



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION IV  
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January 21, 2010

James R. Douet  
Vice President Operations  
Entergy Operations, Inc.  
Grand Gulf Nuclear Station  
P.O. Box 756  
Port Gibson, MS 39150

Subject: GRAND GULF – NRC INTEGRATED INSPECTION REPORT 05000416/2009005

Dear Mr. Douet:

On December 31, 2009, 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 January 12, 2010 with you and other members of your staff.

The inspections 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.

Based on the results of this inspection, no findings of significance were identified. However, two licensee-identified violations which were determined to be of very low safety significance are listed in this report. The NRC is treating these findings as noncited violations, consistent with Section VI.A.1 of the NRC Enforcement Policy. If you contest the significance of the 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 U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555-0001, with copies to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region IV, 612 E. Lamar Blvd, Suite 400, Arlington, Texas, 76011-4125; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, D.C. 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, and its enclosure, will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records component of NRC's document system (ADAMS).

Entergy Operations, Inc.

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ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

***/RA BHagar for/***

Vincent Gaddy, Chief  
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Division of Reactor Projects

Docket: 50-416

License: NPF-29

Enclosure:

NRC Inspection Report 05000416/200905  
w/Attachment: Supplemental Information

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**U.S. NUCLEAR REGULATORY COMMISSION**

**REGION IV**

Docket: 05000416

License: FPF-29

Report: 0500416/2009005

Licensee: Entergy Operations, Inc.

Facility: Grand Gulf Nuclear Station

Location: 7300 Bald Hill Road  
Port Gibson, MS 39150

Dates: September 24 through December 31, 2009

Inspectors: R. Smith, Senior Resident Inspector  
A. Barrett, Resident Inspector  
R. Kumana, Project Engineer  
L. Carson II, Senior Health Physicist

Approved By: Vincent Gaddy, Chief, Project Branch C  
Division of Reactor Projects

## SUMMARY OF FINDINGS

IR 05000416/2009005; 09/24/2009 – 12/31/2009; Grand Gulf Nuclear Station, Integrated Resident and Regional Report; routine integrated report.

The report covered a 3-month period of inspection by resident inspectors and an announced baseline inspection by a regional based inspector. No findings of significance were identified by the inspectors. 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 4, dated December 2006.

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

None.

### **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 action tracking numbers (condition report numbers) are listed in Section 4OA7.

## REPORT DETAILS

### Summary of Plant Status

Grand Gulf Nuclear Station began the inspection period at full rated thermal power. On October 16, 2009, operators reduced reactor power to 80 percent for planned control rod surveillance, planned turbine control valve surveillances and a control rod pattern adjustment. The plant returned to 100 percent power on October 17, 2009. On November 6, 2009, operators reduced reactor power to 88 percent for planned control rod surveillance and control blade friction testing. The plant returned to 100 percent power on November 7, 2009. On December 4, 2009, operators reduced power to 65 percent for a planned sequence exchange, a planned control rod surveillance and control blade friction testing. The plant was returned to 100 percent power on December 7, 2009, and 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, and Emergency Preparedness

#### 1R04 Equipment Alignments (71111.04)

##### Partial Walkdown

##### a. Inspection Scope

The inspectors performed partial system walkdowns of the following risk-significant systems:

- On October 20, 2009, the inspectors walked down the residual heat removal Loop C following the performance of check valve testing.
- On October 22, 2009, the inspectors walked down the high-pressure core spray system following performance of the system surveillance.

The inspectors selected these systems based on their risk significance relative to the reactor safety cornerstones at the time they were inspected. The inspectors attempted to identify any discrepancies that could affect the function of the system causing potential risk increase. The inspectors reviewed applicable operating procedures, system diagrams, Updated Final Safety Analysis Report, technical specification requirements, administrative technical specifications, outstanding work orders, condition reports, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have rendered the systems incapable of performing their intended functions. The inspectors also inspected accessible portions of the systems to verify that system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were

no obvious deficiencies. The inspectors also verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the corrective action program with the appropriate significance characterization. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of two partial system walkdown samples as defined in Inspection Procedure 71111.04-05.

b. Findings

No findings of significance were identified.

**1R05 Fire Protection (71111.05)**

.1 Quarterly Fire Inspection Tours

a. Inspection Scope

The inspectors conducted fire protection walkdowns that were focused on availability, accessibility, and the condition of firefighting equipment in the following risk-significant plant areas:

- Containment elevations 93 feet and 119 feet, Fire Zones 1A110A and 1A110B
- Containment elevations 135 feet, Fire Zone 1A110C
- Containment elevations 161 feet, Fire Zone 1A110D
- Containment elevations 184 feet and 208 feet, Fire Zones 1A110E and 1A110F

The inspectors reviewed areas to assess if licensee personnel had implemented a fire protection program that adequately controlled combustibles and ignition sources within the plant; effectively maintained fire detection and suppression capability; maintained passive fire protection features in good material condition; and had implemented adequate compensatory measures for out of service, degraded or inoperable fire protection equipment, systems, or features, in accordance with the licensee's fire plan. The inspectors selected fire areas based on their overall contribution to internal fire risk as documented in the plant's Individual Plant Examination of External Events with later additional insights, their potential to affect equipment that could initiate or mitigate a plant transient, or their impact on the plant's ability to respond to a security event. Using the documents listed in the attachment, the inspectors verified that fire hoses and extinguishers were in their designated locations and available for immediate use; that fire detectors and sprinklers were unobstructed; that transient material loading was within the analyzed limits; and fire doors, dampers, and penetration seals appeared to be in satisfactory condition. The inspectors also verified that minor issues identified during the inspection were entered into the licensee's corrective action program. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of four quarterly fire-protection inspection samples as defined in Inspection Procedure 71111.05-05.

b. Findings

No findings of significance were identified.

.2 Annual Fire Protection Drill Observation (71111.05A)

a. Inspection Scope

On November 10, 2009, the inspectors observed fire brigade activation due to a simulated fire in a breaker panel in the auxiliary building. The observation evaluated the readiness of the plant fire brigade to fight fires. The inspectors verified that the licensee staff identified deficiencies; openly discussed them in a self-critical manner at the drill debrief, and took appropriate corrective actions. Specific attributes evaluated were (1) proper wearing of turnout gear and self-contained breathing apparatus; (2) proper use and layout of fire hoses; (3) employment of appropriate fire fighting techniques; (4) sufficient firefighting equipment brought to the scene; (5) effectiveness of fire brigade leader communications, command, and control; (6) search for victims and propagation of the fire into other plant areas; (7) smoke removal operations; (8) utilization of preplanned strategies; (9) adherence to the preplanned drill scenario; and (10) drill objectives.

These activities constitute completion of one annual fire-protection inspection sample as defined in Inspection Procedure 71111.05-05.

b. Findings

No findings of significance were identified.

**1R06 Flood Protection Measures (71111.06)**

a. Inspection Scope

The inspectors reviewed the Updated Final Safety Analysis Report, the flooding analysis, and plant procedures to assess susceptibilities involving internal flooding; reviewed the corrective action program to determine if licensee personnel identified and corrected flooding problems; inspected underground bunkers/manholes to verify the adequacy of sump pumps, level alarm circuits, cable splices subject to submergence, and drainage for bunkers/manholes; and verified that operator actions for coping with flooding can reasonably achieve the desired outcomes. The inspectors also inspected the areas listed below to verify the adequacy of equipment seals located below the flood line, floor and wall penetration seals, watertight door seals, common drain lines and sumps, sump pumps, level alarms, and control circuits, and temporary or removable flood barriers. Specific documents reviewed during this inspection are listed in the attachment.

- December 13, 2009, auxiliary building emergency core cooling system rooms

These activities constitute completion of one flood protection measures inspection sample(s) as defined in Inspection Procedure 71111.06-05.

b. Findings

No findings of significance were identified.

**1R11 Licensed Operator Requalification Program (71111.11)**

a. Inspection Scope

On October 19, 2009, the inspectors observed a crew of licensed operators in the plant's simulator to verify that operator performance was adequate, evaluators were identifying and documenting crew performance problems and training was being conducted in accordance with licensee procedures. The inspectors evaluated the following areas:

- Licensed operator performance
- Crew's clarity and formality of communications
- Crew's ability to take timely actions in the conservative direction
- Crew's prioritization, interpretation, and verification of annunciator alarms
- Crew's correct use and implementation of abnormal and emergency procedures
- Control board manipulations
- Supervisors' oversight and direction
- Crew's ability to identify and implement appropriate technical specification actions and emergency plan actions and notifications

The inspectors compared the crew's performance in these areas to pre-established operator action expectations and successful critical task completion requirements. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one quarterly licensed-operator requalification program sample as defined in Inspection Procedure 71111.11.

b. Findings

No findings of significance were identified.

## 1R12 Maintenance Effectiveness (71111.12)

### a. Inspection Scope

The inspectors evaluated degraded performance issues involving the following risk significant systems:

- High Pressure Core Spray System (E22)
- Control Room Air Conditioner System (Z51)

The inspectors reviewed events such as, where ineffective equipment maintenance has resulted in valid or invalid automatic actuations of engineered safeguards systems and independently verified the licensee's actions to address system performance or condition problems in terms of the following:

- Implementing appropriate work practices
- Identifying and addressing common cause failures
- Scoping of systems in accordance with 10 CFR 50.65(b)
- Characterizing system reliability issues for performance
- Charging unavailability for performance
- Trending key parameters for condition monitoring
- Ensuring proper classification in accordance with 10 CFR 50.65(a)(1) or -(a)(2)
- Verifying appropriate performance criteria for structures, systems, and components classified as having an adequate demonstration of performance through preventive maintenance, as described in 10 CFR 50.65(a)(2), or as requiring the establishment of appropriate and adequate goals and corrective actions for systems classified as not having adequate performance, as described in 10 CFR 50.65(a)(1)

The inspectors assessed performance issues with respect to the reliability, availability, and condition monitoring of the system. In addition, the inspectors verified maintenance effectiveness issues were entered into the corrective action program with the appropriate significance characterization. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of two quarterly maintenance effectiveness samples as defined in Inspection Procedure 71111.12-05.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors reviewed licensee personnel's evaluation and management of plant risk for the maintenance and emergent work activities affecting risk-significant and safety related equipment listed below to verify that the appropriate risk assessments were performed prior to removing equipment for work:

- The week of October 12, 2009, Plant air compressor permanent modification work and tornado warning, severe thunderstorm warning requiring entry into orange risk
- The week of October 26, 2009, Emergent issues with reactor core isolation cooling inoperable, Division 3 diesel generator inoperable and completion of plant air compressor modification requiring entry into yellow risk
- The week of November 9, 2009, Emergent issue with the Division 1 diesel generator inoperable

The inspectors selected these activities based on potential risk significance relative to the reactor safety cornerstones. As applicable for each activity, the inspectors verified that licensee personnel performed risk assessments as required by 10 CFR 50.65(a)(4) and that the assessments were accurate and complete. When licensee personnel performed emergent work, the inspectors verified that the licensee personnel promptly assessed and managed plant risk. The inspectors reviewed the scope of maintenance work, discussed the results of the assessment with the licensee's probabilistic risk analyst or shift technical advisor, and verified plant conditions were consistent with the risk assessment. The inspectors also reviewed the technical specification requirements and inspected portions of redundant safety systems, when applicable, to verify that risk analysis assumptions were valid and applicable requirements were met. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of three maintenance risk assessments and emergent work control inspection samples as defined in Inspection Procedure 71111.13-05.

b. Findings

No findings of significance were identified.

## 1R15 Operability Evaluations (71111.15)

### a. Inspection Scope

The inspectors reviewed the following issues:

- Reactor core isolation cooling flow controller higher than normal percent demand than previously observed by operators, CR-GGN-2009-05640
- Door 1A401 secondary containment boundary inability to close for approximately five minutes, potential loss of safety function, CR-GGN-2009-04480
- Spurious actuations of the low pressure core spray out of service annunciator due to abandoned in place line break instrumentation, CR-GGN-2009-05721
- Switchgear and battery room damper actuators maintenance deferral, CR-GGN-2009-04848
- Operator mispositioned the standby diesel generator starting air systems filter petcocks in the open position, CR-GGN-2009-06186
- High dew points recurring in the standby diesel generator starting air systems, CR-GGN-2009-06193
- Standby service water basin cooling tower fan transfer case oil lines corroding, CR-GGN-2009-06425

The inspectors selected these potential operability issues based on the risk significance of the associated components and systems. The inspectors evaluated the technical adequacy of the evaluations to ensure that technical specification operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the technical specifications and Updated Final Safety Analysis Report to the licensee personnel's evaluations to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended, and were properly controlled. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations. Additionally, the inspectors also reviewed a sampling of corrective action documents to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of seven operability evaluations inspection samples as defined in Inspection Procedure 71111.15-04.

b. Findings

No findings of significance were identified.

**1R18 Plant Modifications (71111.18)**

Permanent Modifications

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, structural, process medium properties, and failure modes for the permanent modifications listed below.

- Plant Air Compressor A

The inspectors verified that 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; postmodification testing will maintain the plant in a safe configuration during testing by verifying that unintended system interactions will not occur; systems, structures and components' performance characteristics still meet the design basis; the modification design assumptions were appropriate; the modification test acceptance criteria will be met; and licensee personnel identified and implemented appropriate corrective actions associated with permanent plant modifications. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one sample for permanent plant modifications as defined in Inspection Procedure 71111.18-05.

b. Findings

No findings of significance were identified.

**1R19 Postmaintenance Testing (71111.19)**

a. Inspection Scope

The inspectors reviewed the following postmaintenance activities to verify that procedures and test activities were adequate to ensure system operability and functional capability:

- For control room fresh air train A following periodic maintenance
- For control room air conditioner A following overhaul of the compressor
- For Division 1 diesel generator following the repair of an air leak in the control panel on a filter housing
- For replacement of a faulty temperature switch for residual heat removal A equipment area
- For Division 1 diesel generator following the changing of the outside air fan temperature switch dead-band to ensure the fan does not trip on thermal overload due to excessive cycling of the fan's supply breaker

The inspectors selected these activities based upon the structure, system, or component's ability to affect risk. The inspectors evaluated these activities for the following (as applicable):

- The effect of testing on the plant had been adequately addressed; testing was adequate for the maintenance performed
- Acceptance criteria were clear and demonstrated operational readiness; test instrumentation was appropriate

The inspectors evaluated the activities against the technical specifications, the Updated Final Safety Analysis Report, 10 CFR Part 50 requirements, licensee procedures, and various NRC generic communications to ensure that the test results adequately ensured that the equipment met the licensing basis and design requirements. In addition, the inspectors reviewed corrective action documents associated with postmaintenance tests to determine whether the licensee was identifying problems and entering them in the corrective action program and that the problems were being corrected commensurate with their importance to safety. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of five postmaintenance testing inspection samples as defined in Inspection Procedure 71111.19-05.

b. Findings

No findings of significance were identified.

**1R22 Surveillance Testing (71111.22)**

a. Inspection Scope

The inspectors reviewed the Updated Final Safety Analysis Report, procedure requirements, and technical specifications to ensure that the surveillance activities listed

below demonstrated that the systems, structures, and/or components tested were capable of performing their intended safety functions. The inspectors either witnessed or reviewed test data to verify that the significant surveillance test attributes were adequate to address the following:

- Preconditioning
- Evaluation of testing impact on the plant
- Acceptance criteria
- Test equipment
- Procedures
- Jumper/lifted lead controls
- Test data
- Testing frequency and method demonstrated technical specification operability
- Test equipment removal
- Restoration of plant systems
- Fulfillment of ASME Code requirements
- Updating of performance indicator data
- Annunciators and alarms setpoints

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

- November 24, 2009, Reactor Core Isolation Cooling Quarterly Pump and Valve Inservice Test
- November 6-7, 2009, Rod Block Functional Test and Control Rod Settle and Insertion Test
- October 21, 2009, Average Power Range Monitor Calibration Channel D

Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of three surveillance testing inspection samples as defined in Inspection Procedure 71111.22-05.

b. Findings

No findings of significance were identified.

**2. RADIATION SAFETY**

**Cornerstone: Occupational and Public Radiation Safety**

**2OS2 ALARA Planning and Controls (71121.02)**

a. Inspection Scope

The inspectors assessed licensee performance with respect to maintaining individual and collective radiation exposures ALARA. The inspectors used the requirements in 10 CFR Part 20 and the licensee's procedures required by technical specifications as criteria for determining compliance. The inspectors interviewed licensee personnel and reviewed:

- Current 3-year rolling average collective exposure
- Site-specific trends in collective exposures, plant historical data, and source-term measurements
- Interfaces between operations, radiation protection, maintenance, maintenance planning, scheduling, and engineering groups
- Dose rate reduction activities in work planning
- Exposure tracking system
- Exposures of individuals from selected work groups
- Records detailing the historical trends and current status of tracked plant source terms and contingency plans for expected changes in the source term due to changes in plant fuel performance issues or changes in plant primary chemistry
- Self-assessments, audits, and special reports related to the ALARA program since the last inspection
- Resolution through the corrective action process of problems identified through post job reviews and post outage ALARA report critiques
- Effectiveness of self-assessment activities with respect to identifying and addressing repetitive deficiencies or significant individual deficiencies

The inspectors completed 5 of the required 15 samples and 5 of the optional samples as defined in IP 71121.02-05.

c. Findings

No findings of significance were identified.

**4. OTHER ACTIVITIES**

**4OA1 Performance Indicator Verification (71151)**

.1 Data Submission Issue

a. Inspection Scope

The inspectors performed a review of the performance indicator data submitted by the licensee for the fourth Quarter 2009 performance indicators for any obvious inconsistencies prior to its public release in accordance with Inspection Manual Chapter 0608, "Performance Indicator Program."

This review was performed as part of the inspectors' normal plant status activities and, as such, does not constitute a separate inspection sample.

b. Findings

No findings of significance were identified.

.2 Occupational Exposure Control Effectiveness (OR01)

a. Inspection Scope

The inspectors sampled licensee submittals for the Occupational Radiological Occurrences performance indicator for the period from the first quarter 2009 through third quarter 2009. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, was used. The inspectors reviewed the licensee's assessment of the performance indicator for occupational radiation safety to determine if indicator related data was adequately assessed and reported. To assess the adequacy of the licensee's performance indicator data collection and analyses, the inspectors discussed with radiation protection staff, the scope and breadth of its data review, and the results of those reviews. The inspectors independently reviewed electronic dosimetry dose rate and accumulated dose alarm and dose reports and the dose assignments for any intakes that occurred during the period reviewed to determine if there were potentially unrecognized occurrences. The inspectors also conducted walkdowns of numerous locked high and very high radiation area entrances to determine the adequacy of the controls in place for these areas.

These activities constitute completion of the Occupational Radiological Occurrences sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

.3 Radiological Effluent Technical Specifications/Offsite Dose Calculation Manual Radiological Effluent Occurrences (PR01)

a. Inspection Scope

The inspectors sampled licensee submittals for the Radiological Effluent Technical Specifications/Offsite Dose Calculation Manual Radiological Effluent Occurrences performance indicator for the period from the first quarter 2009 through third quarter 2009. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, was used. The inspectors reviewed the licensee's issue report database since this indicator was last reviewed to identify any potential occurrences such as unmonitored, uncontrolled, or improperly calculated effluent releases that may have impacted offsite dose. Additionally, the inspectors reviewed the licensee's historical 10 CFR 50.75(g) file and selectively reviewed the licensee's analysis for discharge pathways resulting from a spill, leak, or unexpected liquid discharge focusing on those incidents which occurred over the last few years.

These activities constitute completion of the radiological effluent technical specifications/offsite dose calculation manual radiological effluent occurrences sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

#### **40A2 Identification and Resolution of Problems (71152)**

##### **Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, Emergency Preparedness, Public Radiation Safety, Occupational Radiation Safety, and Physical Protection**

.1 Routine Review of Identification and Resolution of Problems

a. Inspection Scope

As part of the various baseline inspection procedures discussed in previous sections of this report, the inspectors routinely reviewed issues during baseline inspection activities

and plant status reviews to verify that they were being entered into the licensee's corrective action program at an appropriate threshold, that adequate attention was being given to timely corrective actions, and that adverse trends were identified and addressed. The inspectors reviewed attributes that included the complete and accurate identification of the problem; the timely correction, commensurate with the safety significance; the evaluation and disposition of performance issues, generic implications, common causes, contributing factors, root causes, extent of condition reviews, and previous occurrences reviews; and the classification, prioritization, focus, and timeliness of corrective actions. Minor issues entered into the licensee's corrective action program because of the inspectors' observations are included in the attached list of documents reviewed.

These routine reviews for the identification and resolution of problems did not constitute any additional inspection samples. Instead, by procedure, they were considered an integral part of the inspections performed during the quarter and documented in Section 1 of this report.

b. Findings

No findings of significance were identified.

.2 Daily Corrective Action Program Reviews

a. Inspection Scope

In order to assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the licensee's corrective action program. The inspectors accomplished this through review of the station's daily corrective action documents.

The inspectors performed these daily reviews as part of their daily plant status monitoring activities and, as such, did not constitute any separate inspection samples.

b. Findings

No findings of significance were identified.

.3 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a review of the licensee's corrective action program and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors focused their review on repetitive equipment issues, but also considered the results of daily corrective action item screening discussed in Section 4OA2.2, above, licensee trending efforts, and licensee human performance results. The inspectors nominally considered the 6-month period of

May 14, 2009, through December 10, 2009, although some examples expanded beyond those dates where the scope of the trend warranted.

The inspectors also included issues documented outside the normal corrective action program in major equipment problem lists, repetitive and/or rework maintenance lists, departmental problem/challenges lists, system health reports, quality assurance audit/surveillance reports, self-assessment reports, and Maintenance Rule assessments. The inspectors compared and contrasted their results with the results contained in the licensee's corrective action program trending reports. Corrective actions associated with a sample of the issues identified in the licensee's trending reports were reviewed for adequacy.

These activities constitute completion of one semi-annual trend inspection sample as defined in Inspection Procedure 71152-05.

b. Findings and Observations

The inspectors reviewed the use of the work tracking system, specifically to identify work tracking documents that contain information detailing conditions adverse to quality. The inspectors identified several work tracking documents that may have met this criteria or appeared to have exceeded the licensee's thresholds for documenting issues as condition reports. Some of the work tracking documents included deficiencies in the licensee's document storage vault. The inspectors performed an inspection of the vault and found unprotected documents, data tapes, and damaged cabinets being used to store documents that fall under the retention requirements of 10CFR 50.71. In addition, the inspectors found that the administrative controls put in place to control vault access had not been followed and that the environmental control system was not reliable. The inspectors did not find any documents that had been lost or damaged.

.4 Annual Sample: Review of Operator Workarounds

a. Inspection Scope

The inspectors evaluated the licensee's implementation of their process used to identify, document, track, and resolve operational challenges. Inspection activities included, but were not limited to, a review of the cumulative effects of the operator workarounds on system availability and the potential for improper operation of the system, for potential impacts on multiple systems, and on the ability of operators to respond to plant transients or accidents.

The inspectors performed a review of the cumulative effects of operator workarounds. The documents listed in the attachment were reviewed to accomplish the objectives of the inspection procedure. The inspectors reviewed both current and historical operational challenge records to determine whether the licensee was identifying operator challenges at an appropriate threshold, had entered them into their corrective action program and proposed or implemented appropriate and timely corrective actions, which addressed each issue. Reviews were conducted to determine if any operator challenge could increase the possibility of an Initiating Event, if the challenge was contrary to

training, required a change from long-standing operational practices, or created the potential for inappropriate compensatory actions. Additionally, all temporary modifications were reviewed to identify any potential effect on the functionality of Mitigating Systems, impaired access to equipment, or required equipment uses for which the equipment was not designed. Daily plant and equipment status logs, degraded instrument logs, and operator aids or tools being used to compensate for material deficiencies were also assessed to identify any potential sources of unidentified operator workarounds.

These activities constitute completion of one operator workarounds annual inspection sample as defined in Inspection Procedure 71152-05.

b. Findings

No findings of significance were identified.

**40A5 Other Activities**

.1 Quarterly Resident Inspector Observations of Security Personnel and Activities

a. Inspection Scope

During the inspection period, the inspectors performed observations of security force personnel and activities to ensure that the activities were consistent with Grand Gulf Nuclear Station security procedures and regulatory requirements relating to nuclear plant security. These observations took place during both normal and off-normal plant working hours.

These quarterly resident inspector observations of security force personnel and activities did not constitute any additional inspection samples. Rather, they were considered an integral part of the inspectors' normal plant status review and inspection activities.

b. Findings

No findings of significance were identified.

**40A6 Meetings**

Exit Meeting Summary

On December 7, 2009, the inspectors presented the inspection results to Mr. J. Buford, Acting Manager, Licensing, and other members of his staff who acknowledged the findings. The team confirmed that proprietary information was not provided or examined during the inspection.

On January 12, 2010, the inspectors presented the inspection results to Mr. R. Douet, Site Vice President, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspector asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

#### 40A7 Licensee-Identified Violations

The following violations of very low safety 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.

- Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," states, in part, that "activities affecting quality shall be prescribed by documented procedures and shall be accomplished in accordance with those procedures." Contrary to this, on October 31, 2009, a plant operator mispositioned the starting air filter petcocks to the open or vented position for both the Division I and Division II standby diesel generators. The safety-related procedure 02-1-S-35, "Outside Rounds" requires the draining of the left and right bank air start distribution filters for both standby diesel generators by opening and closing the air filter petcocks. The mispositioned petcocks were left in the vented condition for three weeks, before being discovered by an operator during weekly rounds. This issue was documented in the licensee's corrective action program per CR GGN-2009-06186. This finding is of very low safety significance because it did not represent a loss of system safety function, did not represent the actual loss of safety function of a single train for greater than its technical specification allowed outage time, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event.
- Title 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," states, in part, that "measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and non-conformances are promptly identified and corrected." Contrary to this, on November 5, 2009, a plant operator performing rounds of the division 1 diesel generator (DG) room found an air leak coming from the bottom of air filter 1P75D057A upstream of regulator valve in panel P400; this resulted in the licensee declaring the division 1 DG inoperable. Specifically, engineering had identified in May 2009 that a small weeping of air leaking from the petcock drain connection of the air filter and they documented this in condition report CR-GGN-2009-02390. The leak was scheduled to be fixed in the November 2010 system outage. No formal process was put in place to monitor this air leak other than informal walk downs done by system engineering once a month. This issue was documented in the licensee's corrective action program per CR-GGN-2009-05859. This finding is of very low safety significance because it did not represent a loss of system safety function, did not represent the actual loss of safety function of a single train for greater than its technical specification allowed outage time, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event.

**SUPPLEMENTAL INFORMATION**  
**KEY POINTS OF CONTACT**

Licensee Personnel

D. Barfield, Director, Engineering  
R. Benson, Supervisor, Radioactive Waste  
J. Browning, General Manager, Plant Operations  
J. Buford, Acting Manager, Licensing  
J. Caery, Training Manager  
M. Causey, Maintenance Rule Engineer  
R. Douet, Vice President, Operations  
B. Edwards, Minority Owner Specialist  
H. Farris, Assistant Operations Manager  
G. Giles, Manager, Corrective Actions and Assessments  
E. Harris, Manager, Quality Assurance  
K. Higginbotham, Manager, Operations  
J. Houston, Manger, Maintenance  
D. Jones, Manager, Design Engineering  
M. Larson, Senior Licensing Specialist  
S. Osborn, Senior Licensing Specialist  
C. Perino, Licensing Manager  
M. Rohrer, Manager, Component Engineering  
F. Rosser, Supervisor, Radiation Protection  
J. Shew, Manager, System Engineering  
P. Stokes, Radiation Protection Specialist  
W. Trichell, Radiation Protection Manager  
J. Watts, Radiation Protection Specialist  
R. Wilson, Manager, Planning, Scheduling and Outages  
E. Wright, ALARA Specialist, Radiation Protection

**LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED**

Opened and Closed

NONE

## LIST OF DOCUMENTS REVIEWED

### Section 1RO4: Equipment Alignment

#### PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
04-1-01-E12-1	Residual Heat Removal System	134
04-1-01-E22-1	High Pressure Core Spray System	114
06-OP-1E12-O-0007	LPCI/RHR Subsystem C Check Valve Test	102

#### DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
Drawing M-1085C	P&ID Residual Heat Removal System	17
Drawing M-1086	P&ID High Pressure Core Spray System	31
Drawing P-1085C	ISIBD Residual Heat Removal System	7

### Section 1RO5: Fire Protection

#### CONDITION REPORTS

CR-GGN-2008-01698 CR-GGN-2009-06716

#### PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
10-S-03-7	Fire Protection Training Program	013
Fire Pre-plan A-07	Room 1A110 Area 11 Containment	1
Fire Pre-plan A-50	Electrical Penetration ESF MCC 15B41	1

### Section 1RO6: Flood Protection Measures

#### CONDITION REPORTS

CR-GGN-2008-07116 CR-GGN-2009-06418 CR-GGN-2009-06647 CR-GGN-2003-01688  
WT-GGN-2008-00102 CR-GGN-2009-06650

#### PROCEDURE

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
04-1-03-E12-1	Residual Heat Removal System	135

CALCULATIONS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
195.0-41	Auxiliary Building Compartment Flood Levels	September 25, 1987

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
M-1098A-D	P&ID Embedded and Suspended Drains	3
M-1094A-D	P&ID Floor and Equipment Drain system	8

**Section 1R11: Licensed Operator Requalification Program**

OTHER

<u>TITLE</u>	<u>REVISION</u>
Simulator Scenarios GSMS-LOR-WEX17 LPCS Injection Valve Power Loss/ Loss of Condenser Vacuum/ LOCA/ Degraded ECCS	15
Turnover and Simulator Differences 2009 Cycle 6 Simulator Training	4

**Section 1R12: Maintenance Effectiveness**

CONDITION REPORTS

CR-GGN-2007-02963	CR-GGN-2007-03374	CR-GGN-2007-03455	CR-GGN-2007-03915
CR-GGN-2007-03972	CR-GGN-2007-04987	CR-GGN-2007-05006	CR-GGN-2008-00109
CR-GGN-2008-00136	CR-GGN-2008-01191	CR-GGN-2008-01201	CR-GGN-2008-01203
CR-GGN-2008-01232	CR-GGN-2008-01681	CR-GGN-2008-01694	CR-GGN-2008-01803
CR-GGN-2008-02795	CR-GGN-2008-02741	CR-GGN-2008-03904	CR-GGN-2008-04059
CR-GGN-2008-02657	CR-GGN-2009-00941	CR-GGN-2009-01256	CR-GGN-2009-01512
CR-GGN-2009-02320	CR-GGN-2009-02521	CR-GGN-2009-02536	CR-GGN-2009-03067
CR-GGN-2009-03424	CR-GGN-2009-03779	CR-GGN-2009-03792	CR-GGN-2009-03826

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION or DATE</u>
06-OP-P75-R-0004	Standby Diesel Generator 12: 18 Month Functional Test	114

WORK ORDER

WO151684

WO202158

**Section 1R13: Maintenance Risk Assessment and Emergent Work Controls**

PROCEDURE

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
01-S-18-6	Risk Assessment of Maintenance Activities	007

APPROVAL FORMS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EN-WM-101	On-Line Emergent Work Addition/Deletion	Week of October 12, 2009
EN-WM-101	On-Line Emergent Work Addition/Deletion	Week of October 26, 2009
EN-WM-101	On-Line Emergent Work Addition/Deletion	Week of November 9, 2009

CONDITION REPORT

CR-GGN-2009-06030

**Section 1R15: Operability Evaluations**

CONDITION REPORTS

CR-GGN-2007-06113	CR-GGN-2008-02349	CR-GGN-2008-02472	CR-GGN-2008-06448
CR-GGN-2008-06504	CR-GGN-2009-00800	CR-GGN-2009-02621	CR-GGN-2009-03779
CR-GGN-2009-04253	CR-GGN-2009-04480	CR-GGN-2009-04848	CR-GGN-2009-05640
CR-GGN-2009-06186	CR-GGN-2009-06193	CR-GGN-2009-06193	

OTHER DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
EN-OP-104	Operability Determinations	3
LBDC 2003-037	ECCS line break instrumentation deletion from TRM	April 26, 2003

**Section 1R18: Plant Modifications**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
ECT-13092-001	A Plant Air Compressor Test	September 22, 2009

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
ECT-13092-001-001	A Plant Air Compressor Test	October 6, 2009
STI-09-01-000	Support the Installation of a Temporary Air Tie-In at the Instrument air Reducing Station	August 25, 2009
STI-09-01-001	Support the Installation of a Temporary Air Tie-In; at the Instrument Air Reducing Station by Lowering Normal Operating Pressure 1P51-C001C	September 16, 2009

WORK ORDER

WO00188236

OTHER

EC13092  
Plant Air System Figure 1

**Section 1R19: Postmaintenance Testing**

CONDITION REPORT

CR-GGN-2009-05941

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
06-IC-1C51-V-0001	Intermediate Range Monitor Calibration Channel D	107
06-IC-1E31-A-1003	RHR Area High Temp Calibration (Channel A)	105
06-OP-1P41-Q-0004	Standby Service Water Loop A and Pump Operability Test	118
06-OP-1P75-M-0001	Standby Diesel Generator 11 Functional Test	131
06-OP-1Z51-Q-0001	Control Room HVAC System Valve Test	103
07-S-23-P75-3	Div I and Div II Diesel Generator Simulated Run	007

WORK ORDERS

WO00193711	WO00194590	WO00204987	WO00214090
WO50289932	WO51645510	WO51645510	WO51672315
WO51672342	WO51672398	WO51672399	WO51802484
WO52025580	WO52032689	WO52191224	

OTHER

Vendor Drawing 112C2220  
 Clearance 1C17-1-P75-055- 1P75 Div 1 DG  
 LCOTR NO: 1-TS-09-503, Division 1 DG  
 LCOTR NO: 1-TS-09-504, 1E31-N608A  
 EC18619

**Section 1R22: Surveillance Testing**

PROCEDURE

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
06-OP-1C11-V-003	RWL Rod Block Functional Test (Above HPSP)	101
06-IC-1C51-SA-0001	Average Power Range Monitor Calibration – Channel D	110
06-OP-1E51-Q-0002	RCIC System Valve Operability Verification	112
04-1-03-C11-7	Control Rod Settle and Insertion	008
06-OP-1E51-Q-0003	RCIC System Quarterly Pump Operability Verification	127

WORK ORDER

WO00209560                      WO52034543                      WO52216997

**Section 2OS2: ALARA Planning and Controls**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EN-RP-102	Radiological Control	0
EN-RP-105	Radiation Work Permits	4
EN-RP-106	Radiological Survey Documentation	2
EN-RP-110	ALARA Program	2
EN-RP-141	Job Coverage	6
EN-DIR-RP-002	Radiation Protection Performance Indicator	0
EN-RW-102	Radioactive Shipping Procedure	6

AUDITS, SELF-ASSESSMENTS, AND SURVEILLANCES

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
QA-14/15-2009-GGNS-1	Radiation Protection/Radwaste Audit	October 2009
GLO-2009-00062	Radiological Effluent Technical Specifications (RETS) /Radiological Environmental Monitoring Program (REMP)	June 2009

CONDITION REPORTS

CR-GGN-2008-01699	CR-GGN-2008-01776	CR-GGN-2008-01793	CR-GGN-2008-01946
CR-GGN-2008-01989	CR-GGN-2008-02027	CR-GGN-2008-02347	CR-GGN-2008-04495
CR-GGN-2009-04959	CR-GGN-2009-04969		

MISCELLANEOUS

<u>TITLE</u>
5-Year ALARA Plan
Refueling Outage 14 Report

**Section 40A1: Performance Indicator Verification**

DOCUMENT TYPE

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
GLO-2008-0009	Chemistry Assessment for Public Radiation Performance Indicator (PR01)	February 2008

**Section 40A2: Identification and Resolution of Problems**

CONDITION REPORT

CR-GGN-2008-06591	CR-GGN-2008-07009	CR-GGN-2009-05814	CR-GGN-2009-06608
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PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EN-AD-103	Document Control and Records Management Programs	10
EN-LI-102	Corrective Action Process	13
02-S-01-25	Deficient Equipment Identification	13
OPG-12	Operator Workarounds	01
OPG-26	Control Room Deficiency and Alarm Identification	04

OTHER

Grand Gulf Daily Status Report, December 17, 2009  
Grand Gulf Operator Workarounds, November 14, 2008  
Grand Gulf Operations Burdens, January 27, 2009

**Section 40A7: Licensee-Identified Violations**

CONDITION REPORT

CR-GGN-2009-02390 CR-GGN-2009-05859 CR GGN-2009-06186