4 Examination Security

a. Scope

The examiners reviewed examination security both during the onsite preparation week and examination administration week for compliance with NUREG-1021 requirements.

b. Observations and Findings

No findings were identified.

40A5 Management Meetings

.1 Exit Meeting Summary

The examiners presented the inspection results to Mr. Gregory Sparks, Manager, Operations, and other members of the licensee management at the conclusion of the inspection on May 25, 2000. The licensee acknowledged the findings presented.

The licensee did not identify as proprietary any information or materials examined during the inspection.

**ATTACHMENT 1**

PARTIAL LIST OF PERSONS CONTACTED

Licensee

A. Goel, Senior Engineer, Nuclear Safety Assurance  
C. Holifield, Senior Licensing Engineer  
T. McIntyre, Supervisor Operations Training  
M. Rasch, Senior Operations Instructor  
C. Roberts, Operations Instructor  
J. Roberts, Director, Nuclear Safety Assurance  
W. Shelly, Manager, Training/Emergency Preparedness  
G. Sparks, Manager, Operations  
C. Stafford, Operations Manager, Developmental Assigned Position

ADAMS DOCUMENTS REFERENCED

Accession No.:

|             |                                                        |
|-------------|--------------------------------------------------------|
| ML003723202 | Reactor Operator As-Given Examination Questions        |
| ML003723234 | Senior Reactor Operator As-Given Examination Questions |
| ML003723841 | Licensee Post-Examination Comments                     |

## ATTACHMENT 2

### **NRC's REVISED REACTOR OVERSIGHT PROCESS**

The federal Nuclear Regulatory Commission (NRC) recently revamped its inspection, assessment, and enforcement programs for commercial nuclear power plants. The new process takes into account improvements in the performance of the nuclear industry over the past 25 years and improved approaches of inspecting and assessing safety performance at NRC licensed plants.

The new process monitors licensee performance in three broad areas (called strategic performance areas): reactor safety (avoiding accidents and reducing the consequences of accidents if they occur), radiation safety (protecting plant employees and the public during routine operations), and safeguards (protecting the plant against sabotage or other security threats). The process focuses on licensee performance within each of seven cornerstones of safety in the three areas:

#### **Reactor Safety**

- Initiating Events
- Mitigating Systems
- Barrier Integrity
- Emergency Preparedness

#### **Radiation Safety**

- Occupational
- Public

#### **Safeguards**

- Physical Protection

To monitor these seven cornerstones of safety, the NRC uses two processes that generate information about the safety significance of plant operations: inspections and performance indicators. Inspection Findings will be evaluated according to their potential significance for safety, using the Significance Determination Process, and assigned colors of GREEN, WHITE, YELLOW or RED. GREEN Findings are indicative of issues that, while they may not be desirable, represent very low safety significance. WHITE Findings indicate issues that are of low to moderate safety significance. YELLOW Findings are issues that are of substantial safety significance. RED Findings represent issues that are of high safety significance with a significant reduction in safety margin.

Performance indicator data will be compared to established criteria for measuring licensee performance in terms of potential safety. Based on prescribed thresholds, the indicators will be classified by color representing varying levels of performance and incremental degradation in safety: GREEN, WHITE, YELLOW, and RED. GREEN indicators represent performance at a level requiring no additional NRC oversight beyond the baseline inspections. WHITE corresponds to performance that may result in increased NRC oversight. YELLOW represents performance that minimally reduces safety margin and requires even more NRC oversight. And RED indicates performance that represents a significant reduction in safety margin, but still provides adequate protection to public health and safety.

The assessment process integrates performance indicators and inspection so the agency can reach objective conclusions regarding overall plant performance. The agency will use an Action Matrix to determine in a systematic, predictable manner, which regulatory actions should be taken based on a licensee's performance. The NRC's actions in response to the significance (as represented by the color) of issues will be the same for performance indicators as for inspection findings. As a licensee's safety performance degrades, the NRC will take more and increasingly significant action, which can include shutting down a plant, as described in the Action Matrix.

More information can be found at: <http://www.nrc.gov/NRR/OVERSIGHT/index.html>.