

ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Inspection Report: 50-416/95-17

License: NPF-29

Licensee: Entergy Operations, Inc.
P.O. Box 756
Port Gibson, Mississippi

Facility Name: Grand Gulf Nuclear Station

Inspection At: Port Gibson, Mississippi

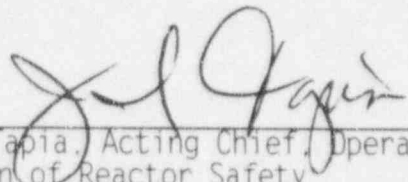
Inspection Conducted: October 23-27, 1995

Inspectors: M. E. Murphy, Operator Licensing Examiner, Operations Branch
Division of Reactor Safety

T. R. Meadows, Operator Licensing Examiner, Operations Branch
Division of Reactor Safety

J. H. Bartley, Operator Licensing Examiner, Operations Branch
Division of Reactor Safety, Region II

Approved:



J. I. Tapia, Acting Chief, Operations Branch
Division of Reactor Safety

11/22/95
Date

Inspection Summary

Areas Inspected: Routine, announced inspection of the licensed operator
requalification program.

Results:

Plant Operations

- Written examinations were well-structured and comprehensive. Nevertheless, minor weaknesses were noted with written examination question construction. Simulator scenarios were adequate test crew performance, but the validation of the scenarios did not identify the existence of multiple success paths which complicated crew performance evaluation (Section 1.1).
- The licensee's post written examination review process was considered good (Section 1.2).

- The post written examination review identified a problem with piping and instrumentation drawing revisions associated with design changes (Section 1.2).
- Differences were noted in crew performance in the areas of command, control, and communications between the shift and staff crews. The shift crew's performance was evaluated as poor and the staff crew's performance was good (Section 1.3).
- One crew and two individuals failed the dynamic simulator examination (Section 1.3).
- The overall performance of the licensee's evaluators was considered a strength (Section 1.3).
- The remedial training program was assessed as effective (Section 1.5).
- The requalification program feedback system was considered to be effective and continues to be a program strength (Section 1.6).
- The licensee effectively addressed several outstanding inspection followup and unresolved items.

Plant Support

- The general housekeeping was good, however, the material condition in the containment, particularly the Hydraulic Power Unit A area, was degraded. Oil leaks and corrosion were observed on some equipment (Section 1.4).

Summary of Inspection Findings:

- Inspection Followup Item 50-416/94-16-01, "Inappropriate Brevity of Walkthrough Examinations," was closed (Section 2.1).
- Inspection Followup Item 50-416/94-16-02, "Failure to Correctly Identify JPM Critical Steps and Alternate Path JPMs," was closed (Section 2.2).
- Inspection Followup Item 50-416/94-16-03, "Failure to Control the Overlap Between Sections of the Operating Examination," was closed (Section 2.3).
- Inspection Followup Item 50-416/94-16-04, "Failure to Train and Evaluate Operators as They Operate," was closed (Section 2.4).
- Violation 50-416/94-16-05, "Failure to Prevent Compromise of Examinations," was closed (Section 2.5).

- Inspection Followup Item 50-416/94-16-06, "Failure to Appropriately Proceduralize Activities Related to the Licensed Operator Requalification Program," was closed (Section 2.6).
- Unresolved Item 50-416/94-16-07, "Apparent Failure of Licensee to Ensure Operators Properly Reactivate Licenses," was closed (Section 2.7).
- Violation 50-416/94-16-08, "Failure of Licensee to Ensure Operators Properly Reactivate Licenses," was closed (Section 2.8).

Attachments:

- Attachment 1 - Persons Contacted and Exit Meeting
- Attachment 2 - Simulation Facility Report

DETAILS

1 LICENSED OPERATOR REQUALIFICATION PROGRAM EVALUATION (IP 71001)

During the inspection, the licensee's requalification program was assessed to determine whether the program incorporated appropriate requirements for both evaluating operator's mastery of training objectives and revising the program in accordance with 10 CFR Part 55. The licensed operator requalification program assessment included a review of training material for the past year, evaluation of the program's controls to assure a systems approach to training, and evaluation of operating crew performance during annual requalification examinations. This included review of the facility documents observation of an operating and staff crew during dynamic simulator scenarios and plant walkthroughs, and an assessment of the examination evaluators' effectiveness in conducting examinations.

1.1 Examination Preparation

This portion of the inspection was conducted to determine the effectiveness of the methodology used to develop and construct the requalification examinations and to assess the effectiveness of the examinations to identify retraining needs and measure the examinee's subject knowledge. The examination sampling plan was also reviewed, and training personnel interviewed to ascertain the methods used in developing the examination. The inspectors also determined the validity of the examinations to provide a basis for evaluating the examinee's knowledge of abnormal and emergency operating procedures.

The written examination questions tested at the appropriate level of comprehension and were linked to important learning objectives. The questions were operationally oriented and realistic. The requisite number of questions were taken from subjects not in the current training period. The written examinations were well structured and comprehensive; however, minor weaknesses with question construction were noted with some of the questions. The problems related to the credibility of answer distractors and with the plausibility of more than one correct answer. These observations were minor and did not impact the adequacy of the questions. The licensee concurred with the observations.

The inspectors reviewed the licensee's simulator scenarios and job performance measures used in the examination observed. The inspectors also reviewed the licensee's administrative procedures for developing, administering, grading, and evaluating the examinations and conducted interviews with training management, instructors, evaluators, and examinees. The licensee's training staff indicated that the guidelines of NUREG-1021, "Operator Licensing Examiner Standards," were utilized for the development and administration of the licensed operator requalification examination.

The job performance measures were in accordance with the guidance of NUREG-1021 and contained performance standards that were clear, objective, and relevant. The job performance measures contained clear and well defined

critical task acceptance criteria for measuring the examinee's performance. The job performance measures adequately supported topic areas from the licensed operator requalification program 2-year training plan. However, some job performance measures were simplistic and had little discriminatory value. Again, these observations were minor and did not impact the adequacy of the overall walkthrough test.

The scenarios were also developed using the guidance of NUREG-1021 and contained clearly stated objectives. The initial conditions of the scenarios were realistic and the scenarios consisted of related events. The scenarios had been previously validated by the training staff and allowed the evaluators to measure the examinees' competencies commensurate with the scenario objectives. The inspectors further verified that the scenarios had not been used for training during the requalification cycle.

The inspectors observed that some of the scenarios had multiple success path endpoints. This made the scenarios less than discriminating by allowing the actions, or inaction, of the crew to direct the outcome of the scenarios. Multiple endpoint scenarios necessitated the need to create new critical tasks due to events and actions that were not anticipated during scenario validation. The inspectors observed that this happened during both of the operating crew scenarios. Although the scenarios were adequate to accurately test the crew performance, the evaluators, at times did not anticipate the actions of the crews during the examination. A lengthy post-scenario critique and revalidation of critical tasks was necessary to accurately determine the crew's performance. The inspectors felt that a more careful validation of the licensee's scenarios may be necessary to avoid multiple endpoints. The licensee acknowledged this observation.

1.2 Written Examinations

The inspectors observed the licensee administer the Part-A simulator examination and the Part-B classroom examination to two crews in parallel. The crews were kept in controlled security areas and the examinations were adequately proctored. The overall examination security was good. The inspectors determined that the licensee's written examination process was conducted in accordance with the guidelines of NUREG-1021. All of the individuals passed the written examinations.

The inspectors also observed the licensee's post-examination review process. Before the examination grading was finalized, the evaluators revalidated questions that were missed by several individuals to determine if deficiencies had been over-looked in the initial validation and review. There were two part-B examination where questions were missed because of faulty references. The inspectors observed that this post-examination process insured the validity of the final examinations and also aided the licensee in detecting faulty or contrary procedures and references.

One faulty reference was identified during the review. It was found that feedwater piping and instrumentation drawings contained two prints of the same system with contradicting information. Specifically, one print indicated that the main feedwater bypass valve would fail open on a loss-of-instrument air, while the other print indicated that it would fail closed. The system was redesigned in 1993 for these valves to fail closed on a loss-of-control air. Some of the operators selected the erroneous print and missed the question. The inspectors expressed concern that the licensee's document controls were not adequately eliminating out of date and duplicate piping and instrumentation drawings. The inspectors also expressed concerns that operators were not receiving adequate training on how to determine the latest system design from temporary duplicate prints resulting from a plant modification. Further, the inspectors expressed concern regarding this issue's impact in other areas such as engineering and maintenance. The licensee acknowledged these concerns and agreed to improve operator training on how to read design changes, reemphasize their ongoing document control improvement program, and replace old duplicate prints with one final updated one. The licensee also agreed to look into the impact this issue had on other plant departments. The licensee's corrective actions will be followed up by the NRC resident inspectors.

1.3 Dynamic Simulator Examinations

The inspectors observed one operating crew and one staff crew on two scenarios each, over a 2-day period, using the plant-specific simulation facility. The inspectors observed the licensee's training department evaluators in their function of assessing the crews' competency.

The operating crew failed a critical task in the first scenario by failing to properly implement the reactor pressure vessel flooding leg of the emergency procedures prior to transitioning to the containment flooding leg of the procedures. The crew failed to initiate the low head/high flow low pressure core spray system, which was available. This action could have mitigated the event, eliminating the need to transition to containment flooding. Two individuals also failed. The evaluators also rated this crew's competencies in communication and crew operations as particularly poor. The crew was removed from shift duties, received remedial training and was successfully retested the week following this inspection.

The staff crew and all individuals performed satisfactorily on the dynamic simulator examinations. These examinees demonstrated good communication practices and were knowledgeable and proficient in the use of emergency operating procedures.

The inspectors agreed with the above simulator evaluations. The licensee evaluators rated the examinees' competency by comparing actual performance during the scenarios against expected performance in accordance with NUREG-1021. The post-examination critiques by the evaluators were effective in identifying strengths and weaknesses of the individuals and crews and were consistent with the performance observed by the inspectors. The inspectors

observed that the evaluators used a systematic approach in assessing the examinees' competencies. The evaluators were thorough in their assessments of examinees' performances and their comments were of sufficient detail to assist in future training. Evaluators were assigned duties such that they were not involved in training the crew being evaluated. The examinees were briefed and sequestered at times appropriate for examination security. The inspectors assessed the overall performance of the licensee's evaluators as a strength.

1.4 Walkthrough Examinations

The inspectors observed the licensee evaluators and the requalification examinees during conduct of system-oriented job performance measures related to job tasks within the scope of their potential duties. This included nonlicensed equipment operator tasks outside the control room and the performance of some tasks in the simulator in the dynamic mode.

Communications between the examinees and the evaluators were observed to be good, as were the communications practiced by the observed on-shift operating crew. The inspectors noted that the facility evaluators thoroughly reviewed the results of the individual walkthroughs and that none of the examinees failed the job performance measure portion of the examination.

During the walkthroughs, the inspectors observed housekeeping and the appearance of the plant was generally good with one exception. The inspectors noted that the material condition of the containment was degraded. There were some areas where paint was peeling off the walls and worn away in other areas of high traffic. The inspectors observed general corrosion attacking both control rod drive hydraulic control unit banks, primarily on the metal supporting structures.

The inspectors also observed oil accumulation covering the berm under the hydraulic power unit for the "A" recirculation flow control valve. The inspectors determined that there was a potential for some of this oil to eventually fall into the suppression pool and informed the licensee. The licensee immediately took actions to clean up the oil and inspect the affected hydraulic power unit.

The licensee acknowledged that the material condition of the containment and previous maintenance practices on their hydraulic power units were less than their expectations.

1.5 Remediation

The remedial training program was effective. The licensee utilized a two-tier program for remediation. The lower tier involved a performance enhancement action and did not involve a performance failure or removal from licensed duties. It was used extensively in situations where a licensed operator's or crew's performance did not meet the expectations of the training department and/or operations management. These actions could be issued by the program review board, which was comprised of management representatives from training

and operations. Performance enhancement actions could involve practice examinations and re-examinations. The inspectors reviewed several performance actions and found them appropriate for performance weaknesses identified. Examinees had achieved scores of 90 percent or higher on most reexaminations. Interviews with both instructors and licensed operators disclosed a consensus that the performance enhancement actions were effective in remediating performance weaknesses.

Unsatisfactory performance in the requalification training program resulted in assignment by the classroom training supervisor of formal remediation training to the individuals or operating team demonstrating unsatisfactory performance and was the higher tier of the remediation training program. The program review board determined the eligibility of an individual or operating team demonstrating unsatisfactory performance to continue licensed duties. The program review board also evaluated any individual or operating team demonstrating unsatisfactory performance on any assigned remedial training program. The inspectors noted that individuals had to pass a full re-examination in the area of failure before returning to shift assignments.

1.6 Feedback System

The inspectors reviewed the licensee's process for obtaining and incorporating employee feedback, local and industry events and training evaluations into the requalification program. The inspectors determined that multiple methods of feedback to the training program existed and these systems appeared to be effective in adjusting the program to meet the needs of the licensed operators.

The methods of feedback identified by training management and confirmed as effective by licensed operator interviews were personal contact between training personnel and operators, training critique sheets, a comment book maintained in the simulator for operator comments, strength and weakness forms, management observations, and the licensing departments information on industry and inplant events. The licensee has a training review group composed of the operations manager, operations superintendent, and selected senior reactor operators and shift technical advisors that meet periodically to assess all feedback information, consider appropriate responses and assign action as required.

The inspectors reviewed incident reports and licensee event reports of plant occurrences during the past year. This review was to determine those evolutions that were attributable to operator error and could result in the need for specific or generic training. Of the 11 items reviewed, only one was attributable to operator error. This event was the isolation of the reactor core isolation cooling system due to a high steam flow signal that occurred when the system was being restored to standby status following system

maintenance. The operators failed to follow the governing procedure, resulting in the out of sequence operation of the steam isolation valves. This was not considered a generic training weakness, and the corrective action covered only re-instructing the operators in management's expectations regarding procedural compliance and what is expected if procedural compliance cannot be maintained.

The inspectors concluded that the requalification program feedback system was very effective and continued to be considered a program strength.

1.7 Licensed Operator License Conformance

The inspectors reviewed the licensee's records for tracking licensed operator's qualifications and status. This included Procedure 01-S-06-2, "Conduct of Operations," license reactivation records, medical records and security logs for protected and vital area access. The inspectors verified that the records for two selected individuals supported the current active status of their operator license. The inspectors also verified that the licensee maintained an appropriate program for deactivating and reactivating operator licenses. The inspectors concluded that the licensee's program met the requirements of 10 CFR 55.53(e)(f)(i).

1.8 Simulator Fidelity

Operations and training personnel interviewed during the inspection expressed satisfaction with simulator performance and stated that simulator capabilities had supported performance of desired training. The inspectors observed no simulator fidelity problems during the examinations.

2 FOLLOWUP ON CORRECTIVE ACTIONS TO PREVIOUS INSPECTION FINDINGS (92701)

2.1 (CLOSED) Inspection Followup Item 50-416/94-16-01, Inappropriate Brevity of Walkthrough Examinations

This followup item identified that the licensee's walkthrough examinations were about one quarter the duration of the guidance in NUREG 1021, "Examiner Standards," which the licensee's procedures stated they would follow. The typical operator spent about 24 minutes performing job performance measures while the examiner standards state the walkthrough examination should be planned to last approximately 120 minutes.

The licensee's corrective action consisted of adding instructions to Procedure 14-S-02-17, "Administration of Annual Exam," Revision 0, which specified that the sum of validated times should be greater than 1 hour and provided direction for updating validation times based on examination performance to ensure accurate planning times. The inspectors reviewed the planned job performance measure sets and actual performance times for examination weeks three and four of this requalification cycle to verify that

the corrective actions were implemented and adequate. The inspectors found that the job performance measure sets were designed to take 80 to 90 minutes while actual performance times averaged 82 minutes. The inspectors concluded the licensee's corrective action was adequate.

2.2 (CLOSED) Inspection Followup Item 50-416/94-16-02, Failure to Correctly Identify Job Performance Measure Critical Steps and Alternate Path Job Performance Measures

This followup item identified that the licensee continued to have deficiencies in identifying job performance measure critical steps and developing alternate path job performance measures. This issue was also identified in Examination Report 50-416/93-300.

The licensee's corrective action consisted of adding: (1) instructions to Procedure 14-S-02-17, "Administration of Annual Exam," Revision 0, which required verifying job performance measures selected for examinations against a quality checklist; (2) a paragraph in Procedure 14-S-02-18, "Job Performance Measure Preparer's Guide," Revision 0, clarifying requirements for critical steps; (3) a section in Procedure 14-S-02-18 providing criteria for alternate path job performance measures. The inspectors reviewed approximately 10 percent of the licensee's job performance measure bank for critical task identification and found no discrepancies. The inspectors also reviewed the licensee's alternate path job performance measures and determined that they met the criteria identified in the licensee's procedure. The inspectors concluded the licensee's corrective action was adequate.

2.3 (CLOSED) Inspection Followup Item 50-416/94-16-03, Failure to Control the Overlap Between Sections of the Operating Examination

This followup item identified that in some instances the licensee's examinations tested the same operator actions on both the walkthrough and simulator portions of the operating test. This practice limited the comprehensive sampling of specified items.

The licensee's corrective action consisted of adding a requirement to Procedure 14-S-02-17, "Administration of Annual Exam," Revision 0, which required that all sections of the examination be reviewed to ensure that there was no overlap. The inspectors reviewed the job performance measures and scenarios used for examination weeks three and four of this requalification cycle and determined that there was no overlap in coverage of testing items. The inspectors concluded the licensee's corrective action was adequate.

2.4 (CLOSED) Inspection Followup Item 50-416/94-16-04, Failure to Train and Evaluate Operators as They Operate

This followup item identified that: (1) two of the licensee's shift crews were staffed with two reactor operators yet the two crews were trained and evaluated with three reactor operators; and, (2) operators were not being trained and evaluated to the standards expected by operations during simulator job performance measure evaluations.

During this inspection, the inspectors determined that for the first example, the licensee added a paragraph to Procedure 14-S-02-3, "Licensed Operator Requalification Program Implementation," Revision 101, which specified that crews will be trained and tested with the same complement as they operate. For the second example, the licensee added a paragraph to the job performance measure briefing checklist specifying the licensee's expectations for procedural usage during emergency situations. The inspectors reviewed records associated with training and evaluations for the past year and observed the administration of the operating tests. The inspectors determined that the licensee trained all crews in reduced manning scenarios and specifically trained and evaluated the two crews normally manned with two reactor operators in their normal manning configuration. The inspectors did not identify any inconsistencies with procedural usage during the performance of the walkthrough portion of the operating test. The inspectors concluded the licensee's corrective action was adequate.

2.5 (CLOSED) Violation 50-416/94-16-05, Failure to Prevent Compromise of Examinations

This violation identified that the licensee compromised the integrity of the walkthrough examinations by using three senior reactor operators to validate selected inplant job performance measures for the examinations.

The licensee's corrective action consisted of changes to Procedure 01-S-04-2, "Licensed Operator Requalification Training," Revision 10, and 14-S-02-17, "Administration of Annual Exam", Revision 0, which specified examination security requirements for developing and administering annual examinations. The inspectors reviewed documentation relating to examination security, development, and validation. The inspectors also interviewed licensee personnel involved in developing and validating the examinations to determine the effectiveness of the corrective action. The inspectors found that the licensee's corrective actions were adequate and effective in maintaining examination integrity during the development process.

2.6 (CLOSED) Inspection Followup Item 50-416/94-16-06, Failure to Appropriately Proceduralize Activities Related to the Licensed Operator Regualification Program

This followup item identified that the detailed implementing procedures for the development and administration of examinations were not adequately controlled or reviewed and in one case did not contain adequate guidance to ensure examination security was maintained.

The licensee's corrective action included formally issuing as controlled procedures the procedures governing the development and administration of the requalification program testing materials and administration. The licensee also modified their examination security practices to include using security agreements as soon as examination development starts. The inspectors reviewed the newly issued procedures and compared them to the previously uncontrolled guidelines. The inspectors also reviewed the specific instructions for maintaining examination security and compared this to the actual process used for the current requalification examinations. The inspectors did not identify any deficiencies related to the procedures governing the requalification examinations nor the licensee's process for maintaining examination security during the development process. The inspectors concluded the licensee's corrective action was adequate.

2.7 (CLOSED) Unresolved Item 50-416/94-16-07, Apparent Failure of Licensee to Ensure Operators Properly Reactivate Licenses

This unresolved item identified that four senior reactor operators, with full-scope licenses, reactivated their licenses for refueling only by standing 8 hours of parallel watch instead of 40 hours. The inspectors interpreted 10 CFR 55.53(f) to mean that the 8-hour reactivation applied only to senior reactor operators with licenses limited by the NRC to refueling only. The licensee did not believe this was a violation because they instituted the 8 hours for fuel handling reactivation based on a question and answer from NUREG-1262, "Answers to Questions at Public Meetings Regarding Implementation of Title 10, Code of Federal Regulations, Part 55 on Operators' Licenses," dated November 12, 1987. This unresolved item was opened pending resolution of the issue by the Office of Nuclear Reactor Regulation, Operator Licensing Branch.

During followup discussions between the Office of Nuclear Reactor Regulation, Operator Licensing Branch and Region II personnel, the NRC determined that the practice of reactivating full-scope senior reactor operator licenses with 8 hours of parallel watch limited to refueling only met the requirements of 10 CFR 55.53(f) and no violation existed.

2.8 (CLOSED) Violation 50-416/94-16-08, Failure of Licensee to Ensure Operators Properly Reactivate Licenses

This violation identified two instances where operator licenses were reactivated without performing a complete plant tour as required by 10 CFR 55.53.

The licensee's corrective actions included a review of records for all individuals reactivating licenses within the last 4 years and changing Procedure 01-S-06-2, "Conduct Of Operations," to specify the requirements for performing a complete plant tour as required by 10 CFR 55.53. The inspectors reviewed the records of two licensed operators who reactivated their licenses in September 1995 to verify the licensee's corrective actions were adequate. The inspectors did not identify any deficiencies associated with the records reviewed and determined that the changes to Procedure 01-S-06-2 provided adequate guidance for conducting plant tours. The inspectors concluded the licensee's corrective action was adequate.

ATTACHMENT 1

PERSONS CONTACTED AND EXIT MEETING

1 PERSONS CONTACTED

1.1 Licensee Personnel

- *C. Bottemiller, Superintendent, Nuclear Safety & Regulatory Affairs
- B. Brice, Licensing Specialist
- B. Bryant, Supervisor, Operations Training
- E. Cresap, Supervisor, Training
- *L. Daughtery, Technical Coordinator, Nuclear Safety & Regulatory Affairs
- *M. Dietrich, Manager, Nuclear Training
- *J. Dimmette, Jr., Manager, Operations
- *C. Ellsaesser, Technical Coordinator, Operations
- *H. Farris, General Manager Technical Assistant
- *C. Hayes, Director, Quality
- C. Holifield, Licensing Engineer
- B. Jones, Operations Specialist
- M. Meisner, Director, Nuclear Safety & Regulatory Affairs
- *J. Owens, Licensing Specialist
- *D. Pace, General Manager
- *M. Shelly, Technical Coordinator, Training

1.2 NRC Personnel

- *C. Hughey, Resident Inspector

In addition to the personnel listed above, the inspectors contacted other personnel during this inspection period.

*Denotes personnel that attended the exit meeting.

2 EXIT MEETING

An exit meeting was conducted on October 27, 1995. During this meeting, the inspectors reviewed the scope and findings of the inspection. The licensee acknowledged the inspection findings as they were presented. The licensee did not identify as proprietary any information provided to, or reviewed by, the inspectors.

ATTACHMENT 2

SIMULATION FACILITY REPORT

Inspection Report: 50-416/95-17

Facility Licensee: Entergy Operations, Inc.

Facility Name: Grand Gulf Nuclear Station

Facility Docket: 50-416

Requalification Operating Tests Administered: October 26-27, 1995

This form is to be used only to report observations. These observations do not constitute audit or inspection findings and are not, without further verification and review, indicative of noncompliance with 10 CFR 55.45(b). These observations do not affect NRC certification or approval of the simulation facility other than to provide information that may be used in future evaluations. No licensee action is required in response to these observations.

RESULTS:

No simulator fidelity problems were observed during the examinations.