



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION IV  
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April 20, 2004

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**SUBJECT: GRAND GULF NUCLEAR STATION - NRC INTEGRATED INSPECTION  
REPORT 05000416/2004002**

Dear Mr. Williams:

On March 27, 2004, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Grand Gulf Nuclear Station. The enclosed integrated inspection report documents the inspection findings, which were discussed on April 1, 2004, with you and other members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

The report documents one NRC-identified finding and three self-revealing findings of very low safety significance (Green). All of these findings were determined to involve violations of NRC requirements. However, because of the very low safety significance and because they are entered in your corrective action program, the NRC is treating these four findings as noncited violations (NCVs) consistent with Section VI.A of the NRC Enforcement Policy. If you contest these noncited violations, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator Region IV; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-001; and the NRC Resident Inspector at the Grand Gulf Nuclear Station.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be made 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).

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

Sincerely,

**/RA/**

William D. Johnson, Chief  
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Docket: 50-416  
License: NPF-29

Enclosure:  
Inspection Report 050000416/2004002  
w/Attachment: Supplemental Information

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**U.S. NUCLEAR REGULATORY COMMISSION**

**REGION IV**

Docket: 50-416

License: NPF-29

Report: 05000416/2004002

Licensee: Entergy Operations, Inc.

Facility: Grand Gulf Nuclear Station (GGNS)

Location: Waterloo Road  
Port Gibson, Mississippi 39150

Dates: January 1 through March 27, 2004

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Attachment: Supplemental Information

Enclosure

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## SUMMARY OF FINDINGS

IR 05000416/2004002; 1/1/04 - 3/27/04; Grand Gulf Nuclear Station; Fire Protection, Operability Evaluations, and Problem Identification and Resolution.

The report covered a 13-week period of inspection by resident inspectors and announced inspections by a senior licensing examiner, two senior engineering inspectors, and a health physics inspector. Four Green noncited violations (NCVs) were identified. The significance of most findings is indicated by their color (Green, White, Yellow, or Red) using Inspection Manual Chapter 0609 "Significance Determination Process." Findings for which the Significance Determination Process does not apply may be Green or be assigned a severity level after NRC management review. 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.

### A. NRC-Identified and Self-Revealing Findings

#### Cornerstone: Initiating Events

- Green. The inspectors identified a noncited violation of Technical Specification 5.4.1.a for failure of Grand Gulf Nuclear Station maintenance operators to comply with a protective tagging procedure while performing work on the reactor water cleanup system. This failure resulted in a leak of reactor coolant requiring an unplanned isolation and shutdown of the reactor water cleanup system.

This finding is greater than minor because it affected the human performance attribute of the Initiating Event Cornerstone and affected the cornerstone objective of limiting events that challenge plant stability. The finding was of very low safety significance because it did not increase the likelihood of a loss-of-coolant accident initiator, did not increase the likelihood of both a reactor trip and unavailability of mitigation equipment, and did not increase the likelihood of a fire or flooding event (Section 4OA2).

#### Cornerstone: Mitigating Systems

- Green. The inspectors identified a noncited violation of Technical Specification 5.4.1.a for failure to have an adequate electrical system bus outage procedure which resulted in rendering one of two required decay heat removal systems inoperable.

This finding was greater than minor because it affected the configuration control attribute of the Mitigating System Cornerstone and affected the cornerstone objective of equipment availability. The finding was of very low safety significance because it did not represent an actual loss of a heat removal systems safety function, did not represent an actual loss of a single train for greater than its allowed Technical Specification outage time, and was not potentially risk significant due to an initiating event (Section 1R15).



- Green. The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," for storage of equipment in the containment building in excess of the floor grating capacity contrary to Grand Gulf Nuclear Station engineering instructions.

This finding was similar to Manual Chapter 0612, Appendix E, Example 4(a). The finding was greater than minor because it adversely affected the containment floor grating. The licensee's civil engineering staff had to re-perform containment structure loading calculations to determine if the subject steel grating could have supported the machine under all loading conditions including accident conditions. The finding was of very low safety significance because although the specified grating load rating was exceeded, the new analysis demonstrated that the maximum stresses under accident conditions were below ultimate stress values and the grating would have been capable of supporting the machine under accident conditions (Section 1R05).

- Green. The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for failure to correct areas of known localized corrosion prior to the formation of a through wall leak in the submerged piping of the standby service water system.

This finding was greater than minor because it affected the equipment performance attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events. The finding was of very low safety significance because it did not represent an actual loss of the ultimate heat sink safety function, did not represent an actual loss of a single train for greater than its allowed Technical Specification outage time, and was not potentially risk significant due to an initiating event as described in the SDP Phase 1 screening worksheet for mitigation systems (Section 4OA2).

B. Licensee-Identified Violations

None.

## REPORT DETAILS

### Summary of Plant Status

Grand Gulf Nuclear Station (GGNS) began the period at full rated thermal power and operated at full power until February 15, 2004, when they began coasting down in power before shutting down on February 22, 2004, for scheduled Refueling Outage 13. The reactor plant was restarted on March 22, 2004, and returned to full power on March 25, 2004.

#### 1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

#### 1R01 Adverse Weather Protection (71111.01)

##### a. Inspection Scope

Prior to the onset of cold weather conditions on January 6, 2004, the inspectors reviewed GGNS readiness to operate under freezing conditions. The inspectors reviewed Equipment Performance Instruction 04-1-03-A30-1, "Cold Weather Protection," Revision 15, and performed site walkdowns to verify the licensee had made the required preparations for cold weather. The inspection also included a detailed review of the standby service water system, the emergency diesel generators, and portions of the condensate system to ensure they were protected from freezing temperatures.

Since severe thunderstorms with a potential for tornadoes were forecast for February 5, 2004, the inspectors reviewed the site preparations for severe weather. The inspectors reviewed Off-Normal Event Procedure 05-1-02-VI-2, "Hurricanes, Tornadoes, and Severe Weather," Revision 105, and performed walkdowns of portions of the standby service water system, condensate system, and switchyard. The inspectors also toured the plant grounds for loose debris, which could become missiles during a tornado, and ascertained if operators could access controls and indications for those systems required for safe control of the plant.

##### b. Findings

No findings of significance were identified.

#### 1R04 Equipment Alignments (71111.04)

##### a. Inspection Scope

Partial System Walkdowns. The inspectors performed three partial system walkdowns of systems important to reactor safety during this inspection period in order to verify the operability of the system trains. The inspectors reviewed system operating instructions, required system valve and breaker lineups, operator logs, control room indications,

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valve positions, breaker positions, and control circuit indications to verify these components were in their required configuration for operability. The following walkdown inspections were conducted:

- On February 3, 2004, an inspector walked down the standby service water system Train B while Train A and the Division I emergency diesel generator were out of service for maintenance.
- On February 9, 2004, an inspector walked down the reactor core isolation cooling system while the high pressure core spray system was out of service for maintenance.
- On February 18, 2004, an inspector walked down the Division I emergency diesel generator while the Division II emergency diesel generator was out of service for maintenance.

Complete System Walkdown. The inspectors conducted a detailed review of the alignment and condition of the alternate decay heat removal system during shutdown cooling operations to determine if there were any discrepancies between the actual equipment alignment versus what was procedurally required. During the walkdown, System Operating Instruction 04-1-01-E12-2, "Shutdown Cooling and Alternate Decay Heat Removal Operation," Revision 101, was used by the inspectors to verify major system components were correctly labeled and aligned. The inspectors also reviewed open condition reports on the system for any deficiencies that could affect the ability of the system to perform its design function. Documentation associated with control room deficiencies, temporary modifications, operator workarounds, and items tracked by plant engineering were also reviewed to assess their collective impact on system operation.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

a. Inspection Scope

Quarterly Tours. The inspectors reviewed area fire plans and performed walkdowns of seven plant areas to assess the material condition and operational status of fire detection and suppression systems and equipment, the material condition of fire barriers, and the control of transient combustibles. As part of the inspection, the inspectors reviewed the licensee's fire prevention Procedure 10-S-03-4, "Control of Combustible Material," Revision 13, to ascertain the requirements for the required fire protection design features. Specific risk-significant plant areas included:

- Elevation 208' Reactor Containment Building 1A601
- Division I Residual Heat Removal Room 1A103

- Division II Switchgear Room 1A207
- Division I Emergency Diesel Generator Room 1D310
- Alternate Decay Heat Removal Room 1A116
- Division I Switchgear Room OC202
- Division I Battery Room OC207

b. Findings

Introduction. The inspectors identified a finding of very low safety significance involving a noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings." Specifically, the inspectors identified that the storage location of a containment building hydrolazer machine was not in accordance with the engineering instructions contained in GGNS engineering document ER-GG-2000-0798-000, Revision 0.

Description. On January 14, 2004, the inspectors identified a hydrolazer machine (industrial pressure washer) weighing approximately 3700 pounds not in its required long term storage position. The machine was located on a steel deck grating on the 208' level of the containment building and not on the adjacent concrete flooring as required by ER-GG-2000-0798-000, Revision 0. ER-GG-2000-0798-000, Revision 0, Section 3.1.7, required the machine to be stored on the sides of the reactor head carousel or drywell head strongback areas in order to withstand live loading. The weight of the hydrolazer machine exceeded the grating load rating of 200 pounds per square foot as prescribed on safety-related Drawing C-0360. In response to the inspectors' concern, the machine was moved to its required storage position and the licensee initiated Condition Report CR-GGNS-2004-0031.

Analysis. The inspectors determined that this condition affected the mitigating systems cornerstone objective to limit the consequences of a seismic event. The inspectors determined this finding to be similar to Manual Chapter 0612, Appendix E, Example 4(a). The finding was greater than minor because it adversely affected the containment floor grating yield stress design margin. The licensee's civil engineering staff had to re-perform containment structure loading calculations to determine if the subject steel grating could have supported the machine under all loading conditions including accident conditions. The finding was of very low safety significance because although GGNS Drawing C-0360 grating load rating was exceeded, the new analysis demonstrated that the maximum stresses under accident conditions were below ultimate stress values and the grating would have been capable of supporting the machine under accident conditions.

This finding had cross-cutting issues associated with human performance. The failure of the licensee to comply with the engineering document instructions directly contributed to the finding.

Enforcement

10 CFR Part 50, Appendix B, Criterion V, states, in part, that activities affecting quality shall be prescribed by appropriate instructions, procedures, and drawings and shall be accomplished in accordance with those instructions, procedures, or drawings. On January 14, 2004, the licensee did not store the hydrolazer machine in accordance with the location specified by GGNS engineering document ER-GG-2000-0798-000, Revision 0. Because this failure to implement design instructions was of very low safety significance and has been entered into the licensee's corrective action program as Condition Report CR-GGN-2004-0031, this violation is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000416/2004002-01, Failure to Store Hydrolazer in Accordance with Design Instructions.

1R07 Heat Sink Performance (71111.07A)

a. Inspection Scope

The inspectors reviewed the documentation associated with the thermal performance testing of engineered safety features room Cooler 1T51B001. Specifically, the inspectors reviewed GGNS Work Order 32504 documentation which controlled the cooler performance tests performed on January 16, 2004. In this inspection effort, the inspectors reviewed the test acceptance criteria, as well as the results of the test to determine acceptability of the cooler to perform its design function.

b. Findings

No findings of significance were identified.

1R08 Inservice Inspection Activities (71111.08)

.1 Performance of Nondestructive Examination (NDE) Activities

a. Inspection Scope

Procedure 71111.08 requires the review of a minimum sample of five NDE activities of at least two or three different types. The inspectors witnessed the performance of three volumetric and six surface examinations and reviewed records of eight volumetric and three surface examinations. This sample of twenty NDE activities of three types is listed in the Attachment.

For each of the NDE activities reviewed, the inspectors verified that the examinations were performed in accordance with American Society of Mechanical Engineers (ASME) Code requirements.

During the review of each examination, the inspectors verified that appropriate nondestructive examination procedures were used, that examinations and conditions were as specified in the procedure, and that test instrumentation or equipment was properly calibrated and within the allowable calibration period. The inspectors also reviewed documentation to verify that indications revealed by the examinations were dispositioned in accordance with the ASME Code specified acceptance standards.

The inspectors verified the certifications of four Level II NDE personnel observed performing examinations or identified during review of completed examination packages.

The inspection procedure requires review of one or two examinations from the previous outage with recordable indications that were accepted for continued service to ensure that the disposition was done in accordance with the ASME Code. There were no recordable indications that required evaluation during the last outage.

If the licensee completed welding on the pressure boundary for Class 1 or 2 systems since the beginning of the previous outage, the procedure requires verification that acceptance and preservice examinations were done in accordance with the ASME Code for one to three welds. The inspectors reviewed records of a Class 2 system weld overlay (Maintenance Action Item 298457) on a pinhole leak in a 90 degree elbow downstream of Residual Heat Removal (RHR) Pump C002A minimum flow bypass isolation valve (E12F018A) repaired since the beginning of the previous outage and verified that the repair and testing were in accordance with ASME Code requirements.

The procedure also requires verification that one or two ASME Code Section XI repairs or replacements meet Code requirements. The inspectors observed welding during a valve (MOV 1E22F004) replacement on the High Pressure Core Spray (HPCS) system (Work Order 50306758) and during the installation of an in-line plug between the Reactor Core Isolation Cooling (RCIC) and the RHR system (Work Order 31969). The inspectors verified that the two replacement activities were in accordance with Section XI requirements.

### Findings

No findings of significance were identified.

## .2 Identification and Resolution of Problems

### a. Inspection Scope

The inspectors reviewed selected Inservice Inspection related condition reports issued during the current and past refueling outages. The review served to verify that the licensee's corrective action process was being correctly utilized to identify conditions adverse to quality and that those conditions were being adequately evaluated, corrected

and trended. As part of this effort, the inspectors evaluated the adequacy of the root cause determinations and technical resolutions. The licensee was found to be evaluating industry operating experience as evidenced by the plan to perform examination of reactor vessel Nozzle N10 to ensure that conditions found at Pilgrim do not exist at GGNS.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification (71111.11)

.1 Quarterly Inspection

a. Inspection Scope

No sample was available for this module during this report period.

b. Findings

No sample was available for this module during this report period.

.2 Biennial Inspection (71111.11B)

a. Inspection Scope

The inspectors evaluated the licensee's sample plan for the written examinations for compliance with 10 CFR 55.59, "Requalification," and NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 8, Supplement 1, as referenced in the facility requalification program procedures. In addition, the inspectors reviewed remedial training for examination failures of five operators for compliance with facility procedures and responsiveness toward addressing the failed areas.

Furthermore, the inspectors interviewed three individuals (two instructor/evaluators and a training supervisor) regarding the policies and practices for administering examinations. In addition, the inspectors observed the administration of three dynamic simulator scenarios to two operating crews by facility evaluators including the operations manager, who participated in the crew and individual evaluations. As a part of these interviews and during the operating examination administration, the inspectors assessed the effectiveness of the examination security process.

The inspectors also reviewed the written and operating examinations and operator performance on those examinations. Examination results were assessed to determine if

they were consistent with the guidance contained in NUREG 1021 and Manual Chapter 0609, Appendix I, "Operator Requalification Human Performance Significance Determination Process."

The review included an assessment of 67 operating examination job performance measures that were used in the biennial requalification cycle to determine if they provided adequate discrimination at the minimum acceptable level of operator performance. Because nearly 20 percent of the 67 job performance measures did not provide an adequate basis to conclude the operator had demonstrated an understanding of the system, the inspectors assessed the overall discriminatory validity of the examinations administered. This 20 percent threshold is used to determine if a Green finding exists and is defined in Appendix I of NRC Manual Chapter 0609, "Operator Requalification Human Performance Significance Determination Process." In addition, since issues had been raised in the past regarding job performance measure adequacy at the facility, the licensee's biennial requalification program guidance on job performance measure development was reviewed. Furthermore, since similar observations were identified throughout the industry in 1995 and became the subject of NRC Information Notice 95-24, "Summary of Licensed Operator Requalification Inspection Program Findings," dated April 25, 1995, the effectiveness of the licensee's incorporation of industry information was reviewed. All of these aspects were assessed to determine if they were consistent with the guidance contained in NUREG 1021 and NRC Manual Chapter 0609, "Significance Determination Process."

Additionally, the inspectors assessed the GGNS simulator for compliance with 10 CFR 55.46 using Baseline Inspection Procedure 71111.11 (Section 03.11). The inspectors assessed the adequacy of the facility licensee's simulation facility for use in operator licensing examinations and for satisfying experience requirements as prescribed in 10 CFR 55.46, "Simulation Facilities."

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation (71111.12)

a. Inspection Scope

The inspectors reviewed performance-based problems involving two selected in-scope structures, systems, or components (SSCs) to assess the effectiveness of the Maintenance Rule Program. Reviews focused on: (1) proper Maintenance Rule scoping in accordance with 10 CFR 50.65; (2) characterization of failed SSCs; (3) safety significance classifications; (4) 10 CFR 50.65 (a)(1) and (a)(2) classifications; and, (5) the appropriateness of performance criteria for SSCs classified as (a)(2), and goals and corrective actions for SSCs classified as (a)(1). Also, the inspectors reviewed the system functional failures for the last two years. The following systems were reviewed:



- Leakage Detection System E31
- Instrument Air System P53

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation (71111.13)

a. Inspection Scope

Throughout the inspection period, the inspectors reviewed weekly and daily work schedules to determine when risk-significant activities were scheduled. The inspectors discussed four selected activities with operations and work control personnel regarding risk evaluations and overall plant configuration control. The inspectors discussed emergent work issues with work control center personnel and reviewed the prioritization of scheduled activities. The inspectors verified the performance of plant risk assessments related to planned and emergent maintenance activities as required by 10 CFR 50.65(a)(4) and plant Procedure 01-S-18-6, "Risk Assessment of Maintenance Activities," Revision 1. Specific maintenance work orders (WO) reviewed during this period included:

- WO 36419, Standby Service Water Fan Tower Inspection
- WO 21198, Main Generator Hydrogen Leak Repair
- WO 40648, Valve 1B21F005 maintenance
- WO 37383, Valve 1E51F040 maintenance

b. Findings

No findings of significance were identified.

1R14 Nonroutine Events (71111.14)

a. Inspection Scope

On February 4, 2004, the inspector observed control room personnel performance while responding to an instrument air leak in the Reactor Feed Pump room. Operators took action to isolate the leak and restore air header pressure in accordance with off-normal event Procedure 05-1-02-V-9, "Loss of Instrument Air," Revision 31. The licensee determined the cause of the failure to be a poor quality solder joint from initial construction that failed after being bumped by workers in the area. The inspectors observed site maintenance activities (WO 36688), control of plant risk, and common cause analysis in the repair of the air header, which was completed February 5, 2004.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors selected four operability evaluations performed by the licensee during the report period involving risk-significant SSC. The inspectors evaluated the technical adequacy of the operability determinations, determined whether appropriate compensatory measures were implemented, and determined whether the licensee considered all other pre-existing conditions, as applicable. Additionally, the inspectors evaluated the adequacy of the licensee's problem identification and resolution program as it applied to operability evaluations as specified in Procedure 01-S-06-44, "Operability Assessment," Revision 105. Specific operability evaluations reviewed are listed below.

- CR-GGN-2003-3745, Leading edge flow meter failure
- CR-GGN-2004-0304, Standby service water pump "A" motor oil analysis
- CR-GGN-2004-0331, Recirculation flow control valve lockout failure
- CR-GGN-2004-0651, Loss of available decay heat removal

b. Findings

Introduction. A Green self-revealing NCV was identified for failure to have an adequate electrical system bus outage procedure in accordance with Technical Specification (TS) 5.4.1.a, which resulted in rendering one of two required decay heat removal systems inoperable.

Description. On February 24, 2004, a self-revealing finding was identified when the licensee deliberately de-energized the Division II vital bus 16AB for refueling outage maintenance activities in accordance with System Operating Instruction (SOI) 04-1-01-R21-16, Revision 18, "ESF 16AB Bus Outage." De-energizing the bus removed electrical power from motor operated valves E12-F004C and E12-F064C which are required to be repositioned closed when the Alternate Decay Heat Removal (ADHR) System is placed in service. The licensed operators declared the ADHR system inoperable and entered TS 3.9.9, "Residual Heat Removal with Low Water Level." Licensee operators responded to the event by manually re-positioning the valves in the field in order to restore system operability.

The inspectors determined the cause of the event to be an inadequacy of SOI 04-1-01-R21-16. The SOI did not provide important information regarding the consequences of de-energizing the 16AB bus and the need to supply temporary power to the affected motor operated valves.

Analysis. The deficiency associated with this event is an inadequate procedure, which resulted in an unplanned entry into a one hour limiting condition of operation (LCO) and rendering 1 of 2 required decay heat removal systems inoperable while shutdown. The inspectors determined the finding to be greater than minor because it affected the configuration control attribute of the Mitigating System cornerstone and affected the cornerstone objective of equipment availability. The finding was of very low safety significance because it did not represent an actual loss of a DHR safety function, did not represent an actual loss of a single train for greater than its allowed TS outage time, and was not potentially risk significant due to an initiating event as described in the SDP phase 1 screening worksheet.

Enforcement. TS 5.4.1.a requires written procedures be established, implemented, and maintained covering the activities specified in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Regulatory Guide 1.33, Appendix A, Item 4.w.(1)(b), requires procedures be maintained for operation of electrical AC systems. Procedure SOI 04-1-01-R21-16 was not properly maintained resulting in rendering 1 of 2 required decay heat removal systems inoperable while shutdown. Because this failure to maintain an adequate system operating instruction is of very low safety significance and has been entered into the licensee's corrective action program as condition report CR-GGN-2004-0651, this violation is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000416/2004002-02, Failure to Maintain Adequate System Operating Instruction to Prevent Rendering a Required Decay Heat Removal System Inoperable.

1R16 Operator Workarounds (71111.16)

a. Inspection Scope

The inspectors evaluated one sample of an operator burden associated with operation of the condensate and feedwater system pre-coat filter system as identified in CR-GGN-2004-0497. The pre-coat filter inlet and outlet valves often require mechanical maintenance in order to operate them to place the filters in service. The inspector evaluated the manual operation for effects related to the following attributes: (1) the reliability, availability, and potential to mis-operate the system; (2) the ability of the operators to respond in a correct and timely manner to operate the subject valves; and (3) the potential for affecting supporting SSCs. Also, the inspectors reviewed associated open condition reports in the corrective action program to verify the condition is identified and evaluated.

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications (71111.17A)

a. Inspection Scope

The inspectors selected a permanent plant component modification completed on residual heat removal heat exchanger outlet valve 1E12-F003B. The modification changed the flow throttling characteristic of the valve by modifying the valve internals in accordance with design change package ER-2002-0467, RHR Modification to Support Refueling Practices, Revision 0. The inspectors verified that: (1) the design bases, licensing bases, and performance capability of the component would not be degraded as a result of the modification; (2) the modification did not place the reactor plant in any unsafe conditions; and, (3) adequate post-installation testing was performed to verify the modification functioned as expected.

b. Findings

No findings of significance were identified.

1R19 Postmaintenance Testing (71111.19)

a. Inspection Scope

The inspectors reviewed postmaintenance test procedures and associated testing activities for five selected risk-significant mitigating systems. In each case, the associated work orders and test procedures were reviewed against the attributes in Inspection Procedure 71111.19 to determine the scope of the maintenance activity and determine if the testing was adequate to verify equipment operability. The reviewed activities were:

- WO 3691401, 1P41C003B fan blade replacement functional test
- WO 50336985, Average Power Range Meter recirculation flow transmitter calibration
- WO 50337145, Reactor Water Cleanup high differential flow calibration
- WO 27579, Control Rod Drive Mechanism venting and time testing
- WO 50314553, Valve 1B33F067A leak test

b. Findings

No findings of significance were identified.

1R20 Refueling and Other Outage Activities (71111.20)

a. Inspection Scope

The inspectors observed licensee refueling outage planning and execution activities. The inspectors' review included scheduling, training, outage configuration management, decay heat removal operation and management, reactivity controls, inventory controls, tag out and clearance activities, foreign material exclusion management, and fuel movement and storage. Specific activities observed included:

- Reactor plant shutdown and cooldown operations
- Operation of the alternate decay heat removal system
- Spent fuel pool cooling operations during low water level conditions
- Equipment tagout clearance activities
- Refueling floor operations including reactor internal disassembly
- Reactor water inventory controls during containment upper pool drain down
- Drywell closeout inspections and containment integrity
- Reactor plant heatup and Mode 3 operations
- Reactor start up and Mode 2 operations
- Reactor power ascension and Mode 1 operations
- Turbine synchronization to the grid

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors observed performance of surveillance test procedures and reviewed test data of five selected risk-significant SSCs to assess whether the SSCs satisfied the TS, the Updated Final Safety Analysis Report, the Technical Requirements Manual, and licensee procedural requirements; and to determine if the testing appropriately demonstrated that the SSCs were operationally ready and capable of performing their intended safety functions. The following tests were inspected:

- 06-OP-1C51-V-003, "Average Power Range Meter Functional Test," Revision 111
- 06-OP-1E12-M-002, "Low Pressure Coolant Injection/Residual Heat Removal B Functional Test," Revision 103
- 06-OP-1P75-M-001, "Division I Diesel Generator Functional Test," Revision 122

- 06-OP-1P75-R-0004, "Division II Diesel Generator Loss of Offsite Power Functional Test," Revision 107
- 06-OP-1P75-M-002, "Division II Diesel Generator Functional Test," Revision 119

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

The inspectors reviewed one temporary alteration listed below to assess the following attributes: (1) the adequacy of the safety evaluation; (2) the consistency of the installation with the modification documentation; (3) the updating of drawings and procedures, as applicable; and (4) the adequacy of the post-installation testing.

- Temporary Alteration 2003-03, Drywell equipment drain sump level control logic

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety (OS)

2OS1 Access Control to Radiologically Significant Areas (71121.01)

a. Inspection Scope

This area was inspected to assess the licensee's performance in implementing physical and administrative controls for airborne radioactivity areas, radiation areas, high radiation areas, and worker adherence to these controls. The inspector used the requirements in 10 CFR Part 20 and the licensee's procedures required by technical specifications as criteria for determining compliance. During the inspection, the inspector interviewed the radiation protection manager, radiation protection supervisors, and radiation workers. The inspector performed independent radiation dose rate measurements and reviewed the following items:

- Performance indicator events reported by the licensee in the Occupational Radiation Safety Cornerstone (No events were reported)
- Controls (surveys, posting, and barricades) of up to three radiation, high radiation, and airborne radioactivity areas

- Radiation work permit (RWP), procedure, and engineering controls and air sampler locations
- Conformity of electronic personal dosimeter alarm set points with survey indications and plant policy; workers' knowledge of required actions when their electronic dosimeter noticeably malfunctions or alarms
- Barrier integrity and performance of engineering controls of up to three airborne radioactivity areas (No airborne radioactivity areas were identified)
- Adequacy of the licensee's internal dose assessment for any actual internal exposure greater than 50 mrem CEDE (No internal exposures events greater than 50 millirem were identified)
- Physical and programmatic controls for highly activated or contaminated materials (nonfuel) stored within spent fuel and other storage pools
- Self-assessments, audits, licensee event reports, and special reports related to the access control program since the last inspection (No licensee event reports or special reports were reported)
- Corrective action documents written since the last inspection that were related to access controls
- Licensee actions in cases of repetitive deficiencies or significant individual deficiencies (No repetitive or significant deficiencies were identified)
- Documentation packages for all performance indicator events occurring since the last inspection (No performance indicator events were reported)
- RWP briefings and worker instructions
- Adequacy of radiological controls such as required surveys, radiation protection job coverage, and contamination controls during job performance
- Dosimetry placement in high radiation work areas with significant dose rate gradients
- Changes in licensee procedural controls of high dose rate - high radiation areas and very high radiation areas (No procedural control changes were identified)
- Controls for special areas that have the potential to become very high radiation areas during certain plant operations
- Posting and locking of entrances to all accessible high dose rate - high radiation areas and very high radiation areas

- Radiation worker and radiation protection technician performance with respect radiation protection work requirements

The inspector completed 21 of the required 21 samples.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

a. Inspection Scope

The inspectors sampled licensee submittals for the performance indicators (PIs) listed below for the period from January through December 2003. In order to verify the accuracy of the PI data reported during the period, PI definitions and guidance contained in Nuclear Energy Institute (NEI) 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 2, were used to verify the basis in reporting for each element.

The inspectors reviewed operator log entries, chemistry log entries, daily shift manager reports, plant computer data, condition reports, maintenance action item paperwork, maintenance rule data, and PI data sheets to determine whether the licensee adequately verified the PIs listed below during the previous four quarters. This number was compared to the number reported for the PI during the current quarter. Also, the inspectors interviewed licensee personnel responsible for compiling the information.

Initiating Events Cornerstone

- Unplanned Scrams
- Scrams with Loss of Normal Heat Removal
- Unplanned Power Changes

Barrier Integrity Cornerstone

- Reactor Coolant System Leakage

The health physics inspector sampled licensee submittals for the PIs listed below for the period between March 2003 and February 2004. To verify the accuracy of the PI data reported during that period, PI definitions and guidance contained in NEI 99-02, "Regulatory Assessment Indicator Guideline," Revision 2, were used to verify the basis in reporting for each data element.



Occupational Radiation Safety Cornerstone

- Occupational Exposure Control Effectiveness PI

Licensee records reviewed included corrective action documentation that identified occurrences of locked high radiation areas (as defined in TS 5.7), very high radiation areas (as defined in 10 CFR 20.1003), and unplanned personnel exposures (as defined in NEI 99-02). Additional records reviewed included ALARA records and whole body counts of selected individual exposures. The inspector interviewed licensee personnel that were accountable for collecting and evaluating the PI data. In addition, the inspector toured plant areas to verify that high radiation, locked high radiation, and very high radiation areas were properly controlled.

Public Radiation Safety Cornerstone

- Radiological Effluent Technical Specification/Offsite Dose Calculation Manual  
Radiological Effluent Occurrences

Licensee records reviewed included corrective action documentation that identified occurrences for liquid or gaseous effluent releases that exceeded PI thresholds and those reported to the NRC. The inspector interviewed licensee personnel that were accountable for collecting and evaluating the PI data.

b. Findings

No findings of significance were identified.

4OA2 Problem Identification and Resolution (71152)

1. Annual Sample Review

a. Inspection Scope

The inspectors selected three condition reports for detailed review (2002-2573, 2003-3353, 2004-0318). The condition reports were associated with through-wall corrosion in the standby service water system piping, an unplanned isolation of the reactor water cleanup system during maintenance, and the potential for suppression pool water intrusion into the reactor core isolation cooling system turbine. The inspectors reviewed the issues to ensure that the full extent of the conditions were identified, appropriate evaluations were performed, and appropriate corrective actions were specified and prioritized. The inspectors evaluated the condition reports against the requirements of the licensee's corrective action program as delineated in Administrative Procedure LI-102, "Corrective Action Process," Revision 2, and 10 CFR Part 50, Appendix B.

Section 2OS2 evaluated the effectiveness of the licensee's problem identification and resolution processes regarding exposure tracking, higher than planned exposure levels, and radiation worker practices.

b. Findings and Observations

Inadequate Corrective Action Results in Through-Wall Corrosion of Ultimate Heat Sink Piping

Introduction. A self-revealing Green noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Actions" was identified by the inspectors as a result of extensive pitting and a through wall leak which developed in the submerged piping of the standby service water system (SSW).

Description. On December 5, 2002, the licensee discovered a through wall hole in a SSW system pipe while performing underwater inspections of the division II SSW system basin. The underwater inspections were conducted in response to frequent standby service water surge tank low level alarms that had been occurring since October 2002. The through wall hole occurred despite previous condition reports and evaluations generated by the licensee to document the risk for this occurrence. The inspectors determined that the failure of GGNS to adequately investigate and correct known piping corrosion in the SSW system allowed the piping to degrade beyond ASME code allowable levels. The licensee's apparent cause evaluation in CR-GGN-2003-0037 identified the following missed opportunities which may have prevented this event:

- In April 1999, CR-GGN-1999-0419 was written to document coating deterioration and corrosion concerns identified by divers in the SSW basins.
- In August 2000, additional diving operations by Underwater Construction Corporation identified blisters and some pitting corrosion in the SSW basins. Underwater Construction Corporation estimated the growth rate of the pits as approximately 0.192 inches per year as documented in CR-GGN-2000-1263.
- From 2000 through 2002, station management deferred coating inspections and repairs. After an NRC inspection in April 2002, CR-GGN-2002-0620 was generated to justify the lack of action on the above condition reports. The justification given was that the deterioration did not represent an immediate threat to system piping based on historical corrosion rates, and that coating repairs were scheduled to be made in August 2002, prior to RFO 12. The licensee later deferred the coating repairs until February 2003.

Upon return to power following RFO 12, the through wall leak formed in the B SSW basin. Subsequent investigation revealed nine other areas of significant pitting corrosion in the B basin, five of which resulted in piping areas thinner than the minimum ASME code allowable pipe wall thickness of 0.155 inches.

In response to the through wall leak, the licensee generated CR-GGN-2002-2573, which included a calculation to demonstrate that the SSW system could still perform its safety function as the ultimate heat sink. The licensee then applied a temporary noncode repair (soft patch) to stop the leak in accordance with relief request GG-R&R-002 submitted per the guidance of Generic Letter 90-05, "Guidance for Performing Temporary Non-Code Repair of ASME Code Class 1, 2, or 3 Piping." To confirm that

the SSW piping would not break from the identified pits (including the through wall pit), the licensee developed calculations MC-Q1P41-02018 and NPE-PDS-604 using the guidance and acceptance criteria of ASME Code Case N-513-1, "Evaluation Criteria for Temporary Acceptance of Flaws in Moderate Energy Class 2 or 3 Piping."

Analysis. The inspectors determined this event to be greater than minor because it affected the equipment performance attribute of the Mitigating Systems cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events. The finding was of very low safety significance because it did not represent an actual loss of the ultimate heat sink safety function, did not represent an actual loss of a single train for greater than its allowed Technical Specification outage time, and was not potentially risk significant due to an initiating event as described in the SDP phase 1 screening worksheet for mitigation systems.

Enforcement. Criterion XVI of Appendix B to 10 CFR Part 50 states, in part, that conditions adverse to quality shall be promptly identified and corrected. Contrary to the above, GGNS personnel failed to correct areas of known localized corrosion prior to the formation of a through wall leak in the submerged piping of the SSW system. Since this violation is of very low safety significance and has been entered into the licensee's corrective action program as Condition Report CR-GGN-2002-2573, this violation is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000416/2004002-03, Inadequate Corrective Action Results in Through-Wall Corrosion of Ultimate Heat Sink Piping.

#### Failure to Implement Tagging Procedure Resulting in Shutdown of Reactor Water Cleanup System

Introduction. A self-revealing Green noncited violation of TS 5.4.1.a was identified by the inspectors as a result of the failure of GGNS maintenance operators to comply with the procedure for protective tagging while performing work on the Reactor Water Cleanup (RWCU) System. This failure resulted in a leak of reactor coolant requiring shutdown of the RWCU System.

Description. On November 17, 2003, with the reactor operating at 100% power, GGNS mechanics began planned maintenance on the "B" train of the RWCU System. The planned work called for disassembly of the "B" Cleanup Filter/Demineralizer Backup Isolation Valve, G36-F002B, with a single boundary valve (G36-F001B) providing isolation from the system pressure (in excess of 1000 psi) of the in-service Train A.

When the packing follower on Valve G36-F002B was loosened, the packing was forcefully ejected from the stuffing box and into the mechanic's face shield, followed by a stream of water which reached to a wall approximately six feet away (no personnel contamination or injuries resulted from this event due to the use of protective equipment). Attempts to tighten the packing follower and boundary Valve G36-F001B were unsuccessful in stopping the leak. The leak was stopped when operators closed the RWCU reactor coolant pressure boundary isolation valves, completely isolating the RWCU System from the reactor vessel.

Although an open vent and drain path was provided for the isolated portion of the Train B, Valve G36-F002B was shut when maintenance began, isolating the piping between it and the boundary valve from the open vent path. Though operators were aware of a history of leakage problems with valves such as Valve G36-F001B, no attempt was made to vent off or instrument the isolated section of piping as required by Procedure 02-S-01-38, "Protective Tagging." This prevented maintenance personnel from recognizing that boundary Valve G36-F001B was leaking by and did not provide adequate isolation from system pressure.

Analysis. The performance deficiency associated with this event was a failure of GGNS to properly implement the protective tagging procedure which resulted in a reactor coolant leak and subsequent unplanned isolation of the RWCU System. The inspectors determined the finding to be greater than minor because it affected the human performance attribute of the Initiating Event cornerstone and affected the cornerstone objective of limiting events that challenge plant stability. The finding was of very low safety significance because it did not increase the likelihood of a LOCA initiator, did not increase the likelihood of both a reactor trip and unavailability of mitigation equipment, and did not increase the likelihood of a fire or flooding event as described in the significance determination process Phase 1 screening worksheet for the initiating event cornerstone.

This finding had cross-cutting issues associated with human performance. The failure of the operators to comply with the protective tagging procedure directly contributed to the finding.

Enforcement. Technical Specification 5.4.1.a requires written procedures be established, implemented, and maintained covering the activities specified in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Regulatory Guide 1.33, Appendix A, Item 9.e requires procedures for control of maintenance, repair, replacement, and modification work. Procedure 02-S-01-38, "Protective Tagging," Revision 0, step 6.2.2.e requires operators to ensure piping is depressurized and drained prior to beginning work. On November 17, 2003, maintenance personnel failed to verify the RWCU System piping within the work boundary for Valve G36-F002B was depressurized prior to commencing valve disassembly. The result of this failure was to cause a leak of reactor coolant from the bonnet of Valve G36-F002B, which then required closing of the upstream containment isolation valves and complete shutdown of the RWCU System to stop the leak. Since this violation is of very low safety significance and has been entered into the licensee's corrective action program as Condition Report CR-GGN-2003-3353, this violation is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000416/2004002-04, Failure to Implement Tagging Procedure Resulting in Shutdown of Reactor Water Cleanup System.

4OA3 Event Followup

(Closed) LER 05000416/200303-00 Containment Airlock Seal Leakage in Excess of Technical Specification Allowable Rate

On August 15-17, 2003, during the performance of the 208' containment personnel airlock door seal air system leak test, the system leakage through both the inner and outer door seals exceeded the permissible leak rate specified in TS due to failed pressure switches. The repetitive failure of two same type switches constituted a common cause failure. The licensee replaced both switches and conducted successful retests for both door seals. Additional corrective actions, completed or planned, included replacing the switches with a new model and developing new preventive maintenance plans for the switches. The LER was reviewed by the inspectors and no findings of significance were identified. The licensee documented the failed equipment in Condition Reports CR-GGN-2003-2386 and CR-GGN-2003-2388. This LER is closed.

4OA4 Crosscutting Aspects of Findings

Section 1R05 describes a human performance error associated with the failure of the licensee to store equipment in accordance with their engineering instructions as required by 10 CFR Part 50, Appendix B, Criterion V. This resulted in the need for licensee civil engineers to re-perform load calculations to ensure the structural integrity of the containment decking.

Section 4OA2 describes a human performance error associated with the failure of the operators to comply with the GGNS protective tagging procedure as required by Technical Specification 5.4.1.a and Regulatory Guide 1.33. This resulted in a leak of reactor coolant requiring an unplanned shutdown of the reactor water cleanup system.

4OA6 Meetings, including Exit

On February 10, 2004, the inspector presented the results of the licensed operator requalification inspection to Mr. J. Miller and other members of the licensee's staff during a telephone conversation. The licensee acknowledged the findings presented. The inspector confirmed that no proprietary information was provided or examined during the inspection.

On March 5, 2004, the inspectors presented the in-service inspection results to Mr. J. Edwards, Plant General Manager, and other members of his staff who acknowledged the findings. The inspectors confirmed that proprietary information was not provided or examined during the inspection.

On March 5, 2004, the inspector presented the health physics inspection results to Mr. J. Edwards, Plant General Manager, and other members of his staff who acknowledged the findings. The inspector confirmed that proprietary information was not provided or examined during the inspection.

On April 1, 2004, the senior resident inspector presented the inspection results to Mr. G. Williams, Vice President, Operations and other members of his staff who acknowledged the findings. The inspectors confirmed that proprietary information was not provided or examined during the inspections.

ATTACHMENT: SUPPLEMENTAL INFORMATION

## ATTACHMENT

### SUPPLEMENTAL INFORMATION

#### KEY POINTS OF CONTACT

##### Licensee personnel

C. Abbott, Supervisor, Quality Assurance  
B. Abraham, Licensing Engineer  
D. Albritton, Repair and Replacement Code Engineer  
D. Barfield, Manager, System Engineering  
C. Bottemiller, Manager, Plant Licensing  
C. Buford, Senior Operations Instructor  
M. Cross, ISI Coordinator - Level III  
J. Edwards, General Manager, Plant Operations  
C. Ellsaesser, Manager, Planning and Scheduling  
R. Goldman, Senior Lead Engineer  
K. Grillis, Senior Operations Instructor  
M. Guynn, Manager, Emergency Preparedness  
C. Holifield, Senior Licensing Engineer  
M. Larson, Senior Licensing Engineer  
M. McAdory, Shift Manager  
T. McIntyre, Supervisor, Operations Training  
H. McKnight, Senior Operations Instructor  
M. Miri, Supervisor, Programs and Components  
M. Krupa, Director, Nuclear Safety Assurance  
C. Roberts, Control Room Supervisor  
M. Rohrer, Manager, Maintenance  
F. Rosser, Supervisor, Radiation Protection  
S. Scott, Corporate Engineering - ISI  
G. Sparks, Manager, Operations  
G. Williams, Vice President, Operations  
D. Wiles, Director, Engineering  
R. Wilson, Superintendent, Radiation Protection  
H. Yeldell, Manager, Design Engineering

##### NRC personnel

B. Vaidya, Grand Gulf Project Manager, NRR  
T. Farnholtz, Senior Project Engineer, Reactor Projects Branch A

## LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

### Opened and Closed

05000416/2004002-01	NCV	Failure to Store Hydrolazer in Accordance with Design Instructions (Section 1R05)
05000416/2004002-02	NCV	Failure to Maintain Adequate System Operating Instruction to Prevent Rendering a Required Decay Heat Removal System Inoperable (Section 1R15)
05000416/2004002-03	NCV	Inadequate Corrective Action Results in Through-Wall Corrosion of Ultimate Heat Sink Piping (Section 4OA2)
05000416/2004002-04	NCV	Failure to Implement Tagging Procedure Resulting in Shutdown of Reactor Water Cleanup System (Section 4OA2)

### Closed

05000416/2003-003-00	LER	Containment Airlock Seal Air Leakage in Excess of Technical Specification Allowable Rate
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## LIST OF DOCUMENTS REVIEWED

### Procedures

Administrative Procedure 01-S-02-3, "ASME Section XI Repair/Replacement Program," Revision 107

Administrative Procedure 01-S-04-2, "Licensed Operator Requalification Training," Revision 11

Administrative Procedure 01-S-17-22, "Maintenance Rule Program," Revision 3

Administrative Procedure 01-S-18-6, "Risk Assessment of Maintenance Activities," Revision 1

Administrative Procedure 02-S-01-38, "Protective Tagging," Revision 0

Administrative Procedure LI-102, "Corrective Action Process," Revision 2

Administrative Procedure 01-S-06-44, "Operability Assessment," Revision 105

Administrative Procedure 01-S-07-44, "Foreign Material Exclusion," Revision 7

Administrative Procedure 01-S-08-2, "Exposure and Contamination Control," Revision 112

Administrative Procedure 14-S-02-17, "Administration of Annual Exam," Revision 1

Administrative Procedure, 14-S-02-19, "Job Performance Measure Evaluator Guide," Revision 2



Administrative Procedure, 14-S-01-4, "GGNS Training Examinations," Revision 27

Administrative Procedure, 14-S-02-18, "Job Performance Measure Preparer Guide," Revision 1

Equipment Performance Instruction 04-1-03-A30-1, "Cold Weather Protection," Revision 15

Integrated Operating Instruction 03-1-01-6, "Reactor Vessel In Service Leak Test,"  
Revision 111

Integrated Operating Instruction 03-1-01-1, "Cold Shutdown to Generator Carrying Minimum  
Load," Revision 127

System Operating Instruction 04-1-01-R21-16, "ESF 16AB Bus Outage," Revision 18

System Operating Instruction 04-1-01-E12-2, "Shutdown Cooling and Alternate Decay Heat  
Removal Operation," Revision 101

System Operating Instruction 04-1-01-P45-2, "Floor Drain Sump System," Revision 18

Off-Normal Event Procedure 05-1-02-V-9, "Loss of Instrument Air," Revision 31

Off-Normal Event Procedure 05-1-02-VI-2, "Hurricanes, Tornadoes, and Severe Weather,"  
Revision 105

Fire Prevention Procedure 10-S-03-4, "Control of Combustible Material," Revision 13

Surveillance Test Procedure 06-OP-1E22-Q-005, "High Pressure Core Spray System  
Functional Test," Revision 109

Radiation Protection Procedure 08-S-01-82, "Radiological Control for TIP Operation,"  
Revision 3

Radiation Protection Procedure 08-S-02-109, "Coverage and Control of Diving Operations,"  
Revision 17

Work Orders

21198	31969	37383	50306758	50617114
27579	32504	40648	50336985	50617116
27787	36419	3691401	50337145	50336985
28643	36688			

Condition Reports

CR-GGN-2004-1391	CR-GGN-2004-0949	CR-GGN-2004-0832
CR-GGN-2004-1390	CR-GGN-2004-0942	CR-GGN-2004-0828
CR-GGN-2004-1345	CR-GGN-2004-0937	CR-GGN-2004-0723
CR-GGN-2004-1344	CR-GGN-2004-0889	CR-GGN-2004-0640
CR-GGN-2004-1216	CR-GGN-2004-0878	CR-GGN-2004-0651
CR-GGN-2004-1013	CR-GGN-2004-0875	CR-GGN-2004-0614
CR-GGN-2004-1118	CR-GGN-2004-0856	CR-GGN-2004-0589
CR-GGN-2004-1111	CR-GGN-2004-0850	CR-GGN-2004-0525
CR-GGN-2004-1101	CR-GGN-2004-0842	CR-GGN-2004-0506

CR-GGN-2004-0497	CR-GGN-2003-3549	CR-GGN-2003-1399
CR-GGN-2004-0468	CR-GGN-2003-3547	CR-GGN-2003-1317
CR-GGN-2004-0404	CR-GGN-2003-3545	CR-GGN-2003-0037
CR-GGN-2004-0401	CR-GGN-2003-3541	CR-GGN-2002-2619
CR-GGN-2004-0399	CR-GGN-2003-3534	CR-GGN-2002-2610
CR-GGN-2004-0371	CR-GGN-2003-3521	CR-GGN-2002-2609
CR-GGN-2004-0331	CR-GGN-2003-3520	CR-GGN-2002-2573
CR-GGN-2004-0318	CR-GGN-2003-3353	CR-GGN-2002-2352
CR-GGN-2004-0304	CR-GGN-2003-3093	CR-GGN-2002-2085
CR-GGN-2004-0213	CR-GGN-2003-2913	CR-GGN-2002-1996
CR-GGN-2004-0192	CR-GGN-2003-2794	CR-GGN-2002-1989
CR-GGN-2004-0040	CR-GGN-2003-2793	CR-GGN-2002-0620
CR-GGN-2004-0032	CR-GGN-2003-2674	CR-GGN-2001-0828
CR-GGN-2004-0031	CR-GGN-2003-2388	CR-GGN-2000-1263
CR-GGN-2004-0020	CR-GGN-2003-2386	CR-GGN-1999-1834
CR-GGN-2003-3745	CR-GGN-2003-2378	CR-GGN-1999-1583
CR-GGN-2003-3623	CR-GGN-2003-1925	CR-GGN-1999-0419
CR-GGN-2003-3604	CR-GGN-2003-1894	
CR-GGN-2003-3567		

Other Miscellaneous Documents

Grand Gulf Fire Pre-plans, Revision 11

Design Engineering Standard GGNS-CS-05, Revision 2

RF 13 Outage Schedule Safety Assessment Report

2003 Licensed Operator Requalification Training (LORQT) Biennial Exam Summary, 7/28/03

2002 LORQT Exam Grades

2003 JPM [Job Performance Measure] Exam Outline

Individual JPM Evaluation Reports (for 57 candidates)

2003 Biennial Written Exam Results

Examination Analysis data sheets dated 7/30/03, 8/6/03, 8/13/03, 8/20/03, and 8/27/03

Remediation records for the two candidates in 2002 and the three candidates in 2003 that failed a part of their requalification examinations.

NRC Information Notice 95-24, Summary of Licensed Operator Requalification Inspection Findings, April 25, 1995

GIN-95/03321 dated December 7, 1995, SUBJECT: GGNS Status for NRC IN 95-24

52FR9453, Operator Licenses and Conforming Amendments, Final Rule, March 25, 1987

52FR5934, Renewal of Licenses and Requalification Requirements for Licensed Operators, Final Rule, February 9, 1994

NDE9.04, "Ultrasonic Examination of Ferritic Piping Welds (ASME Section XI)," Revision 2

NDE9.11, "Manual Ultrasonic Examination of Reactor Pressure Vessel Welds (Section XI, App. VIII)," Revision 0

NDE9.31, "Magnetic Particle Examination (MT) for ASME Section XI," Revision 3

NDE9.41, "Liquid Penetrant Examination (PT) for ASME Section XI," Revision 1

PDI-UT-10, "Generic Procedure for the Ultrasonic Examination of Dissimilar Metal Piping Welds," Revision A

RP-102, "Radiological Controls," Revision 4

RP-108, "Radiation Protection Posting," Revision 2

RP-204, "Special Monitoring," Revision 2

#### Engineering Requests

97/0275

2002-0467

2003-0198

#### Welding Procedure Specifications

E-P1-TA-A1-CVN

E-P1-T-A1 R/1

E-P8,P1-TA-A8,Ar R/1

E-P8-T-A8,Ar R/0

E-P8-TA-A8,Ar R/1

E-P8,P1-A-A8 R/1

E-P1-A-A1 R/1

#### Calculation Data Sheets

NPE-E12F003A,B/F048A,B

MC-Q1P41-02018, Revision 0

NPE-PDS-604, Revision 4

#### NDE Activities Reviewed

<u>System</u>	<u>Component/Weld Identification</u>	<u>Examination Method</u>
Feedwater	1B21G230-02-08-10	Magnetic Particle and Liquid Penetrant
Main Steam	1B21G114-1G-08-10	Magnetic Particle

<u>System</u>	<u>Component/Weld Identification</u>	<u>Examination Method</u>
Residual Heat Removal	1E12G021W59	Magnetic Particle
Reactor Core Isolation Cooling	1E51G004-8-8-4	Ultrasonic
Reactor Core Isolation Cooling	1E51G004-W-13	Ultrasonic
Residual Heat Removal	FW-512	Radiography
Residual Heat Removal	FW-514	Radiography
Residual Heat Removal	FW-520	Radiography
Residual Heat Removal	FW-521	Radiography
Residual Heat Removal	FW-522	Radiography
Residual Heat Removal	FW-523	Radiography
Residual Heat Removal	FW-524	Radiography
Reactor Water Cleanup	1G33G001W6	Ultrasonic
Reactor Water Cleanup	1G33G001W7	Ultrasonic
Reactor Water Cleanup	1G33G001W8	Ultrasonic
Reactor Water Cleanup	1G33G002W130	Magnetic Particle
Reactor Water Cleanup	1G33G002-6-8-1	Magnetic Particle
Reactor Water Cleanup	1G33G002W177	Magnetic Particle
Reactor Water Cleanup	1G33G002-6-8-2	Magnetic Particle
Reactor Water Cleanup	1G33G002W178	Magnetic Particle
Reactor Water Cleanup	1G33G002-6-8-3	Magnetic Particle

Radiation Work Permits

2004-1012, "Locked High Radiation Area Entries," Revision 0  
2004-1404, "Diving HFTS for Repairs 208 Containment," Revision 0  
2004-1505, "RF13 Scaffolds Pre-Outage and Outage," Revision 0  
2004-1516, "ISI/NDE All Areas During RF13," Revision 0

2004-1508, "RF13 Under Vessel Work Activities (LPRM's, CRDM, SRM/IRM, TIP Indexer),"  
Revision 0

### Self-Assessments and Audits

GLO-2003-150-CA-60/  
GLO-2004-16-CA-01            Access to Radiologically Significant Areas

GLO-2004-0004            Forced Self-Assessment on Locked High Radiation Areas  
Barricades

### Written Examinations

03 LOR A/B1 Biennial Written Exam, dated 7/30/03  
03 LOR A/B2 Biennial Written Exam, dated 8/6/03  
03 LOR A/B3 Biennial Written Exam, dated 8/13/03  
03 LOR A/B4 Biennial Written Exam, dated 8/20/03  
03 LOR A/B5 Biennial Written Exam, dated 8/27/03

### Scenarios

Licensed Operator Requal Scenario GSMS-LOR-AEX20.01  
Licensed Operator Requal Scenario GSMS-LOR-AEX26.03  
Licensed Operator Requal Scenario GSMS-LOR-AEX11.02  
Licensed Operator Requal Scenario GSMS-LOR-AEX15.01  
Licensed Operator Requal Scenario GSMS-LOR-AEX19.03  
Licensed Operator Requal Scenario GSMS-LOR-AEX29.01  
Licensed Operator Requal Scenario GSMS-LOR-AEX24.01  
Licensed Operator Requal Scenario GSMS-LOR-AEX27.01  
Licensed Operator Requal Scenario GSMS-LOR-AEX13.01  
Licensed Operator Requal Scenario GSMS-LOR-AEX32.01

### Job Performance Measures (JPMs)

GJPM-LOR-EOP00, Attachment 7, Install Nitrogen Bottle on ADS Air Supply, Revision 1  
GJPM-LOR-E1200, Task 1, Starting Shutdown Cooling, Revision 0  
GJPM-LOR-EOP00, Attachment 15, Defeat DW Purge Compressor Start Signals, Revision 1  
GJPM-LOR-EOP00, Attachment 18, Defeat ARI/RPT Logic Interlocks, Revision 1  
GJPM-LOR-E1200, Task 3, Startup Suppression Pool Cooling, Revision 0  
GJPM-LOR-E1200, Task 4, Shutdown Suppression Pool Cooling, Revision 0  
GJPM-LOR-L1100, Task 4, Operation of AKR-2-50 DC Circuit Breaker, Revision 2  
GJPM-LOR-L1100, Task 6, DC Bus 11DA De-energization, Revision 2  
GJPM-LOR-L1100, Task 7, DC Bus 11DF Energization, Revision 2  
GJPM-LOR-L1100, Task 9, Battery Charger Startup, Revision 2  
GJPM-LOR-L1100, Task 10, Battery Charger Shutdown, Revision 2  
GJPM-LOR-L6200, Task 1, Startup of Inverter 1Y81, Revision 0  
GJPM-LOR-L6200, Task 3, Startup of Inverter 1Y88, Revision 0  
GJPM-LOR-L6200, Task 6, Shutdown of Inverter 1Y99, Revision 0  
GJPM-LOR-L6200, Task 8, Transfer 1Y87 from NORM to ALTERNATE sources, Revision 0  
GJPM-LOR-N2100, Task 4, Rotate RFPT HPU Pumps, Revision 1  
GJPM-LOR-P4100, Task 7, RHR HX Purge and Fill, Revision 0

GJPM-LOR-P5300, Starting A/C with a Loss of Seal and Control Air, Revision 0  
 GJPM-LOR-P7500, Task 1, Placing DG 11(12) Lube Oil System in Service, Revision 1  
 GJPM-LOR-P7500, Task 4, Placing DG 11(12) Fuel Oil System in Service, Revision 1  
 GJPM-LOR-P7500, Task 3A, Placing DG 11(12) Starting Air System in Service, Revision 1  
 GJPM-LOR-P7500, Task 6, Remove the Diesel Driven Air Compressor from Service, Revision 1  
 GJPM-LOR-R2100, Task 1, Placing LSS in Standby, Revision 1  
 GJPM-LOR-C3400, Task 1, Bias Feed Pump Load, Revision 2  
 GJPM-LOR-C3400, Task 2, Transfer Reactor Water Level Control Selector, Revision 2  
 GJPM-LOR-C3400, Task 3, Transfer Feedwater Level Control to Single Element, Revision 2  
 GJPM-LOR-C3400, Task 4, Transfer Feedwater Level Control to Three Element, Revision 2  
 GJPM-LOR-C3400, Task 5, Reset Setpoint Setdown, Revision 2  
 GJPM-LOR-EOP00, Attachment 1, Defeat RCIC High SP Level Suction Interlock, Revision 1  
 GJPM-LOR-EOP00, Attachment 2, Defeat RCIC Low Pressure Isolation Interlock, Revision 1  
 GJPM-LOR-EOP00, Attachment 4, Defeat HPCS High SP Level Suction Interlock, Revision 1  
 GJPM-LOR-EOP00, Attachment 5, Defeat HPCS Reactor Level 8 Isolation Interlock, Revision 1  
 GJPM-LOR-EOP00, Attachment 6, Defeat Feed Pump Level 8 Trips, Revision 1  
 GJPM-LOR-EOP00, Attachment 9, Defeat All MSIV/MSL Drain Isolation Interlocks, Revision 1  
 GJPM-LOR-EOP00, Attachment 12, Defeat SDC Injection Valve Isolation Interlocks, Revision 1  
 GJPM-LOR-EOP00, Attachment 19, Defeat Reactor Protection System Logic Trips, Revision 1  
 GJPM-LOR-E2201, Task 1, Manual Startup of HPCS, Revision 0  
 GJPM-LOR-E2201, Task 3, Swapping HPCS Suction, Revision 0  
 GJPM-LOR-E2201, Task 4, Suppression Pool Level Reduction Using HPCS, Revision 0  
 GJPM-LOR-E2201, Task 5, Suppression Pool Level Makeup Using HPCS, Revision 0  
 GJPM-LOR-E3000, Task 1, Suppression Pool Make-up Manual Initiation, Revision 0  
 GJPM-LOR-E6100, Task 1, Manual RCIC Startup - Normal, Revision 0  
 GJPM-LOR-E6100, Task 2, Shutdown RCIC, Revision 0  
 GJPM-LOR-E6100, Task 4, Suppression Pool Makeup Using RCIC, Revision 0  
 GJPM-LOR-E6100, Task 1, Recovery From CGCS Initiation, Revision 1  
 GJPM-LOR-E6100, Task 2, Hydrogen Recombiner Operation, Revision 1  
 GJPM-LOR-E6100, Task 3, Drywell Purge Compressor Operation, Revision 1  
 GJPM-LOR-N2100, Task 6A, Placing Long Cycle Cleanup in Service (Remote), Revision 1  
 GJPM-LOR-N2100, Task 7, Reactor Feed Pump Startup, Revision 1  
 GJPM-LOR-N2100, Task 8, Placing RFP on Feedwater Master Controller, Revision 1  
 GJPM-LOR-N2100, Task 10, First Reactor Feed Pump (RFP) Shutdown, Revision 1  
 GJPM-LOR-P4100, Task 1, Manual Start of Station Service Water A, Revision 0  
 GJPM-LOR-P4100, Task 3, Manual Start of Station Service Water C, Revision 0  
 GJPM-LOR-P4100, Task 5, Return Station Service Water B to Standby, Revision 0  
 GJPM-LOR-P4100, Task 6, Return Station Service Water C to Standby, Revision 0  
 GJPM-LOR-P4100, Task 8, Station Service Water System Blowdown, Revision 0  
 GJPM-LOR-P4100, Task 9, Manually Initiate Station Service Water A and B, Revision 0  
 GJPM-LOR-P4100, Task 10, Verify SSW A Flow Through DG 11 (Control Room), Revision 0  
 GJPM-LOR-EAL00, Task 1, Fuel Failure (Alert), Revision 0  
 GJPM-LOR-EAL00, Task 4, Gaseous Release (GE), Revision 0  
 GJPM-LOR-EAL00, Task 6, Fire with AC Electrical Failures, Revision 0  
 GJPM-LOR-EAL00, Task 8, Abnormal Liquid Effluent, Revision 0  
 GJPM-LOR-EAL00, Task 10, Security Threat, Revision 0  
 GJPM-LOR-EAL00, Task 11, Emergency Core Cooling System Shutdown, Revision 0  
 GJPM-LOR-EAL00, Task 14, Fuel Failure (SAE), Revision 0  
 GJPM-LOR-EAL00, Task 17, AC Electrical Failures (SAE), Revision 0  
 GJPM-LOR-EAL00, Task 20, High In-Plant Radiation, Revision 0

## LIST OF ACRONYMS USED

ADHR	alternate decay heat removal
ALARA	as low as is reasonably achievable
APRM	average power range meter
ASME	American Society of Mechanical Engineers
CFR	Code of Federal Regulations
CR	condition report
DHR	decay heat removal
GGNS	Grand Gulf Nuclear Station
HPCS	high pressure core spray
JPM	job performance measure
LCO	limiting condition for operation
LER	licensee event report
LOCA	loss of coolant accident
LPRM	local power range meter
NCV	noncited violation
NDE	nondestructive examination
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
ONEP	off normal event procedure
PI	performance indicator
RCIC	reactor core isolation cooling
RFO	refueling outage
RHR	residual heat removal
RWCU	reactor water cleanup
RWP	radiation work permit
SAE	site area emergency
SDP	Significance Determination Process
SOI	System Operating Instruction
SSC	structures, systems, or components
SSW	standby service water
TIP	traversing incore probe
TS	Technical Specification
WO	work order