



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

November 2, 2007

William R. Brian, Vice President of Operations
Grand Gulf Nuclear Station
Entergy Operations, Inc.
P.O. Box 756
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SUBJECT: GRAND GULF NUCLEAR STATION - NRC INTEGRATED INSPECTION
REPORT 05000416/2007004

Dear Mr. Brian:

On September 30, 2007, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Grand Gulf Nuclear Station facility. The enclosed integrated report documents the inspection findings, which were discussed on October 10, 2007, 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.

This report documents four NRC identified and self-revealing findings of very low safety significance (Green). Three of these findings were determined to involve violations of NRC requirements; however, because of the very low safety significance and because they were entered into your corrective action program, the NRC is treating these findings as noncited violations (NCVs) consistent with Section VI.A of the NRC Enforcement Policy. If you contest these NCVs, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, U.S. Nuclear Regulatory Commission Region IV, 611 Ryan Plaza Drive, Suite 400, Arlington, Texas 76011-4005; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington DC 20555-0001; and the NRC Resident Inspector at the Grand Gulf Nuclear Station facility.

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).

Sincerely,

/RA/

Michael C. Hay, Chief
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Division of Reactor Projects

Docket: 50-416
License: NPF-29

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Inspection Report 05000416/2007004
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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket: 50-416

Licenses: NPF-29

Report No.: 05000416/2007004

Licensee: Entergy Operations, Inc.

Facility: Grand Gulf Nuclear Station

Location: Waterloo Road
Port Gibson, Mississippi 39150

Dates: July 1 through September 30, 2007

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Enclosure

SUMMARY OF FINDINGS

IR05000416/2007004; 7/1/07 - 9/30/07; Grand Gulf Nuclear Station -- Integrated Resident and Regional Report; Maintenance Effectiveness, Permanent Plant Modifications, Refueling and Outage Activities, Event Follow-up.

This report covered a 3-month period of inspection by resident inspectors and regional office inspectors. These inspection activities identified four Green findings, three of which were noncited violations. 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's 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: Mitigating Systems

- Green. The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the failure to translate a design basis limit for outdoor air temperature into an instruction or procedure. The licensee established a new Updated Final Safety Analysis Report maximum outdoor air temperature of 102.5°F. If outside air temperatures exceeded 102.5°F, safety-related equipment, which are located in rooms that are cooled by outdoor air (i.e., standby service water pump room), would be operationally challenged. The inspectors identified that no instruction or procedure was established to monitor high outside temperature or subsequent actions established in the event the design basis temperature limit is exceeded.

The inspectors determined that the finding was more than minor because the finding affects the mitigating system cornerstone objective of ensuring the reliability of the standby service water system that responds to initiating events to prevent undesirable conditions. Using the Phase 1 worksheet in Inspection Manual Chapter 0609, "Significance Determination Process," this finding is determined to be of very low safety significance because there was no actual loss of a safety function, and the design basis limits had not been exceeded. The inspectors determined that the finding has a crosscutting aspect in the area of human performance decision making because the licensee failed to use conservative assumptions in determining not to establish a procedure or instruction to monitor high outside temperature for design limits on the standby service water pump room [H.1(b)] (Section 1R17).

- Green. The inspectors identified a noncited violation of 10 CFR Part 50.65(a)(2) for the failure to adequately monitor the performance of the control rod drive system. Specifically, the licensee failed to adequately perform a functional failure determination for a degraded flow control valve. Following licensee

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review of this condition the system was placed in the maintenance rule (a)(1) monitoring status.

This finding was more than minor since the degraded control rod drive flow control valve caused the system to be placed in the (a)(1) monitoring status. This finding was characterized under the significance determination process as having a very low safety significance, because the maintenance rule aspect of the finding did not cause an actual loss of safety function of the system, nor did it cause a component to become inoperable. The cause of this finding has a crosscutting aspect in the area of human performance associated with decision making because licensee personnel failed to use conservative assumptions and did not verify the validity of the underlying assumptions used in making safety-significant decisions [H.1(b)] (Section 1R12).

- Green. A self-revealing noncited violation of Technical Specifications 5.4.1(a) was identified involving the failure to adequately follow procedure to align valves in the fuel pool cooling and cleanup system. The valves were aligned in the wrong sequence, contrary to the system operating instructions, causing both fuel pool cooling and cleanup pumps to trip and a subsequent loss of fuel pool cooling. The licensee entered this issue in their corrective action program as Condition Report CR-GGN-2007-04284.

The finding is more than minor, since it affects the human performance attribute of the barrier integrity cornerstone and affects the cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 worksheet, the finding has a very low safety significance since it only represents a degradation of the radiological barrier function provided by the spent fuel pool system. The cause of this finding has a crosscutting aspect in the area of human performance associated with work practices because licensee personnel failed to follow the correct sequence of valve manipulations required by procedure [H.4(b)] (Section 1R20).

Cornerstone: Initiating Events

- Green. A self-revealing finding was identified involving the failure to properly calibrate the main condenser hydraulic vacuum switch that established a higher trip setpoint that would prematurely actuate an automatic turbine trip and reactor scram for a degraded main condenser vacuum condition. This issue was entered into the licensee's corrective action program as Condition Report CR-GGN-2007-02756.

The finding was more than minor because it was associated with the initiating events cornerstone attribute of equipment performance and affected the associated cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during power operations. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1

worksheet, the finding was determined to have very low safety significance because the finding did not contribute to the likelihood that mitigating equipment or functions would not be available following a reactor trip. The cause of the finding was related to the human performance crosscutting component of resources in that the calibration procedure did not provide clear instructions detailing the methodology to adjust the speed simulation screw to the required position [H.2©] (Section 4OA3).

B. Licensee-Identified Violations

Violations of very low safety significance which were identified by the licensee have been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. These violations and corrective actions are listed in Section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status

Grand Gulf Nuclear Station (GGNS) began the inspection period at full rated thermal power. On August 21, 2007, the reactor experienced an automatic reactor scram due to the failure of a reactor feedpump turbine controller. Following troubleshooting and repairs, the reactor was restarted on August 22, 2007, and reached full power on August 26, 2007. On August 26, 2007, the reactor recirculation Pump B motor tripped due to a ground fault, causing the plant to experience an unplanned power reduction to 58 percent power. The plant remained at approximately 58 percent power and in single loop operation until September 1, 2007, when the reactor was shutdown to replace the failed motor. On September 14, 2007, the plant started up from the outage and reached full power on September 18, 2007. The plant remained at or near full rated thermal power for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

.1 Readiness For Seasonal Susceptibilities

a. Inspection Scope

The inspectors completed a review of the licensee's readiness for seasonal susceptibilities involving extreme high temperatures. The inspectors: (1) reviewed plant procedures, the Updated Final Safety Analysis Report (UFSAR), and Technical Specifications (TS) to ensure that operator actions defined in adverse weather procedures maintained the readiness of essential systems; (2) walked down portions of the three systems listed below to ensure that adverse weather protection features were sufficient to support operability, including the ability to perform safe shutdown functions; (3) evaluated operator staffing levels to ensure the licensee could maintain the readiness of essential systems required by plant procedures; and (4) reviewed the corrective action program (CAP) to determine if the licensee identified and corrected problems related to adverse weather conditions.

- August 6, 2007, standby service water system
- August 8, 2007, turbine building cooling water system
- August 9, 2007, plant service water system

Documents reviewed by the inspectors included:

- Procedure 05-1-02-VI-2, "Hurricanes, Tornadoes, and Severe Weather," Revision 108
- Procedure ENS-EP-302, "Severe Weather Response," Revision 4

- SDC-P41, "System Design Criteria for Standby Service Water System P41," Revision 3
- Procedure 04-1-01-P43-1, "Turbine Building Cooling Water System," Revision 44
- Procedure 04-1-01-P44-1, "Plant Service Water/ Radial Well System," Revision 84

The inspectors completed one sample.

1R02 Evaluations of Changes, Tests, or Experiments (71111.02)

a. Inspection Scope

From August 13-17, 2007, the inspectors reviewed the effectiveness of the licensee's implementation of changes to the facility structures, systems, and components; risk-significant normal and emergency operating procedures; test programs; and the UFSAR report in accordance with 10 CFR 50.59, "Changes, Tests, and Experiments."

The inspectors reviewed seven 10 CFR 50.59 safety evaluations performed by the licensee since the last NRC inspection of the 10 CFR 50.59 process. The evaluations were reviewed to verify that licensee personnel had appropriately considered the conditions under which the licensee may make changes to the facility or procedures or conduct tests or experiments without prior NRC approval. In addition, the inspectors reviewed fifteen 10 CFR 50.59 screenings, in which licensee personnel determined that evaluations were not required, to ensure that the exclusion of a full evaluation was consistent with the requirements of 10 CFR 50.59.

The inspectors reviewed a sample of recent licensee condition reports (CRs) related to the 10 CFR 50.59 process to determine whether the licensee had identified problems and entered them into the CAP at the appropriate threshold.

The inspection procedure specifies that the inspectors review a minimum sample of five licensee safety evaluations and a combination of ten applicability determinations or screenings. The inspectors completed a review of seven licensee safety evaluations and fifteen applicability/screenings.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

.1 Partial System Walkdowns

a. Inspection Scope

The inspectors: (1) walked down portions of the two listed risk important systems and reviewed plant procedures and documents to verify that critical portions of the selected systems were correctly aligned; and (2) compared deficiencies identified during the walkdown to the licensee's UFSAR and CAP to ensure problems were being identified and corrected.

- July 23, 2007, and July 26, 2007, the inspectors walked down portions of the control rod drive Train A system following a system maintenance outage.
- July 31, 2007, the inspectors walked down portions of the reactor core isolation cooling system following a system maintenance outage.

Documents reviewed by the inspectors included:

- Procedure 04-1-01-C11-1, "System Operating Instruction - Control Rod Drive Hydraulic System," Revision 128
- System Piping Diagram M-1081A, "Control Rod Drive Hydraulic System," Revision 38
- Procedure 04-1-01-E51-1, "System Operating Instruction - Reactor Core Isolation Cooling System," Revision 124
- System Piping Diagram M-1083A, "Reactor Core Isolation Cooling System," Revision 33
- System Piping Diagram M-1083B, "Reactor Core Isolation Cooling System," Revision 36
- Vendor Manual 460000182, "Reactor Core Isolation Cooling"

The inspectors completed two samples.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

a. Inspection Scope

Quarterly Inspection

The inspectors walked down the six listed plant areas to assess the material condition of active and passive fire protection features and their operational lineup and readiness. The inspectors: (1) verified that transient combustibles and hot work activities were controlled in accordance with plant procedures; (2) observed the condition of fire detection devices to verify they remained functional; (3) observed fire suppression systems to verify they remained functional and that access to manual actuators were unobstructed; (4) verified that fire extinguishers and hose stations were provided at their designated locations and that they were in a satisfactory condition; (5) verified that passive fire protection features (electrical raceway barriers, fire doors, fire dampers, steel fire proofing, penetration seals, and oil collection systems) were in a satisfactory material condition; (6) verified that adequate compensatory measures were established for degraded or inoperable fire protection features and that the compensatory measures were commensurate with the significance of the deficiency; and (7) reviewed the corrective action process to determine if the licensee identified and corrected fire protection problems.

- Secondary Alarm Station
- Control Room Emergency Dormitory (Room 1OC604)
- Technical Support Center (Room 1OC608)
- Upper Relay Room (Room 1OC703)
- Instrument Motor Generator Room (Room 1OC707)
- Drywell, All Elevations (1A112)

Documents reviewed by the inspectors included:

- Procedure 10-S-03-4, "Control of Combustible Material," Revision 14
- Grand Gulf Nuclear Station Fire Pre-Plans, Revision 15
- Procedure 01-S-10-1, "Fire Protection Plan," Revision 102
- Procedure 10-S-03-9, "Control of Fire Pre-Plans," Revision 2

The inspectors completed six samples.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification (71111.11)

.1 Biennial Inspection

The licensed operator requalification program involves two training cycles that are conducted over a two year period. In the first cycle, the annual cycle, the operators are

administered an operating test consisting of job performance measures and scenarios. In the second part of the training cycle, the biennial cycle, operators are administered an operating test and a written examination. The inspectors reviewed the results of the biennial cycle of the requalification program.

a. Inspection Scope

To assess the performance effectiveness of the licensed operator requalification program, the inspectors conducted personnel interviews, reviewed samples of both the operating and written examinations, observed ongoing operating examination activities, and reviewed personnel records.

The inspectors interviewed five licensee personnel, consisting of three operators, an instructor, and a training supervisor to determine their understanding of the policies and practices for administering requalification examinations. The inspectors also reviewed operator performance on the written and operating examinations. These reviews included observations of portions of the operating examination by the inspectors. The operating examinations observed included five job performance measures and two scenarios that were used in the current biennial requalification cycle. These observations allowed the inspectors to assess the licensee's effectiveness in conducting the operating test to ensure operator mastery of the training program content.

The results of these examinations were reviewed to determine the effectiveness of the licensee's appraisal of operator performance and to determine if feedback of performance analyses into the requalification training program was being accomplished. The inspectors interviewed members of the training department to assess the responsiveness of the licensed operator requalification program to incorporate the lessons learned from both plant and industry events. Examination results were also assessed to determine if they were consistent with the guidance contained in NUREG 1021, "Operator Licensing Examination Standards for Power Reactors," Revision 9, and NRC Manual Chapter 0609, Appendix I, "Operator Requalification Human Performance Significance Determination Process." Forty-three out of fifty licensed operators passed the written examination. The seven operators (four reactor operators and three senior operators) that failed the written examination were remediated and successfully re-examined.

The inspectors also reviewed the licensee's program for maintaining active operator licenses and ensuring the medical fitness of the licensed operators. The inspectors sampled records to ensure that all operators have active licenses and that any licenses reactivated since the last inspection were current. The inspectors also reviewed a sampling of licensed operator medical records to verify that the required physical examinations are being performed.

b. Findings

No findings of significance were identified.

.2 Quarterly Inspection

a. Inspection Scope

The inspectors observed testing and training of senior reactor operators and reactor operators to assess training, operator performance, and the evaluator's critique. Specifically, the inspectors observed the training Scenario GSMS-LOR-00195-G5, "Licensed Operator Requal: Emergency Plan Exercises (EP-2, EP-2A, EP-3, EP-4), Revision 5, involved a crane boom crashing into a service water valve room at the standby service water basins and a subsequent feedwater line break outside containment. The scenario then led to an anticipated transient without scram (greater than 4 percent power) due to a blockage in the scram discharge volume. Documents reviewed by the inspectors included:

- GSMS-LOR-00195-G5, "Licensed Operator Requal: Emergency Plan Exercises (EP-2, EP-2A, EP-3, EP-4), Revision 5
- Training Procedure 14-S-02-20, "Preparing, Conducting and Review of Simulator Evaluations," Revision 4

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

The inspectors reviewed the following maintenance rule scoped systems that have displayed performance problems to: (1) verify the appropriate handling of structure, system, and component (SSC) performance or condition problems; (2) verify the appropriate handling of degraded SSC functional performance; (3) evaluate the role of work practices and common cause problems; and (4) evaluate the handling of SSC issues reviewed under the requirements of the maintenance rule, 10 CFR Part 50, Appendix B, and the TSs.

- control rod drive hydraulic system
- containment cooling system

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed two samples.

b. Findings

Introduction. The inspectors identified a Green noncited violation (NCV) of 10 CFR Part 50.65(a)(2) for the failure to demonstrate the performance or condition of the control rod drive system had been effectively controlled through the performance of appropriate scheduled maintenance.

Description. On May 23, 2006, the licensee initiated CR-GGN-2006-2117 in response to a crack in the body of control rod drive system flow control Valve B. While reviewing failure evaluations for the control rod drive system, the inspectors noted the licensee did not consider the crack in the flow control valve to be a functional failure for the valve's maintenance rule function to provide maximum flow to the reactor vessel. The licensee's determination that the crack was not a functional failure was based on the valve's continued ability to open and provide flow. The inspectors challenged the assumptions used in the analysis, noting the evaluation only used an estimated as-found leak rate and failed to consider the pressure changes on the crack that would result from fully opening the valve or continued crack propagation. In response to the inspectors' concerns, the licensee initiated CR-GGN-2007-2361 and after further evaluation reclassified the degraded condition as a functional failure. The licensee also initiated CR-GGN-2007-3004 to evaluate the need for increased monitoring and goal setting for the control rod drive system.

Analysis. Using NRC Inspection Manual Chapter 0612, Appendix E, Example 7.b, the inspectors determined the finding was more than minor since the failure of the control rod drive flow control valve caused the system to be placed in (a)(1) monitoring status. This finding was characterized under the significance determination process as having a very low safety significance, because the maintenance rule aspect of the finding did not cause an actual loss of safety function of the system, nor did it cause a component to become inoperable. The cause of this finding has a crosscutting aspect in the area of human performance associated with decision making, because licensee personnel failed to use conservative assumptions and did not verify the validity of the underlying assumptions used in making safety-significant decisions [H.1(b)].

Enforcement. 10 CFR Part 50.65(a)(1) requires, in part, that licensees shall monitor the performance or condition of SSCs within the scope of the rule against licensee established goals in a manner sufficient to provide reasonable assurance that the SSCs are capable of fulfilling their intended safety functions. 10 CFR Part 50.65(a)(2) requires, in part, that the monitoring specified in paragraph (a)(1) is not required where it has been demonstrated that the performance or condition of an SSC is being effectively controlled through the performance of appropriate preventive maintenance such that the SSC remains capable of performing its intended function. Contrary to the above, the licensee failed to demonstrate the performance or condition of the control rod drive system had been effectively controlled through the performance of appropriate scheduled maintenance. Specifically, the licensee failed to appropriately account for the failure of the Train B flow control valve on May 23, 2006, which demonstrated that the performance of the system was not being effectively controlled and goal setting and monitoring was required. Because this finding was of very low safety significance and has been entered in the CAP as CR-GGN-2007-3004, this violation is being treated as

an NCV, consistent with Section IV.A.1 of the NRC Enforcement Policy: NCV 05000416/2007004-01, "Failure to Monitor Performance of the Control Rod Drive System."

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

.2 Emergent Work Control

a. Inspection Scope

For the work activities listed below, the inspectors: (1) verified that the licensee performed actions to minimize the probability of initiating events and maintained the functional capability of mitigating systems and barrier integrity systems; (2) verified that emergent work-related activities such as troubleshooting, work planning/scheduling, establishing plant conditions, aligning equipment, tagging, temporary modifications, and equipment restoration did not place the plant in an unacceptable configuration; and, (3) reviewed the corrective action process to determine if the licensee identified and corrected risk assessment and emergent work control problems.

- WO 86316, Control Rod Drive System Pump A Seal Replacement Extended Work Scope, July 25, 2007
- WO 51085228, High Pressure Core Spray Diesel Generator Lube Oil Circulating Pump Failure, August 28, 2007

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed two samples.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors: (1) reviewed plant status documents such as operator shift logs, emergent work documentation, deferred modifications, and standing orders in order to determine if an operability evaluation was warranted for degraded components; (2) referred to the UFSAR and design basis documents in order to review the technical adequacy of licensee operability evaluations; (3) evaluated compensatory measures associated with operability evaluations; (4) determined degraded component impact on any TS; (5) used the significance determination process to evaluate the risk significance of degraded or inoperable equipment; and (6) verified that the licensee has identified and implemented appropriate corrective actions associated with degraded components.

- CR-GGN-2007-03385, High Pressure Core Spray Relief Valve Lifted Following Pump Shutdown during a Surveillance Test
- CR-GGN-2007-03374, Control Room Air Conditioning System Flow Degraded

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed two samples.

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications (71111.17)

.1 Annual Inspection

a. Inspection Scope

The inspectors reviewed key affected parameters associated with energy needs, materials/replacement components, timing, heat removal, control signals, equipment protection from hazards, operations, flow paths, pressure boundary, ventilation boundary, structures, process medium properties, licensing basis, and failure modes for the modification listed below. The inspectors verified that: (1) modification preparation, staging, and implementation did not impair emergency/abnormal operating procedure actions, key safety functions, or operator response to loss of key safety functions; (2) postmodification testing maintained the plant in a safe configuration during testing by verifying that unintended system interactions will not occur, that SSC performance characteristics still meet the design basis, ascertaining the appropriateness of modification design assumptions, and that the modification test acceptance criteria has been met; and (3) the licensee has identified and implemented appropriate corrective actions associated with permanent plant modifications.

The inspectors reviewed a modification that replaced obsolete Riley temperature switches with NUS switches. The inspectors ensured that the design bases, licensing bases, and performance capability of risk significant SSCs were not degraded by the modification. The inspection included a review of the engineering request, system drawings, and work package and observation of the field work during installation of the modification. The inspectors also reviewed the results of the post maintenance testing.

- July 11, 2007, Riley temperature switch replacement with NUS temperature switch.

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

.2 Biennial Inspection

a. Inspection Scope

From August 13-17, 2007, the inspectors reviewed seven permanent plant modification packages and associated documentation, such as implementation reviews, safety evaluation applicability determinations, and screenings, to verify that they were performed in accordance with regulatory requirements and plant procedures. The inspectors also reviewed the procedures governing plant modifications to evaluate the effectiveness of the program for implementing modifications to risk-significant SSCs, such that these changes did not adversely affect the design and licensing basis of the facility. Further, the inspectors interviewed the cognizant design and system engineers for the identified modifications as to their understanding of the modification packages and process.

The inspectors evaluated the effectiveness of the licensee's corrective action process to identify and correct problems concerning the performance of permanent plant modifications by reviewing a sample of related CRs.

The inspection procedure specifies inspector-review of a required minimum sample of five permanent plant modifications. The inspectors completed review of seven permanent plant modifications.

b. Findings

Introduction. The inspectors identified a Green, NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the failure to translate the monitoring and subsequent actions associated with exceeding the maximum outdoor design basis temperature into a formal instruction or procedure. The maximum outdoor design basis temperature was derived from analysis for the standby service water pump room to ensure the standby service water system meets its functional goals.

Description. The inspectors reviewed licensee Evaluation ER-GG-2006-0099-000, "Greater than 95°F Outdoor Air Temperature." This licensee evaluation was a result of a 2005 NRC question associated with outdoor air temperatures. In June 2006, the licensee evaluation evaluated the effects of high outdoor air temperature, exceeding the UFSAR 95°F maximum outdoor temperature, on standby service water pump room ventilation system and safety-related equipment in that room. The results of the evaluation concluded that outdoor air temperature could reach 102.5°F before the safety related equipment in the standby service water pump room would be challenged. The UFSAR was updated to reflect the new maximum outdoor air temperature of 102.5°F.

In addition to the new maximum outdoor temperature limit, the engineering evaluation concluded that actions may be necessary to prevent challenges to the operability of the

safety-related equipment in the standby service water pump room if the outdoor temperature exceeded 102.5°F. Those actions included initiating a CR to evaluate the condition of the safety-related equipment when outdoor temperatures exceeded the maximum limit, monitoring outdoor air temperatures when temperature were near the maximum limit, and taking specific actions to return the standby service water pump room temperature to within design limits.

The inspectors requested to review documentation that implemented the above actions that would control deviations of the UFSAR maximum outdoor air temperature limit. The licensee stated that there was no formally documented procedure to monitor temperatures or take necessary actions to prevent challenges. A formally documented procedure was never implemented because the licensee assumed, based on historical weather data, that outdoor temperatures will never exceed the new maximum outdoor temperature limit.

The inspectors concluded that the lack of a specific instruction or procedure could affect the monitoring and subsequent actions for areas containing safety-related equipment which use outdoor air for cooling. In the event the maximum analyzed outdoor temperature limit for the safety-related service water pump room is exceeded, a planned systematic action is necessary to assure the equipment would perform to meet its functional goals.

Through followup discussions with the licensee staff, the inspectors were told, during the resolution of the 2005 NRC question, the engineering and operations departments made a cognizant decision not to establish a written procedure to continually monitor outdoor air temperatures. The decision was based on historical weather data and the perceived difficulty of continually monitoring and evaluating conditions when outdoor air temperature was near or exceeded 102.5°F. Although no formal written procedure existed to monitor temperatures, the licensee staff did direct the chemistry group to inform the licensing manager and control room should 1 hour average temperature readings exceed 102.5°F.

Analysis. The inspectors determined that failure to translate a design basis limit for outdoor air temperature into a formal instruction or procedure is a performance deficiency. The finding was more than minor because it affects the mitigating system cornerstone objective of ensuring the reliability of systems, standby service water, that respond to initiating events to prevent undesirable conditions. Using the Phase 1 worksheet in Inspection Manual Chapter 0609, "Significance Determination Process," this finding is determined to be of very low safety significance (Green) because there was no actual loss of a safety function, and the design basis limits had not been exceeded. The inspectors determined that the finding has a crosscutting aspect in the area human performance decision making because the licensee failed to use conservative assumptions in not establishing an instruction or procedure to monitor high outdoor air temperatures and for followup actions to ensure the standby service water system meets its functional goals [H.1(b)].

Enforcement. 10 CFR Part 50, Appendix B, Criterion III, states, in part, measures shall be established to assure that applicable regulatory requirements and the design basis

are correctly translated into specifications, drawings, procedures, and instructions. These measures shall include provisions to assure that appropriate quality standards are specified and included in design documents and that deviations from such standards are controlled. Contrary to this, on June 28, 2006, the licensee failed to translate a design basis limit for outdoor air temperature into a formal instruction or procedure to monitor outdoor air temperatures during extreme high temperature weather to ensure the standby service water pump room design basis limit would not be exceeded. Subsequent actions in the event the design basis temperature is exceeded were also not established. Because this finding is of very low safety significance and has been entered in the licensee's CAP as CR-GGN-2007-04076, this violation is being treated as a NCV consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000416/2007004-02, "Failure to Establish a Formal Instruction or Procedure to Monitor Outdoor Air Temperatures."

1R19 Postmaintenance Testing (71111.19)

a. Inspection Scope

The inspectors selected the six listed postmaintenance test activities of risk significant systems or components. For each item, the inspectors: (1) reviewed the applicable licensing basis and/or design-basis documents to determine the safety functions; (2) evaluated the safety functions that may have been affected by the maintenance activity; and (3) reviewed the test procedure to ensure it adequately tested the safety function that may have been affected. The inspectors either witnessed or reviewed test data to verify that acceptance criteria were met, plant impacts were evaluated, test equipment was calibrated, procedures were followed, jumpers were properly controlled, test data results were complete and accurate, test equipment was removed, the system was properly re-aligned, and deficiencies during testing were documented. The inspectors also reviewed the UFSAR to determine if the licensee identified and corrected problems related to postmaintenance testing.

- WO 116201, Control Room Air Conditioning Flow Test
- WO 86886, Reactor Core Isolation Cooling Temperature Switch Replacement
- WO 88931, Control Room Air Conditioning System Outage
- WO 93109, Secondary Containment Isolation Valve P11F066 Actuator Modification
- WO 119863, Division II Diesel Generator Turbocharger Lube Oil Pre-lube Line Clogged
- WO 66378, Installation of Vibration Sensor on Control Room Air Conditioning Motors

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed six samples.

b. Findings

No findings of significance were identified.

1R20 Refueling and Outage Activities (71111.20)

a. Inspection Scope

For the outages listed below, the inspectors reviewed the following risk significant refueling items or outage activities to verify defense in depth commensurate with the outage risk control plan and compliance with the TSs: (1) tagging/clearance activities; (2) electrical power; (3) decay heat removal; (4) inventory control; (5) reactivity control; (6) heatup and cooldown activities; (7) restart activities; and (8) licensee identification and implementation of appropriate corrective actions associated with refueling and outage activities.

- Forced Outage 07-02: August 21 through August 22, 2007
- Forced Outage 07-03: September 1, through September 14, 2007

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed two samples.

b. Findings

Introduction: A Green, self-revealing NCV of TS 5.4.1(a), was identified involving the failure to follow the system operating instructions to align valves in the fuel pool cooling and cleanup (FPCCU) system, causing both FPCCU pumps to trip and a subsequent loss of fuel pool cooling.

Description: On August 23, 2007, the plant began a control rod blade disposal project to dispose of spent control rods using an underwater cutting machine. During this process, the FPCCU heat exchangers and drain tank were isolated to keep irradiated particulate from plating out on the components, preventing an increase in radiological dose rates in the heat exchanger area. On the evening of September 1, 2007, the heat exchangers were realigned to lower pool temperatures overnight so that control rod disposal could continue on the following day without the heat exchangers in service. The operator performing this task failed to follow System Operating Instruction 04-1-01-G41, "Fuel Pool Cooling and Cleanup System," Revision 54, causing a high discharge pressure alarm to annunciate in the control room and a subsequent trip of both FPCCU pumps.

Referencing the procedure, the valves should have been manipulated in a specific order. The order is (1) open G41F011A(B) [inlet valve], (2) open G41F013A(B) [outlet valve], and then (3) close G41F012A(B) [bypass valve]. Contrary to what the procedure

required, the order that the manipulations were made was (1) open G41F011A(B) [inlet valve], (2) close G41F012A(B) [bypass valve], and then (3) open G41F013A(B) [outlet valve]. This out of sequence manipulation caused the high discharge pressure on the outlet of the fuel pool cooling pumps and subsequent trip of both FPCCU pumps. Following the event, control room operators promptly restored fuel pool cooling. The inspectors verified that fuel pool temperature did not exceed the 140 °F limit as specified by the Technical Requirements Manual, Section 6.7.4.

Analysis: The performance deficiency associated with this finding was that the operators failed to implement the FPCCU system operating instructions for system alignment. The finding is more than minor because it affects the human performance attribute of the barrier integrity cornerstone and affects the cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Using NRC Manual Chapter 0609, "Significance Determination Process," Phase 1 worksheet, inspectors determined that the finding has a very low safety significance since it only affects the radiological barrier function provided by the spent fuel pool system. The cause of this finding has a crosscutting aspect in the area of human performance associated with work practices because licensee personnel failed to follow the correct sequence of valve manipulations required by procedure [H.4(b)].

Enforcement: TS 5.4.1(a) requires written procedures to be implemented as recommended by Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Regulatory Guide 1.33 recommends procedures for fuel storage pool purification and cooling system. Contrary to the above, operators failed to follow System Operating Instruction 04-1-01-G41, "Fuel Pool Cooling and Cleanup System," Revision 54, resulting in both FPCCU pumps tripping and a subsequent loss of spent fuel pool cooling. Because this violation was of very low safety significance and was entered into the licensee's CAP as CR-GGN-2007-04284, this violation is being treated as an NCV consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 05000416/2007004-03, "Failure to Follow Procedure Causes a Loss of Decay Heat Removal in the Spent Fuel Pool."

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors reviewed the UFSAR, procedure requirements, and TSs to ensure that the six listed surveillance activities demonstrated that the SSCs tested were capable of performing their intended safety functions. The inspectors either witnessed or reviewed test data to verify that the following significant surveillance test attributes were adequate: (1) preconditioning; (2) evaluation of testing impact on the plant; (3) acceptance criteria; (4) test equipment; (5) procedures; (6) jumper/lifted lead controls; (7) test data; (8) testing frequency and method demonstrated TS operability; (9) test equipment removal; (10) restoration of plant systems; (11) fulfillment of ASME Code requirements; (12) updating of performance indicator (PI) data; (13) engineering evaluations, root causes, and bases for returning tested SSCs not meeting the test acceptance criteria were correct; (14) reference setting data; and, (15) annunciator and

alarm setpoints. The inspectors also verified that the licensee identified and implemented any needed corrective actions associated with the surveillance testing.

- July 17, 2007, local leak rate test of containment isolation Valve E12F028A per Procedure 06-OP-1E12-Q-0005, "LPCI/RHR Subsystem A MOV Functional Test," Revision 107
- July 23, 2007, average power range monitor testing per Procedure 06-IC-1C51-R-0004, "APRM Time Response Testing," Revision 3
- July 30, 2007, reactor core isolation cooling system quarterly testing per Procedure 06-OP-1E51-Q-0003, "RCIC Quarterly Pump Operability Verification," Revision 121
- August 8, 2007, hot restart of standby diesel generator per Procedure 06-OP-1P75-R-0004, "Standby Diesel Generator 12: 18-month Functional Test," Revision 112
- August 17, 2007, review of licensee leak detection measurement per Procedure 06-OP-1000-D-0001, "Daily Operating Logs," Revision 114
- August 25, 2007, radiation meter response testing per Procedure 06-OP-1D17-Q-0015, "Main Steam Line Radiation Monitor Functional Test," Revision 100

Documents reviewed by the inspectors are listed in the attachment.

The inspectors completed six samples.

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

The inspectors reviewed the UFSAR, plant drawings, procedure requirements, and TSs to ensure that the temporary modification listed below was properly implemented. The inspectors: (1) verified that the modification did not have an adverse effect on system operability/availability; (2) verified that the installation was consistent with modification documents; (3) ensured that the post-installation test results were satisfactory and that the impact of the temporary modification on permanently installed SSCs was supported by the test; (4) verified that the modification was identified on control room drawings and that appropriate identification tags were placed on the affected drawings; and, (5) verified that appropriate safety evaluations were completed. The inspectors verified that the licensee identified and implemented any needed corrective actions associated with

temporary modifications.

- July 18, 2007, temperature alarm set point raised for safety relief Valve B21F041B tailpipe temperature sensor

Documents reviewed by the inspectors included:

- EC1994, "Temporarily Raise Setpoint for 1B21F041B Tailpipe Temperature Alarm to Prevent Masking of New Alarms," Revision 0
- WO 116172

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

For the emergency drill listed below, which contributes to the Drill/Exercise Performance and emergency response organization performance indicators, the inspectors: (1) observed the training evolution to assess classification, notification, and protective action requirement development activities; (2) compared inspector identified weaknesses and deficiencies against licensee identified findings to determine whether the licensee is properly identifying failures; and (3) determined whether licensee performance is in accordance with the guidance of the Nuclear Energy Institute (NEI) 99-02, "Voluntary Submission of Performance Indicator Data," acceptance criteria.

- July 11, 2007, the inspectors observed the licensee's emergency response organization in the simulator, the Emergency Response Facility, the Technical Support Center, and the Operations Support Center respond to a loss of reactor coolant and an unisolable main steam line break in the auxiliary building tunnel, leading to an unmonitored radiological release to the atmosphere.

Documents reviewed by the inspectors included:

- GGNS 2007 3rd Quarter Emergency Preparedness Drill Evaluator's Notebook
- Drill Emergency Notification Forms
- Procedure 10-S-01-1, "Activation of the Emergency Plan," Revision 116

The inspectors completed one sample.

b. Findings

No findings of significance were identified.

Cornerstone: Occupational Radiation Safety

4. OTHER ACTIVITIES

4OA2 Identification and Resolution of Problems (71152)

.1 Routine Review of Identification and Resolution of Problems

a. Inspection Scope

The inspectors performed a daily screening of items entered into the licensee's CAP. This assessment was accomplished by reviewing work orders and condition reports and attending corrective action review and work control meetings. The inspectors: (1) verified that equipment, human performance, and program issues were being identified by the licensee at an appropriate threshold and that the issues were entered into the CAP; (2) verified that corrective actions were commensurate with the significance of the issue; and, (3) identified conditions that might warrant additional follow-up through other baseline inspection procedures.

b. Findings

No findings of significance were identified.

4OA3 Event Follow-up (71153)

.1 Personnel Performance During Nonroutine Evolutions, Events, and Transients

a. Inspection Scope

The inspectors: (1) reviewed operator logs, plant computer data, and/or strip charts for the below listed evolutions to evaluate operator performance in coping with nonroutine events and transients; (2) verified that operator actions were in accordance with the response required by plant procedures and training; and (3) verified that the licensee has identified and implemented appropriate corrective actions associated with personnel performance problems that occurred during the events sampled.

- On July 7, 2007, the inspectors reviewed operator performance associated with a loss of instrument air following a break in a supply line in the turbine building. The inspectors reviewed plant parameters, operator logs, and operator actions associated with off-normal event Procedure 05-1-02-V-9, "Loss of Instrument Air," Revision 34.
- On August 21, 2007, the inspectors reviewed operator performance associated with a reactor scram due to the failure of a reactor feed pump controller.

- On August 26, 2007, the inspectors reviewed operator performance associated with an unplanned trip of the reactor recirculation Pump B motor due to a ground fault in the motor windings. The inspectors reviewed plant parameters, operator logs, and operator actions associated with off-normal event Procedure 05-1-02-III-3, "Reduction in Recirculation System Flow Rate," Revision 106.

The inspectors completed three samples.

b. Findings

No findings of significance were identified.

.2 (Closed) LER 05000416/2007-02, "Reactor SCRAM due to Turbine Trip caused by Loss of Condenser Vacuum"

Introduction: A Green self-revealing finding was identified involving the failure to properly calibrate the main condenser hydraulic vacuum switch that established a higher trip setpoint that would prematurely actuate an automatic turbine trip and reactor scram for a degraded main condenser vacuum condition.

Description: On May 19, 2007, a failure occurred in the high pressure condenser expansion joint between the main turbine and condenser resulting in condenser air leakage, and lowering condenser vacuum. Operators entered the loss of condenser vacuum Off-Normal-Event Procedure (ONEP), and reduced reactor power from 100 percent to 78 percent in order to reduce condenser load. As condenser vacuum was decreasing the operators made the decision to manually scram the reactor prior to reaching the automatic turbine trip setpoint of 21 inches Hg vacuum; however, the automatic turbine trip occurred at 24.9 inches Hg vacuum as trended by the plant data server. It was determined that the main condenser vacuum trip setpoint was calibrated incorrectly during the previous Refueling Outage RF15. During the investigation, the licensee determined that the as-found trip setpoint of the main condenser vacuum switch was set to trip at 25.89 inches Hg vacuum.

On April 10, 2007, nearing the end of Refueling Outage RF15, plant personnel discovered that the main condenser vacuum switch had not been calibrated. This was discovered after the turbine had been placed on the turning gear. The calibration methodology required that primary oil (from the turbine lube oil system) be disconnected from the switch so that instrument air could be used to simulate turbine lube oil pressure. The technicians were concerned that a significant amount of oil could be lost if the primary oil was disconnected with the turbine on the turning gear. In order to continue with plant startup, engineering revised the calibration procedure to use an adjustment to the speed simulation screw, instead of removing the primary oil supply line. The revised procedure required the speed simulation screw to be turned to the "full down" position. The technicians adjusted the speed simulation screw to be flush with the stem nut on the actuator, but did not set the screw to the "full down" position. This

caused the main condenser switch calibration to set the vacuum trip to an incorrect setpoint.

Analysis: The finding was more than minor because it was associated with the initiating events cornerstone attribute of equipment performance and affected the associated cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during power operations. Using the Inspection Manual Chapter 0609, "Significance Determination Process," Phase 1 worksheet, the finding was determined to have very low safety significance, because the finding did not contribute to the likelihood that mitigating equipment or functions would not be available following a reactor trip. The cause of the finding was related to the human performance crosscutting component of resources in that the calibration procedure did not have clear instructions detailing the methodology to adjust the speed simulation screw to the required position [H.2©]. This issue was entered into the licensee's CAP as CR-GGN-2007-02756.

Enforcement: No violation of NRC requirements occurred. FIN 0500416/2007004-04.

4OA6 Meetings, Including Exit

On August 17, 2007, the inspectors presented the results of Inspection Procedure 71111.02, "Evaluations of Changes, Tests, or Experiments," and Inspection Procedure 71111.17, "Permanent Plant Modifications," to Mr. M. Krupa, General Manager, Plant Operations, and other members of licensee management. The licensee acknowledged the issues and observations presented. The licensee confirmed that the inspectors retained no proprietary information.

On August 30, 2007, the inspectors briefed Mr. R. Brian, Site Vice President, and other members of the licensee's staff of the results of the inspection. The licensee acknowledged the findings presented. After completion of this biennial requalification cycle, the remaining examination results were forwarded to the inspectors for their review. After determining that there were no findings of significance, the inspectors conducted a teleconference exit with Mr. C. Roberts, Operations Training Superintendent (Requalification), on October 1, 2007. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

On October 10, 2007, the resident inspectors presented the inspection results to Mr. R. Brian and others who acknowledged the findings. The licensee confirmed that the inspectors retained no proprietary information.

4OA7 Licensee-Identified Violations

The following violations of very low significance (Green) were identified by the licensee and are violations of NRC requirements which meet the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as NCVs.

- TS 5.4.1(a) requires written procedures to be implemented as recommended by Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Appendix A recommends procedures for performing maintenance that can affect the performance of safety-related equipment. Contrary to this requirement, on March 30, 2007, maintenance personnel failed to properly implement work instructions by installing the wrong limit switch settings on the actuator for the standby service water reactor heat removal heat exchanger inlet valve. As a result, the valve opened further than the required throttled position, diverting more standby service water flow to the reactor heat removal heat exchanger. This resulted in a degraded flow to other Division I safety-related systems. This condition was discovered following investigation of degraded flow in the control room air conditioning system, which was identified during performance of System Operating Instruction 04-1-03-Z51-1, "Control Room HVAC System," Revision 41, on July 2, 2007. This issue was documented in CRs-GGN-2007-03374 and CR-GGN-2007-03514. This finding is of very low safety significance because there was no actual loss of operability.

- TS 5.4.1(a) requires written procedures to be implemented as recommended by Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Appendix A recommends procedures for performing maintenance that can affect the performance of safety-related equipment. Contrary to this requirement, on September 5, 2007, maintenance personnel failed to properly implement an infrequently performed test or evolution procedure to lift and move a 29 ton recirculation system pump motor through the drywell. The procedure required redundant rigging so that the lift could be designated as single failure proof and not require a load path analysis. The individual directing the lift ordered the movement of the motor without redundant rigging through most of the planned drywell load path. The inappropriate movement was identified by individuals in the drywell during the move and by the test coordinator in the control room via a video monitor. This issue was documented in CR-GGN-2007-04382. This finding is of very low safety significance since there was no actual loss of operability.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

C. Abbott, Acting Manager, Quality Assurance
K. Baker, Engineer, Design Engineering
D. Barfield, Director, Engineering
C. Bell, Senior Operations Instructor
C. Bottemiller, Manager, Plant Licensing
R. Brian, Vice President, Operations
M. Causey, Senior Lead Technical Specialist
R. Collins, Manager, Operations
D. Cooper, Senior Operations Instructor
D. Coulter, Licensing Specialist, Plant Licensing
L. Eaton, Senior Lead Engineer
B. Edwards, Minority Owner Specialist
C. Ellsaesser, Manager, Maintenance
R. Fuller, Engineer, Design Engineering
K. Grillis, Senior Operations Instructor
M. Guynn, Manager, Emergency Preparedness
E. Harris, Manager, Corrective Action and Audits
T. Harrellson, Senior Operations Instructor
J. Hixon, Engineer, Design Engineering
D. Jones, Manager, System Engineering
D. Killingsworth, Reactor Operator
M. Krupa, General Manager, Plant Operations
G. Lantz, Supervisor, Design Engineering
M. Larson, Senior Licensing Engineer
C. Mason, Quality Assurance Auditor
E. Mathes, Shift Manager
M. McAdory, Senior Operations Instructor
D. McDirmid, Maintenance Rule Engineer
J. Owens, Licensing Specialist, Plant Licensing
M. Rasch, Senior Operations Instructor
S. Reeves, Acting Operations Training Superintendent (Initial)
C. Roberts, Operations Training Superintendent (Requalification)
M. Rohrer, Manager, System Engineering
F. Rosser, Supervisor, Radiation Protection
D. Smith, Control Room Supervisor
T. Tankersley, Manager, Training
T. Thornton, Manager, Design Engineering
K. Walker, Superintendent, Reactor Engineering
D. Wilson, Supervisor, Design Engineering
R. Wilson, Superintendent, Radiation Protection
P. Worthington, Supervisor, Engineering

NRC personnel

W. Walker, Senior Project Engineer, Reactor Project Branch C
R. Bywater, Senior Reactor Analyst, Region IV

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Opened and Closed

05000416/2007004-01	NCV	Failure to Monitor Performance of the Control Rod Drive System
05000416/2007004-02	NCV	Failure to Establish a Formal Procedure to Monitor Outdoor Air Temperatures
05000416/2007004-03	NCV	Failure to Follow Procedures Caused Loss of Decay Heat Removal in the Spent Fuel Pool
05000416/2007004-04	FIN	Reactor SCRAM due to Turbine Trip caused by Loss of Condenser Vacuum

Closed

0500416/2007004-02	LER	Reactor SCRAM due to Turbine Trip caused by Loss of Condenser Vacuum
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Discussed

None

LIST OF DOCUMENTS REVIEWED

In addition to the documents called out in the inspection report, the following documents were selected and reviewed by the inspectors to accomplish the objectives and scope of the inspection and to support any findings:

Section 1R02: Evaluations of Changes, Tests, or Experiments

10 CFR 50.59 Evaluations

SE-2005-0003	SE-2006-0004	SE-2007-0002
SE-2005-0006	SE-2006-0005	
SE-2006-0003	SE-2006-0006	

Procedures

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EN-LI-100	Process Applicability Determination	4
EN-LI-101	10 CFR 50.59 Review Program	3

10 CFR 50.59 Applicability Determinations/Screens

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
ER-GG-2005-0090	Develop Modification Package(s) for Raising Normal, HI, and HI-HI Level Setpoints for LPFWH's #4A/B/C and #3A/	0
ER-GG-2005-0255	Unit 1 Instrument Air Vibration Trips	0
ER-GG-2005-0280	Evaluation of Alternate ASCO Solenoid Replacement PN HTX821027 for Original LB-X-821027	0
ER-GG-2006-0236	Removal of Control Rod Drive Relief Valves 1C11F025A/B for Seal Purge Flow	0
ER-GG-2003-0018-047	Spent Fuel Cask Handling Crane 1T31E001 Process Applicability Determination/Screening	0
ER-GG-2003-0018-049	Cold Proof Test of Spent Fuel Cask Crane Process Applicability Determination/Screening	0
ER-GG-2006-0237-000	Revise the in-service inspection requirements for High Energy Break Exclusion Region (BER)	0
DRN J606.0	Document Revision Notice ER-GG-2006-0116-000 Approved Alternate Replacement Solenoid Valve	15
ER-GG-2005-0323-000	Engineering Request; I&C TRM surveillance Reduction	0
ER-GG-2006-0116-000	Evaluate ASCO solenoid Valve replacement E51 Reactor Core Isolation Cooling System	0
ER-GG-2006-0220-001	Set up Valve to Eliminate Negative Margin	0

ER-GG-2007-0048-000	Setpoint Change for Bus 15AA and 16AB Undervoltage Relay Timers	
ER-GG-2007-0003-000	Provide Temporary Weld Repair for CRD Flow Control Valve, 1C11F002A	0
ER-GG-2006-0262-000	Increase the Reset Value for Safeguard Switchgear and Battery Rooms Air Handling Unit Fan Discharge Temper	0
ER-GG-2005-0242-000	Install Second Mechanical Gag Identical to the Existing Mechanical Gag to Ensure That Valves 1P71F298	0

Miscellaneous

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
GNRI-2006/00006	Grand Gulf Nuclear Station, Unit 1 - Issuance of Amendment Re: Adoption of Approved Generic Changes to the Technical Specifications (TAC NO. MC6651)	0
GNRO-2005/00016	License Amendment Request, Adoption of NRC Approved Generic Changes to the Improved Technical Specifications, Grand Gulf Nuclear Station, Unit 1	0
TSTF-400	Clarify Surveillance Requirement on Bypass of Diesel Generator Automatic Trips	0
NUREG-0871 Supplement 7	Safety Evaluation Report Related to the Operation of Grand Gulf Nuclear Station, Units 1 and 2	0
LO-GLO 2007-0124	Permanent Plant Modifications and 50.59 Program Reviews (Pre-NRC) Self-Assessment	0
LBD-2005-081	LBD Change Form	0

CRs

CR-GGN-2005-03193	CR-GGN-2006-01510	CR-GGN-2006-01237
CR-GGN-2006-02777	CR-GGN-2005-03231	

Section 1R11: Licensed Operator Requalification

Procedures

- 01-S-04-2, "Licensed Operator Requalification Training"
- 01-S-02-17, "Administration of Annual Exam"
- 01-S-02-20, "Preparing, Conducting, and Review of Simulator Evaluations"

Job Performance Measures (JPMs)

GJPM-OPS-R2731, "Transfer of electrical loads from Service Transformer 21 to Service Transformer 11," Revision 00

GJPM-OPS-L62-1, "Startup Static Inverter 1Y81," Revision 01

GJPM-OPS-Z5101, "Secure Control Room Standby Fresh Air Unit," Revision 00

GJPM-OPS-G3311, "Align RWCU for Vessel Level Control," Revision 00

GJPM-OPS-C61-2, "Perform Attachment IV of Shutdown from Remote Shutdown Panel, ONEP," Revision 00

GJPM-OPS-C10181, "Rotate Operating CRD Pumps," Revision 00

GJPM-OPS-EAL19, "Emergency Event Classification JPM, Control Room Evacuation," Revision 2

GJPM-OPS-B2110, "Operate Turbine Pressure Control / SRVs," Revision 00

GJPM-OPS-E1201, "Startup Shutdown Cooling B," Revision 1

GJPM-OPS-N2101, "RFPT HPU Shutdown, Revision 00

GJPM-OPS-R2108, "Reset Undervoltage Lockouts on BOP Buses," Revision 00

GJPM-OPS-EAL07, "Emergency Event Classification JPM," Revision 3

Scenarios

GSMS-LOR-AEX25, "Spurious RCIC Isolation Due to Failed RHR Temperature Switch; RFPT A Pump Trip; Feedwater Line A Break in the Drywell, Revision 07

GSMS-LOR-AXE21, Drifting/Stuck Rod; RFPT Trip; Feedwater Line Break in Drywell; ATWS, Revision 05

GSMS-LOR-AEX01, "C" level instrument failure/FW heater 6A tube leak/FW line rupture in drywell, Revision 04

GSMS-LOR-AEX16, Control rod drift; EHC leak; ATWS, Revision 06

Written Examinations

LOR-2006-Cycle 3-Exam 1 LOR-2006-Cycle 6-Exam 1 LOR-2006-Cycle 2-Exam 1
LOR-2006-Cycle 2-Exam 1 LOR-2006-Cycle 7-Exam 1
LOR-2006-Cycle 1-Exam 1

Miscellaneous

GGNS Operating Test Walk Through Results (Weeks 1-4)

2007 Annual JPM Selection (Weeks 1-6)

GLO-2007-0122, Licensed Operator Requalification Training Inspection Assessment, June 4-7, 2007

Grand Gulf Nuclear Station Operations Training Corporate Assessment, February 15, 2007

Remediation Package for Crew Failure on Simulator

CRs

CR-GGN-2005-03352 dated 09/08/2005, "Operating Experience Report on Weaknesses in Operator Fundamentals"

CR-GGN-2006-02308 dated 05/30/2006, "Members of the Emergency Response Organization Overdue on Training"

CR-GGN-2005-05124 dated 11/30/2005, "Watchstanders Not Fully E-Plan Qualified"

CR-GGN-2005-03099 dated 08/11/2005, "2005 Biennial Exam Failures"

Section 1R12: Maintenance Rule

Procedures

EN-DC-203, "Maintenance Rule Program," Revision 0
EN-DC-204, "Maintenance Rule Scope and Basis," Revision 0
EN-DC-205, "Maintenance Rule Monitoring," Revision 0
EN-DC-206, "Maintenance Rule (a)(1) Process," Revision 0
Maintenance Rule Failure Database for System C11
GGNS Maintenance Rule (a)(1) Systems Report, July 2007
GGNS Maintenance Rule (a)(1) Systems Report, September 2007
Maintenance Rule System Notebook

CRs (C11)

CR-GGN-2006-2923
CR-GGN-2006-2117

CR-GGN-2007-2024
CR-GGN-2007-2882

CR-GGN-2007-3162

CRs (M41)

CR-GGN-2006-02920
CR-GGN-2006-03502

CR-GGN-2006-03999
CR-GGN-2007-02498

CR-GGN-2007-02563

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedures

01-S-18-6, "Risk Assessment of Maintenance Activities," Revision 5
18-S-01-1, "Planning Guidelines," Revision 2
EN-WM-101, "On-Line Work Management Process," Revision 1
EN-WM-102, "Work Implementation and Closeout," Revision 0

Work Order 86316
Work Order 51085228

CR

CR-GGN-2007-04214

Section 1R15: Operability Determinations

EN-OP-104, "Operability Determinations," Revision 2
EN-LI-102, "Corrective Action Process," Revision 10
Drawing M-1086, "P&ID High Pressure Core Spray System," Revision 30
System Design Criteria SDC-E22, "High Pressure Core Spray System E22," Revision 2
System Operating Instruction 04-S-01-Z51-1, "Control Room HVAC System," Revision 42

CRs

CR-GGN-2007-3374
CR-GGN-2007-3385

CR-GGN-2007-3514

Section 1R17A: Permanent Plant Modifications

Engineering Report ER-GG-2004-0230-001-00, "Replacement of E31 Riley Temperature Switches with NUS Model A076MA," Revision 1

QP-367.0, "Seismic Qualification Review Package for Riley Temperature Switch Model 86"

Trentec Test Plan 1S001.0 Revision 1, "NUS Temperature Switch Seismic Qualification Test Procedure"

Seismic Qualification Report 1S001.0, Revision 0, Appendix H
Dynamic Qualification Records for Temperature Switch, GE, October 1988

Drawing GE-NE 164C5687

Leak Detection Temperature Monitor Qualification Report, "NUS-A076QA," Revision 0

Work Order 86886

Work Order 86312

CRs

CR-GGN-2007-3495

CR-GGN-2007-3502

Section 1R17B: Permanent Plant Modifications

Engineering Requests

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
ER-GG-2005-0323-000	Engineering Request; I&C TRM Surveillance Reduction	0
ER-GG-2006-0099	Engineering Evaluation on Greater than 95°F Outdoor Air Temp.	0
ER-GG-92-0002	Evaluation of Safety Related Electrical Equipment in Various Rooms With Elevated Post LOCA Temperatures	2
ER-GG-2004-0219-000	Develop Design Change Package to Change Four AGCO Thermal Relief Valves to Alternate Brand Name/Model	0
ER-GG-2003-0018-006	Evaluate 150-Ton Cask Handling Crane	0
ER-GG-2005-0009-001	Modification of Cask Handling Crane	0
ER-GG-2005-0110-000	Remove the Division I and II Diesel Trip on Low Control Pressure During a LOCA	0
ER-GG-2006-0161-000	Use of Ultra Low Sulfur Diesel Fuel	0
ER-GG-2004-0219-000	Develop Design Change Package to Change Four AGCO Thermal Relief Valves to Alternate Brand Name/model	0
ER-GG-2003-0234-000	Extend Frequency of DG Fuel Oil Storage Tank Cleaning	0

ER-GG-2003-0234-001	Extend Frequency of Division II Dg Fuel Oil Storage Tank Cleaning	0
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ER-GG-2005-0318-000	Basis for the Div ½ Governor Replacement	0
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Calculations

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EC 3.8.5	Engineering Calculation SSW Pumphouse HVAC	0
M3.8.005	Standby Service Water Pump House Ventilation System	0
MC-Q1P75-90190	Diesel Fuel Storage Requirements for the Division 1 and 2 Diesel Generators	2

Drawings

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
3NC3188, Sht. 5	Dresser Flow Control, Consolidated Safety Relief Valve	0
FSK-S-1061B-080-G	HBC-185/HBD-254, SSW from HBC-84 to PSV F031A & Drain from PSV F031A	11

Miscellaneous

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
LDC 2001-059	Licensing Document Change Surveillance Change in Frequency	March 15, 2001
M-204.0	Standard for Fabrication and Installation of Nuclear Service Piping	1
GGNS-MS-03	Mechanical Standard for Piping Class Sheets	1

Work Orders

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
50326445		0
83925	06CH1000-V-0038 DFO Receipt Analyses	1
83926	06CH1000-V-0038 DFO Receipt Analyses	1
104860	06CH1000-V-0038 DFO- Receipt Analyses	1
104861	06CH1000-V-0038 DFO Receipt Analyses	1

CRs

CR-GGN-2004-00076	CR-GGN-2007-04070	CR-GGN-2007-04082
CR-GGN-2006-03977	CR-GGN-2007-04076	CR-GGN-2007-04082
CR-GGN-2006-04035	CR-GGN-2007-04076	
CR-GGN-2007-01405	CR-GGN-2007-04077	

Section 1R19: Postmaintenance Testing

Drawing FSK-I-999-280-G, "Division 2 Diesel Generator Lube Oil Tubing Run," Revision 4
ENS-MA-114, "Post Maintenance Testing," Revision 5

Work Orders

112187	66378	89465
116201	86886	93109
119863	88931	

CRs

CR-GGN-2007-3584	CR-GGN-2007-4193
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Section 1R20: Refueling and Outage Activities

Procedures

03-1-01-3, "Plant Shutdown," Revision 115
03-1-01-1, "Cold Shutdown to Generator Carrying Minimum Load," Revision 138
EN-OP-102, "Protective and Caution Tagging," Revision 6
EN-MA-118, "Foreign Material Exclusion," Revision 2
M-1085A, "Residual Heat Removal System," Revision 67
M-1085C, "Residual Heat Removal System," Revision 17
01-S-06-26, "Post-Trip Analysis," Revision 16
01-S-06-58, "Infrequently Performed Test or Evolution," Revision 0
01-S-06-7, "Containment and Drywell Access Control," Revision 104
EN-HU-103, "Human Performance Error Review," Revision 0

CRs

CR-GGN-2007-4128	CR-GGN-2007-4177	CR-GGN-2007-4382
CR-GGN-2007-4163	CR-GGN-2007-4201	CR-GGN-2007-4576
CR-GGN-2007-4175	CR-GGN-2007-4321	

Section 1R22: Surveillance Testing

Procedure 01-S-06-12, "GGNS Surveillance Test Program," Revision 109

Procedure 06-OP-1E12-Q-0005, "LPCI/RHR Subsystem A MOV Functional Test," Revision 107

Procedure 06-IC-1C51-R-0004, "APRM Time Response Testing," Revision 3

Procedure 06-OP-1E51-Q-0003, "RCIC Quarterly Pump Operability Verification," Revision 121

Procedure 06-OP-1P75-R-0004, "Standby Diesel Generator 12: 18-Month Functional Test,"
Revision 112

Procedure 06-OP-1000-D-0001, "Daily Operating Logs," Revision 114

Procedure 06-OP-1D17-Q-0015, "Main Steam Line Radiation Monitor Functional Test,"
Revision 100

Section 4OA3: Event Followup

Procedures

07-S-53-N32-N035-1, "Loop Calibration Instruction - Turbine Hydraulic Low Vacuum Trip,"
Revision 001

07-S-53-N32-N035-1, "Loop Calibration Instruction - Turbine Hydraulic Low Vacuum Trip,"
Revision 002

07-S-53-N32-N035-1, "Loop Calibration Instruction - Turbine Hydraulic Low Vacuum Trip,"
Revision 003

05-1-02-V-9 "Loss of Instrument Air," Revision 34

05-1-02-III-3, "Reduction in Recirculation System Flow Rate," Revision 106

CRs

CR-GGN-2007-02756

LIST OF ACRONYMS

CAP	corrective action program
CR	condition report
FPCCU	fuel pool cooling and cleanup
GGNS	Grand Gulf Nuclear Station
NCV	noncited violation
SSC	structure, system, and component
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report