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NUCLEAR REGULATORY COMMISSION
REGION IV
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May 8, 2008

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SUBJECT: GRAND GULF NUCLEAR STATION - NRC INTEGRATED INSPECTION
REPORT 05000416/2008002

Dear Mr. Douet:

On March 31, 2008, the U.S. Nuclear Regulatory Commission (NRC) completed an integrated inspection at your Grand Gulf Nuclear Station facility. The enclosed report documents the inspection results, which were discussed on April 7, 2008, 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 seven NRC identified and self-revealing findings of very low safety significance (Green). Six 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 and its enclosure 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), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Richard W. Deese
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Division of Reactor Projects

Docket: 50-416
License: NPF-29

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w/Attachment: Supplemental Information

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AJBarrett	RLSmith	WCWalker	RLBywater	MPShannon
E-Walker	E-Walker	/RA/	/RA/	/RA/
4/23/08	4/23/08	4/21/08	4/21/08	4/22/08
C:DRS/OB	C:DRS/EB2	C:DRP/C		
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U. S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket: 05000416

License No: NPF-29

Report No: 05000416/2008002

Licensee: Entergy Operations, Inc.

Facility: Grand Gulf Nuclear Station

Location: Waterloo Road
Port Gibson, MS 39150

Dates: January 1 through March 31, 2008

Inspectors: Richard L. Smith, Senior Resident Inspector
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SUMMARY OF FINDINGS

IR 05000416/2008002; 1/1–3/31/08; Grand Gulf Nuclear Station; Adverse Weather Protection, Fire Protection, Licensed Operator Requalification, Surveillance Testing, Identification and Resolution of Problems, and Event Followup.

This report covers a 3-month period of inspection by resident inspectors and region-based inspectors. Seven Green findings were identified by the inspectors. Six of these findings were considered noncited violations of NRC regulations. The significance of most findings is indicated by their color (Green, White, Yellow, 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 and Self-Revealing Findings

Cornerstone: Initiating Events

- Green. The inspectors identified a finding involving ineffective corrective actions in response to resin intrusion in the electro-hydraulic control system. The inspectors reviewed the corrective actions from a condition report involving a resin intrusion into the electro-hydraulic control system via a failed temporary ion-exchange filter in 2003. Review of the corrective actions associated with the 2003 event revealed that a long-range recovery plan was developed to remove resin from the electro-hydraulic control system. However, the recovery plan corrective actions were closed without licensee actions to remove resin from the electro-hydraulic control system. The failure to implement effective corrective actions following the 2003 resin intrusion event directly resulted in electro-hydraulic control stability issues seen in the fall of 2007, including reactor pressure perturbations and reductions in reactor power. This issue was entered into the licensee's corrective action program as Condition Report CR-GGN-2007-04972.

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 MC 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 would not be available following a reactor trip (Section 4OA2).

Cornerstone: Mitigating Systems

- Green. The inspectors identified a Green noncited violation of 10 CFR Part 50 Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for failure to perform an adequate inspection of probable maximum precipitation door seals protecting safety related equipment. The inspectors identified that the door seals

did not make contact with the door frame and the door had a significant amount of corrosion underneath the door seals, indicating long term degradation. The extent of condition review found three additional door seals with degraded conditions, including doors to the standby service water pump houses. The licensee initiated compensatory actions for the degraded seals, staging sand bags in the area and requiring monitoring of the affected doors during heavy rainfall. This issue was entered into the licensee's corrective action program as Condition Reports CR-GGN-2008-01123 and 2008-01623.

This finding was more than minor because the door seals represent a degrading condition that if left uncorrected could become a more significant safety concern. The inspectors determined this finding affected the mitigating systems cornerstone. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 worksheet, this finding was determined to have very low safety significance since it did not represent an actual loss of safety function for the standby service water pumps or the diesel generators. The cause of this finding has a crosscutting aspect in the area of problem identification and resolution in that the licensee failed to properly identify the degraded conditions of the probable maximum precipitation door seals during their surveillance inspection [P.1(a)] (Section 1R01).

- Green. The inspectors identified a noncited violation of Facility Operating License Condition 2.C.41 for the failure to properly implement a compensatory fire watch per the station fire protection program. The inspectors performed a fire inspection of the auxiliary building electrical penetration room. The inspectors noted that plant personnel had not entered the room to perform a required fire watch. The inspectors questioned security personnel, reviewed the fire watch log and determined that the fire watch log had been checked off as completed. The completion time corresponded to the time an inspector was in the room. After further review and interviews with security personnel, the inspectors determined that the plant employee designated to perform the fire watch duties misunderstood the requirements for the fire watch. The employee had only verified the auxiliary building hallway area outside the room and failed to check inside the auxiliary building electrical penetration room as required. This issue was entered into the licensee's corrective action program as Condition Report CR-GGN-2008-00869.

The finding was more than minor since it was associated with the protection against external factors attribute of the reactor safety mitigating systems cornerstone, and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," the inspectors determined that the finding had an adverse affect on the "Fixed Fire Protection Systems" element of fire watches posted as a compensatory measure for outages or degradations. The inspectors assigned a high degradation rating due to the fact that the automatic fire suppression system was tagged out and inoperable. Because the system was degraded without compensatory actions for approximately 2 hours, the inspectors used a duration factor of 0.01. The inspectors used 2E-2 for a generic fire frequency area which corresponds to Table 1.4.2, "Generic Fire Area Fire Frequencies," for a switchgear room. The

resulting calculated change in core damage frequency was 2E-4, which was greater than the high degradation Phase 1 Quantitative Screening Criteria of 1E-6, requiring a Phase 2 analysis. The inspectors consulted with a regional Senior Reactor Analyst and a simplified Phase 3 was performed using a duration factor of 2.3E-4 for the 2-hour time period, and the IPEEE specific room fire frequency of 7.2E-4. The resulting calculated change in core damage frequency was 1.7E-7, which would be less than the Phase 1 quantitative screening criteria. Using this information, the regional Senior Reactor Analyst, determined the finding to be of very low safety significance. The cause of this finding has a crosscutting aspect in the area of human performance associated with work practices in that the individual assigned to perform the fire watch proceeded in the face of uncertainty and failed to use appropriate human error prevention techniques [H.4(a)] (Section 1R05).

- Green. The inspectors identified a noncited violation of 10 CFR 55.53.e, "Conditions of License," for failure of licensed senior reactor operators to maintain the required proficiency to maintain their license current. Senior reactor operators standing the shift supervisor/shift technical advisor position were taking credit for senior reactor operator proficiency watches while standing this position. The normal shift complement of senior reactor operators consist of a shift manager, a control room supervisor, and a shift supervisor/shift technical advisor. When this issue was brought to the attention of operations management; they stopped the practice of the shift supervisor/shift technical advisor receiving senior reactor operator proficiency watch credit for standing that position. All shift supervisor/shift technical advisor senior reactor operators were inactivated. The plant issued a standing order that prohibited the shift supervisor/shift technical advisor to be allowed to perform the senior reactor operators oversight function in the control room and the shift manager or control room supervisor had to be in the control room at all times. This issue was entered into the licensee's corrective action program as Condition Report CR-GGN-2008-01126.

This finding was more than minor because if left uncorrected the finding could become a more significant safety concern. This finding affects the mitigating system cornerstone. This finding was more than minor because if left uncorrected the finding could become a more significant safety concern. The finding was determined to be of very low safety significance using the Licensed Operator Requalification Significance Determination Process since it related to operator license conditions and more than 20 percent of the affected individuals were deficient (Section 1R11).

- Green. The inspectors identified a noncited violation of Technical Specification 3.8.1, "AC Sources-Operating," for the failure to perform a required surveillance following the loss of a required offsite power source. The plant suffered a loss of power from the Port Gibson 115 kV line during high winds. Due to the fact that there is no direct control room alarm to alert the operating crew, they were not immediately aware they had lost the offsite source of power. When the crew recognized the loss of the bus they only entered a potential limiting condition of operations, due to the crew failing to realize that this was one of the required offsite sources. This issue was entered into the licensee's corrective action program as Condition Reports CR-GGN-2008-00737 and 2008-01202.

This finding was more than minor because it impacts the mitigating system cornerstone objective in that it affects the operability, availability, reliability of an offsite power source that supplies a bus that provides power to mitigating systems. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 worksheet, this finding was of very low safety significance since it did not represent an actual loss of a safety function. The cause of this finding has a crosscutting aspect in the area of human performance associated with the resources attribute in that the operators did not have adequate procedural guidance to determine the loss of a safety-related offsite power supply [H.2(c)] (Section 1R22).

- Green. The inspectors identified a Green noncited violation of 10 CFR Part 50 Appendix B, Criterion XVI, for failing to implement effective corrective actions after identifying concrete cracking in the standby service water pump houses. The inspectors determined that the program that evaluates, monitors, and repairs cracks for all safety related structures only identified a single crack for the entire site and does not track other structural cracks previously identified in the corrective action program. The last program inspection had been performed as recently as October 25, 2007, and only identified the single crack that had been documented in previous inspections. This issue was entered into the licensee's corrective action program as Condition Report CR-GGN-2007-05824.

This finding was more than minor because the cracks represent a degrading condition that if left uncorrected could become a more significant safety concern. The inspectors determined this finding affected the mitigating systems cornerstone. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 worksheet, this finding was of very low safety significance since it did not represent an actual loss of a safety function. The cause of this finding has a crosscutting aspect in the area of human performance associated with work practices because the licensee personnel failed to properly maintain and utilize the program for evaluating, tracking and repairing identified concrete cracks in safety related structures [H.4(b)] (Section 4OA2).

Cornerstone: Barrier Integrity

- Green. The inspectors identified a self-revealing noncited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for failure to properly set the over current trip setpoint for the high pressure core spray minimum flow motor operated valve. This resulted in a spurious over current trip of the valve breaker during a high pressure core spray momentary pump start for breaker operability following post Division 3 emergency core cooling system testing. As a result of the trip, the high pressure core spray minimum flow valve failed open. This issue was entered into the licensee's corrective action program as Condition Report CR-GGN-2008-01201.

The finding was more than minor because it was associated with the barrier integrity cornerstone to provide reasonable assurance that the physical design barriers protect the public from radionuclide releases caused by accidents or events. Using the MC 0609, "Significance Determination Process," Phase 1 worksheet, the finding was determined to have very low safety significance since

it did not result in a loss of the containment barrier. Additionally, the issue was screened and determined to not impact the High Pressure Core Spray mitigating system function (Section 4OA3).

B. Licensee-Identified Violations

Violations of very low safety significance that were identified by the licensee have been reviewed by inspectors. Corrective actions planned or taken by the licensee have been entered into the licensee's corrective action program. These violations and corrective action tracking numbers 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 January 12, 2008, operators manually scrammed the reactor due to a loss of main transformer auxiliary power. Following troubleshooting and repairs, the reactor was restarted on January 15, 2008, and reached 100 percent power on January 19, 2008. On January 21, 2008 the plant reduced power to 76 percent due to tube leaks on a low pressure feedwater heater. The plant returned to 100 percent power on January 24, 2008. The plant entered a planned shutdown on February 22, 2008, to plug the degraded feedwater heater tubes. The reactor was restarted on February 25 and reached 100 percent power on March 2, 2008. On March 18, 2008, the plant reduced power to 55 percent due to the trip of the reactor feed Pump B. Following troubleshooting and repairs, the plant returned to 100 percent power on March 21, 2008. Approximately 1-1/2 hours after reaching 100 percent power, the plant automatically scrammed due to a unit differential trip on the Phase C. Following troubleshooting and repairs the reactor restarted on March 24, 2008, and reached 100 percent power on March 27, 2008. The plant remained at or near full rated thermal power for the remainder of the inspection period.

1. REACTOR SAFETY

Initiating Events, Mitigating Systems, Barrier Integrity, and Emergency Preparedness

1R01 Adverse Weather Protection (71111.01)

.1 Winter Seasonal Readiness Preparations

a. Inspection Scope

The inspectors conducted a review of the licensee's preparations for winter conditions to verify that the plant's design features and implementation of procedures were sufficient to protect mitigating systems from the effects of adverse weather. Documentation for selected risk-significant systems was reviewed to ensure that these systems would remain functional when challenged by inclement weather. During the inspection, the inspectors focused on plant specific design features and the licensee's procedures used to mitigate or respond to adverse weather conditions. Additionally, the inspectors reviewed the Updated Final Safety Analysis Report (UFSAR) and performance requirements for systems selected for inspection, and verified that operator actions were appropriate as specified by plant specific procedures. Cold weather protection, such as heat tracing and area heaters, was verified to be in operation where applicable. The inspectors also reviewed corrective action (CAP) program items to verify that the licensee was identifying adverse weather issues at an appropriate threshold and entering them into their CAP in accordance with station corrective action procedures. Specific documents reviewed during this inspection are listed in the attachment. The inspectors' reviews focused specifically on the following plant systems due to their risk significance or susceptibility to cold weather issues:

- Standby diesel generator system
- Standby service water system

This inspection constitutes one winter seasonal readiness preparations sample as defined in Inspection Procedure 71111.01-05.

b. Findings

No findings of significance were identified.

.2 Readiness for Impending Adverse Weather Condition – Heavy Rainfall/External Flooding Conditions

a. Inspection Scope

The inspectors evaluated the design, material condition, and procedures for coping with the design basis probable maximum flood. The evaluation included a review to check for deviations from the descriptions provided in the UFSAR for features intended to mitigate the potential for flooding from external factors. As part of this evaluation, the inspectors checked for obstructions that could prevent draining, checked that the roofs did not contain obvious loose items that could clog drains in the event of heavy precipitation, and determined that barriers required to mitigate the flood were in place and operable. Additionally, the inspectors performed a walkdown of the protected area to identify any modification to the site which would inhibit site drainage during a probable maximum precipitation event or allow water ingress past a barrier. The inspectors also reviewed the abnormal operating procedure for mitigating the design basis flood to ensure it could be implemented as written.

This inspection constitutes one readiness for impending adverse weather/external flooding condition sample as defined in Inspection Procedure 71111.01-05.

b. Findings

Introduction. The inspectors identified a Green noncited violation of 10 CFR Part 50 Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for failure to perform an adequate inspection of probable maximum precipitation (PMP) door seals protecting safety related equipment.

Description. During an external flooding inspection on February 27, 2008, inspectors found the entrance door to the diesel generator building in a degraded condition. The inspectors identified that the door seals did not make contact with the door frame and that the door had a significant amount of corrosion underneath the door seals, indicating long term degradation. The inspectors notified operations of their concerns and the licensee performed an inspection of the diesel generator building door seal and agreed that the PMP seal was in a degraded condition. The extent of condition review found three additional door seals with degraded conditions, including the doors to the standby service water pump houses. The inspectors recalled that during a previous NRC inspection of the standby service water system on December 3, 2007, concerns regarding the pump house door seals had been communicated to the plant. The plant documented this in a condition report and responded by performing an engineering evaluation which only credited the performance of a PMP inspection performed in October of 2007. The evaluation did not include independent inspection by engineering. The inspectors reviewed the referenced PMP inspection and noted that the inspection stated that the door seals were satisfactory. However, the condition of the diesel

building door seal and the corrosion on the door itself indicated a long-standing issue that would have been identified had an adequate PMP inspection surveillance been performed.

The plant performed an engineering evaluation showing the amount of water that might have entered the affected areas with the degraded door seals and presented this to the inspectors. The site determined that under conservative assumptions, if a PMP occurred with the door seals in their degraded conditions, not enough water would have entered the affected areas to disable the ability of the mitigating systems to perform their safety function. The inspectors reviewed the analysis and decided that the plant's assumptions and conclusion were satisfactory.

The site initiated compensatory actions for the degraded seals, staging sand bags in the area and requiring monitoring of the affected doors during heavy rainfall. The site initiated and completed work orders replacing the degraded seals on the four doors. They also implemented a corrective action to increase the inspection frequency from once a year to every six months, and a corrective action to revise the inspection procedure to clarify the acceptance criteria for inspection of PMP door seals.

Analysis. The inspectors determined that the failure to properly inspect and repair door seals that protect safety related equipment from PMP is a performance deficiency. This finding was more than minor because the door seals represent a degrading condition that if left uncorrected could become a more significant safety concern. The inspectors determined that this finding affected the mitigating systems cornerstone. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 worksheet, this finding was found to be of very low safety significance since it did not represent an actual loss of safety function for the standby service water pumps or the diesel generators. The cause of this finding has a crosscutting aspect in the area of problem identification and resolution in that the licensee failed to properly identify the degraded conditions of the PMP door seals during their surveillance inspection [P.1(a)].

Enforcement. 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," states, in part, that activities affecting quality shall be accomplished in accordance with prescribed procedures. Contrary to this requirement, the licensee failed to perform an adequate inspection of door seals protecting safety-related equipment as prescribed in Procedure 07-S-14-310, "Inspection of Mechanical Seals on Doors," Revision 4. Since this violation is of very low safety significance and has been entered in the licensee's corrective action program as Condition Reports CR-GGN-2008-01123 and 2008-01623, this violation is being treated as a noncited violation, consistent with Section VI.A of the Enforcement Policy: Noncited Violation (NCV) 5000416/2008002-01, Failure to Perform an Adequate Inspection of PMP Door Seals Protecting Safety Related Equipment.

1R04 Equipment Alignment (71111.04)

.1 Quarterly Partial System Walkdowns

a. Inspection Scope

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

- February 20, 2008, the inspectors walked down diesel fire Pump B following planned maintenance.
- March 12, 2008, the inspectors walked down the reactor core isolation cooling system while high pressure core spray (HPCS) was out of service for planned maintenance.
- March 18, 2008, the inspectors walked down residual heat removal Loop A while Loop B was out of service for planned maintenance.

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 impact the function of the system, and therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, system diagrams, UFSAR, Technical Specification (TS) requirements, Administrative TSs, 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 walked down accessible portions of the systems to verify 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 CAP with the appropriate significance characterization. Documents reviewed are listed in the attachment.

These activities constituted three partial system walkdown samples as defined by Inspection Procedure 71111.04-05.

b. Findings

No findings of significance were identified.

.2 Semi-Annual Complete System Walkdown

a. Inspection Scope

On March 11-13, 2008, the inspectors performed a complete system alignment inspection of the standby liquid control system to verify the functional capability of the system. This system was selected because it was considered both safety-significant and risk-significant in the licensee's probabilistic risk assessment. The inspectors walked down the system to review mechanical and electrical equipment lineups, electrical power availability, system pressure and temperature indications, as appropriate, component labeling, component lubrication, component and equipment cooling, hangers and supports, operability of support systems, and to ensure that ancillary equipment or debris did not interfere with equipment operation. A review of a sample of past and outstanding work orders was performed to determine whether any deficiencies significantly affected the system function. In addition, the inspectors reviewed the CAP database to ensure that system equipment alignment problems were

being identified and appropriately resolved. The documents used for the walkdown and issue review are listed in the attachment.

These activities constituted one complete system walkdown sample as defined by Inspection Procedure 71111.04-05.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

.1 Routine Resident Inspector Tours (71111.05Q)

a. Inspection Scope

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

- Division I diesel generator room (Room 1D302)
- Engineered safeguards features electrical penetration room (Room 1A308)
- Division I switchgear area (Room OC202)
- Division II switchgear area (Room OC203)

The inspectors reviewed areas to assess if the licensee 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 impact equipment which 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 CAP.

These activities constituted four quarterly fire protection inspection samples as defined by Inspection Procedure 71111.05-05.

b. Findings

Introduction. The inspectors identified a Green noncited violation of Facility Operating License Condition 2.C(41) for the failure to properly implement a compensatory fire watch per the station fire protection program.

Description. February 19, 2008, the licensee removed the CO₂ fire suppression system in the auxiliary building electrical penetration room from service to support relief valve maintenance. In order to compensate for the loss of the automatic system, a fire watch was initiated to check the room on an hourly basis. The inspectors performed a fire inspection of the engineered safeguards features switchgear room. The inspectors noted that during the inspection, plant personnel had not entered the room to perform a fire watch. The inspectors questioned security personnel, reviewed the fire watch log and determined that the fire watch log had been checked off as completed. The completion time corresponded to the time an inspector was in the room. After further review and interviews with security personnel, the inspectors determined that the plant employee designated to perform the fire watch duties misunderstood the requirements for the fire watch. The employee had only verified the auxiliary building hallway area outside the room and failed to check inside the auxiliary building electrical penetration room as required.

The plant implemented corrective actions to perform immediate training for individuals who would be responsible for fire watches; to include maps highlighting the areas that required fire watches in the fire watch log; and to require operations to perform a beginning of shift review of fire watch designated areas.

Analysis. The performance deficiency involved the failure of plant security personnel to perform an adequate fire watch. The finding was more than minor since it was associated with the protection against external factors attribute of the reactor safety mitigating systems cornerstone, and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," the inspectors determined that the finding had an adverse affect on the fixed fire protection systems element of fire watches posted as a compensatory measure for outages or degradations. The inspectors assigned a high degradation rating due to the fact that automatic fire suppression system was tagged out and inoperable. Because the system was degraded without compensatory actions for approximately 2 hours, the inspectors used a duration factor of 0.01. The inspectors used 2E-2 for a generic fire frequency area which corresponds to Table 1.4.2, "Generic Fire Area Fire Frequencies," for a switchgear room. The resulting calculated change in core damage frequency was 2E-4, which was greater than the high degradation Phase 1 Quantitative Screening Criteria of 1E-6, requiring a Phase 2 analysis. The inspectors consulted with a regional Senior Reactor Analyst and a simplified Phase 3 was performed using a duration factor of 2.3E-4 for the 2-hour time period, and the individual plant examination of external events specific room fire frequency of 7.2E-4. The resulting calculated change in core damage frequency was 1.7E-7, which would be less than the Phase 1 quantitative screening criteria. Using this information, the regional Senior Reactor Analyst, determined the finding to be of very low safety significance. The cause of this finding has a crosscutting aspect in the area of human performance associated with work practices, in that the individual assigned to

perform the fire watch proceeded in the face of uncertainty and failed to use appropriate human error prevention techniques [H.4(a)].

Enforcement. GGNS Facility Operating License Condition 2.C.(41) states, in part, that the plant “shall implement and maintain in effect all provisions of the Fire Protection Program” as described in the UFSAR. The fire protection program includes Technical Requirements Manual Section 6.2.4, “CO₂ Systems,” which requires an hourly fire watch patrol to be established if the required CO₂ system is inoperable. Fire Protection Procedure 10-S-03-8, “Fire Watch Program,” requires that “as a minimum, room checks must be a general, visual inspection of the entire room.” Contrary to the above, on February 19, 2007, the fire watch personnel assigned to patrol the electrical penetration room failed to visually inspect the room under fire watch provisions. Because the finding was of very low safety significance and was documented in the licensee’s CAP as Condition Report CR-GGN-2008-00869, this finding is being treated as a noncited violation consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000416/2008002-02; Failure to Properly Implement a Compensatory Fire Watch per Station Fire Protection Procedures.

1R11 Licensed Operator Regualification Program (71111.11)

.1 Resident Inspector Quarterly Review (71111.11Q)

a. Inspection Scope

On January 31, 2008, the inspectors observed a crew of licensed operators in the plant’s simulator during licensed operator requalification examinations 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;
- ability to take timely actions in the conservative direction;
- prioritization, interpretation, and verification of annunciator alarms;
- correct use and implementation of abnormal and emergency procedures;
- control board manipulations;
- oversight and direction from supervisors; and
- ability to identify and implement appropriate TS actions and emergency plan actions and notifications

The crew’s performance in these areas was compared to pre-established operator action expectations and successful critical task completion requirements.

The inspectors additionally reviewed the practice of shift supervisors/shift technical advisors (SS/STA) receiving senior reactor operator (SRO) proficiency hours to maintain their licenses current for standing watches in the main control room. Documents reviewed are listed in the attachment.

This inspection constitutes one quarterly licensed operator requalification program sample as defined in Inspection Procedure 71111.11-05.

b. Findings

Introduction. The inspectors identified a Green noncited violation of 10 CFR 55.53.e, "Conditions of License," for failure of licensed SROs to maintain the required proficiency to maintain their license current.

Description. On January 14, 2008, the inspectors were performing a control room walkdown when they asked the SS/STA whether the watch that SS/STA was standing counted towards the required shift proficiency for the quarter to maintain their license current. The SS/STA stated that Procedure 02-S-01-39, "Maintaining Watchingstanding Proficiency," provides credit toward their shift proficiency for the quarter for performing the SS/STA function. The normal shift complement of SROs consists of a shift manager (SM), a control room supervisor and a SS/STA. This practice allows the SS/STA to take the SRO oversight function when both the SM and control room supervisor were absent from the control room to do other functions and additionally allowed the SS/STA to take the watch as the control room supervisor or SM if qualified in this position.

The practice of maintaining proficiency for the SRO position by standing the SS/STA position is a long standing practice at Grand Gulf. The SS/STA is required to perform the function of STA, make log entries, perform initial reviews of all condition reports, determine and maintain the limiting condition of operations log, and they are required to be actively aware of current plant status and evolutions going on in the plant. This person also conducts training with the crew every quarter and maintains their requalification status current. These individuals, which fill the position of SS/STA at Grand Gulf, have numerous years of Grand Gulf experience and are highly knowledgeable of the plant.

Later in the quarter, the resident inspector office received a copy of Regulatory Issue Summary 2007-29, "Clarified Guidance for Licensed Operator Watch-standing Proficiency." The inspectors reviewed this Regulatory Issue Summary and on February 22, 2008, the inspectors questioned the assistant operations manager about this practice and the guidance in the Regulatory Issue Summary. The assistant operations manager informed the inspectors that he had not seen the Regulatory Issue Summary, but would check into the matter. The assistant operations manager informed the inspectors on February 29, 2008, that he was stopping the practice of the SS/STA receiving SRO proficiency watch credit for standing that position. As a result, all SS/STA SROs were inactivated and the plant issued a standing order that prohibited allowing the SS/STA to perform the SRO oversight function in the control room, requiring the SM or control room supervisor to be in the control room at all times. The inspectors reviewed operator watch-standing time records and determined that only three individuals were involved with the deficiency of standing watch without having the required proficiency hours over the previous year.

Analysis. The inspectors determined that the failure of the SS/STA to maintain SRO proficiency while continuing to perform SRO oversight in the control room is a performance deficiency. This finding affects the mitigating system cornerstone. This finding was more than minor because if left uncorrected the finding could become a more significant safety concern. The finding was determined to be of very low safety significance using Appendix I, "Licensed Operator Requalification Significance Determination Process," of Manual Chapter 0609 since it related to operator license conditions and more than 20 percent of the affected individuals were deficient.

Enforcement. 10 CFR 55.53.e, "Conditions of License," states, in part, that to maintain active status, the licensee shall actively perform the functions of the SRO on a minimum of five 12-hour or seven 8-hour shifts per calendar quarter. Contrary to this requirement, the licensee failed to ensure that three SS/STAs maintained their proficiency by standing required watches in an SRO position to obtain credit for their quarterly proficiency. Since this violation is of very low safety significance and has been entered in the licensee's CAP as CR-GGN-2008-01126, this violation is being treated as a noncited violation, consistent with Section VI.A of the Enforcement Policy: NCV 05000416/2008002-03, Failure of Licensed Senior Reactor Operators to Maintain the Required Proficiency to Maintain Their License Current.

1R12 Maintenance Effectiveness (71111.12)

.1 Routine Quarterly Evaluations (71111.12Q)

a. Inspection Scope

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

- Combustible Gas Control System, E61

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) of the maintenance rule;
- characterizing system reliability issues for performance;
- charging unavailability for performance;
- trending key parameters for condition monitoring;
- ensuring 10 CFR 50.65(a)(1) or (a)(2) classification or re-classification; and

- verifying appropriate performance criteria for structures, systems, and components/functions classified as (a)(2) or appropriate and adequate goals and corrective actions for systems classified as (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 CAP with the appropriate significance characterization. Documents reviewed are listed in the attachment.

This inspection constitutes one quarterly maintenance effectiveness sample 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 the licensee'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:

- Failure of radial well Pump K on January 7, 2008;
- Division III emergency core cooling system (ECCS) testing and tornado warning on January 10, 2008;
- Charcoal filter train testing on the control room air-conditioning, standby gas treatment, and containment cooling systems on January 17, 2008; and
- The loss of low pressure feedwater heater String B on January 21, 2008.

These activities were selected based on their potential risk significance relative to the reactor safety cornerstones. As applicable for each activity, the inspectors verified that risk assessments were performed as required by 10 CFR 50.65(a)(4) and were accurate and complete. When emergent work was performed, the inspectors verified that the plant risk was promptly reassessed and managed. 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 TS requirements and walked down portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met. Documents reviewed are listed in the attachment.

These activities constituted four samples as defined by Inspection Procedure 71111.13-05.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

.1 Operability Evaluations

a. Inspection Scope

The inspectors reviewed the following issues:

- CR-GGN-2008-00175, three control rods failed to settle to position 00 due to fuel channel bow;
- CR-GGN-2007-04715, safety relief valve testing not completed within required intervals;
- CR-GGN-2008-00636, oscillations observed on diesel generator jacket water heat exchanger outlet temperatures;
- CR-GGN-2008-00572, Division 1 diesel generator turbocharger oil site glass failed to show oil drip due to filling with oil;
- CR-GGN-2008-00939, reactor cooldown limit exceeded for the bottom vessel head drain;
- CR-GGN-2008-01201, high pressure core spray minimum flow valve failed to stroke closed; and
- CR-GGN-2008-01164, standby service water pump environmental seal failure.

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 TS 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 TS and UFSAR to the licensee'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. Documents reviewed are listed in the attachment.

This inspection constitutes seven samples as defined in Inspection Procedure 71111.15-05

b. Findings

No findings of significance were identified.

1R18 Plant Modifications (71111.18)

.1 Temporary Modification

a. Inspection Scope

The inspectors reviewed the following temporary modification:

- Quartz halogen lighting used as a temporary heat source for cold weather protection of the condensate storage tank level instrumentation cabinet.

The inspectors compared the temporary configuration changes and associated 10 CFR 50.59 screening and evaluation information against the design basis, the UFSAR, and the TSs, as applicable, to verify that the modification did not affect the operability or availability of the affected system. The inspectors also compared the licensee's information to operating experience information to ensure that lessons learned from other utilities had been incorporated into the licensee's decision to implement the temporary modification. The inspectors, as applicable, performed field verifications to ensure that the modifications were installed as directed; the modifications operated as expected; modification testing adequately demonstrated continued system operability, availability, and reliability; and that operation of the modifications did not impact the operability of any interfacing systems. Lastly, the inspectors discussed the temporary modification with operations, engineering, and training personnel to ensure that the individuals were aware of how extended operation with the temporary modification in place could impact overall plant performance. Documents reviewed are listed in the attachment.

This inspection constitutes one sample 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:

- Average power range monitor testing following replacement of a circuit card;
- Testing of standby service water pump inboard blowdown valve;
- Standby service water pump surveillance following environmental seal replacement;

- Diesel-driven fire pump surveillance following planned preventive maintenance activities; and
- Standby service water relief valve replacement and lift pressure test.

These activities were selected based upon the structures, systems, and components ability to impact 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; tests were performed as written in accordance with properly reviewed and approved procedures; equipment was returned to its operational status following testing (temporary modifications or jumpers required for test performance were properly removed after test completion), and test documentation was properly evaluated. The inspectors evaluated the activities against TSs, the UFSAR, 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 CAP and that the problems were being corrected commensurate with their importance to safety. Documents reviewed are listed in the attachment.

This inspection constitutes five samples as defined in Inspection Procedure 71111.19.

b. Findings

No findings of significance were identified.

1R20 Outage Activities (71111.20)

a. Inspection Scope

The inspectors evaluated outage activities for an unscheduled outage that began on January 12, and continued through January 15, 2008. The plant was shut down due to a failed connection that powered the main transformer auxiliary systems.

The inspectors evaluated outage activities for a planned outage to repair feedwater heater tube leaks. The outage began on February 22, and continued through February 25, 2008.

For both outages, the inspectors observed or reviewed the reactor shutdown and cooldown, outage equipment configuration and risk management, electrical lineups, selected clearances, control and monitoring of decay heat removal, control of containment activities, startup and heatup activities, and identification and resolution of problems associated with the outage. Documents reviewed are listed in the attachment.

This inspection constitutes two outage inspection samples as defined in Inspection Procedure 71111.20-05.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

.1 Routine Surveillance Testing

a. Inspection Scope

The inspectors reviewed the test results for the following activities to determine whether risk-significant systems and equipment were capable of performing their intended safety function and to verify testing was conducted in accordance with applicable procedural and TS requirements:

- 06-OP-1E12-Q-0024; LPCI/Residual Heat Removal Subsystem B quarterly functional test;
- 06-OP-1P81-R-0001; Division III ECCS testing;
- 06-OP-1P75-R-0003; 24-hour endurance run for the Division I standby diesel generator;
- 06-OP-1C51-V-0001; source range monitor (SRM) channel functional test; and
- 06-OP-1R20-W-0001; Plant AC and DC electrical power distribution.

The inspectors observed in-plant activities and reviewed procedures and associated records to determine whether any preconditioning occurred; effects of the testing were adequately addressed by control room personnel or engineers prior to the commencement of the testing; acceptance criteria were clearly stated, demonstrated operational readiness, and were consistent with the system design basis; plant equipment calibration was correct, accurate, and properly documented; as left setpoints were within required ranges; the calibration frequency was in accordance with TSs, the UFSAR, procedures, and applicable commitments; measuring and test equipment calibration was current; test equipment was used within the required range and accuracy; applicable prerequisites described in the test procedures were satisfied; test frequencies met TS requirements to demonstrate operability and reliability; tests were performed in accordance with the test procedures and other applicable procedures; jumpers and lifted leads were controlled and restored where used; test data and results were accurate, complete, within limits, and valid; test equipment was removed after testing; where applicable, test results not meeting acceptance criteria were addressed with an adequate operability evaluation or the system or component was declared inoperable; where applicable for safety-related instrument control surveillance tests, reference setting data were accurately incorporated in the test procedure; where applicable, actual conditions encountering high resistance electrical contacts were such that the intended safety function could still be accomplished; prior procedure changes had not provided an opportunity to identify problems encountered during the performance of the surveillance or calibration test; equipment was returned to a position or status required to support the performance of the safety functions; and all problems

identified during the testing were appropriately documented and dispositioned in the CAP. Documents reviewed are listed in the attachment.

This inspection constitutes five routine surveillance testing samples as defined in Inspection Procedure 71111.22.

b. Findings

Introduction. The inspectors identified a Green noncited violation of TS 3.8.1, "AC Sources-Operating," for the failure to perform a required surveillance following the loss of a required offsite power source.

Description. On February 12, 2008, the plant suffered a loss of power from the Port Gibson 115 kV line during high winds. Due to the fact that there is no direct control room alarm to alert the operating crew, the crew was not immediately aware that they had lost the offsite source of power. Normally, this bus has three offsite sources available, but one of the offsite sources for the Division 3 Bus 17 was already inoperable. At the time of the loss of the Port Gibson offsite power source, this Port Gibson line was one of the two required offsite sources for Division 3 Bus 17. When the crew recognized the loss of the bus, they only entered a potential limiting condition of operations, due to their failure to realize that the Port Gibson line was one of the required offsite sources.

On the following day, the inspectors reviewed the operator logs and noted the loss of offsite power and the fact that the operating crew had only written a potential limiting condition for operations. The inspectors questioned the shift manager about the loss of power and why the station had only entered a potential limiting condition for operations. The SM acknowledged that the plant should have entered limiting condition for operations TS 3.8.1.A, for loss of one required offsite source. The inspectors questioned whether the required surveillance had been performed; operations stated that 1 hour had not been exceeded; therefore the surveillance was not required to be performed. The inspectors asked for information to support the licensee's claim of the bus being out of service for less than 1 hour. The licensee provided load dispatcher information which stated the bus was lost at 11:53 a.m. and restored at 12:58 p.m. the same day. The inspectors challenged the Grand Gulf staff about this new information. After further review by the assistant operations manager, the licensee agreed that they had missed the TS required surveillance.

The plant has taken actions to revise alarm procedures to alert the operators of loss of the 115 kV offsite source by using indirect control room alarms to aid them in determining any future losses of the Port Gibson 115 kV offsite source.

Analysis. The inspectors determined that the failure to perform a required TS surveillance is a performance deficiency. This finding was more than minor because it impacts the mitigating system cornerstone objective in that it affects the operability, availability, reliability of an offsite power source that supplies a bus that provides power to mitigating systems. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 worksheet, this finding was determined to be of very low safety significance since it did not represent an actual loss of a safety function. The cause of this finding has a crosscutting aspect in the area of human performance associated with the resources attribute, in that the operators did not have adequate procedural guidance to determine the loss of a safety-related offsite power supply. [H.2(c)]

Enforcement. TS 3.8.1 requires Surveillance Requirement 3.8.1.1 to be performed when offsite sources to safety related buses are reduced to less than two. Contrary to this requirement, the licensee failed to perform TS Surveillance Requirement 3.8.1.1 when required on February 12, 2008. The operating crew was slow to determine the loss of the offsite source, and then did not recognize that the loss of bus occurred for more than 1 hour. Since this violation is of very low safety significance and has been entered in the licensee's CAP as CRs-GGN-2008-00737 and 2008-01202, this violation is being treated as a noncited violation, consistent with Section VI.A of the Enforcement Policy: NCV 05000416/2008002-04, Failure to Perform a Required TS Surveillance.

.2 Inservice Testing Surveillance

a. Inspection Scope

The inspectors reviewed the test results for the following activities to determine whether risk-significant systems and equipment were capable of performing their intended safety function and to verify testing was conducted in accordance with applicable procedural and TS requirements:

- 06-OP-1E22-Q-0005; High pressure core spray quarterly functional test

The inspectors observed in-plant activities and reviewed procedures and associated records to determine whether: any preconditioning occurred; effects of the testing were adequately addressed by control room personnel or engineers prior to the commencement of the testing; acceptance criteria were clearly stated, demonstrated operational readiness, and were consistent with the system design basis; plant equipment calibration was correct, accurate, and properly documented; as left setpoints were within required ranges; and the calibration frequency were in accordance with TSs, the UFSAR, procedures, and applicable commitments; measuring and test equipment calibration was current; test equipment was used within the required range and accuracy; applicable prerequisites described in the test procedures were satisfied; test frequencies met TS requirements to demonstrate operability and reliability; tests were performed in accordance with the test procedures and other applicable procedures; jumpers and lifted leads were controlled and restored where used; test data and results were accurate, complete, within limits, and valid; test equipment was removed after testing; where applicable for inservice testing activities, testing was performed in accordance with the applicable version of Section XI, American Society of Mechanical Engineers Code, and reference values were consistent with the system design basis; where applicable, test results not meeting acceptance criteria were addressed with an adequate operability evaluation or the system or component was declared inoperable; where applicable for safety-related instrument control surveillance tests, reference setting data were accurately incorporated in the test procedure; where applicable, actual conditions encountering high resistance electrical contacts were such that the intended safety function could still be accomplished; prior procedure changes had not provided an opportunity to identify problems encountered during the performance of the surveillance or calibration test; equipment was returned to a position or status required to support the performance of its safety functions; and all problems identified during the testing were appropriately documented and dispositioned in the CAP. Documents reviewed are listed in the attachment.

This inspection constitutes one inservice inspection sample as defined in Inspection Procedure 71111.22.

b. Findings

No findings of significance were identified.

1EP4 Emergency Action Level and Emergency Plan Changes (71114.04)

a. Inspection Scope

The inspectors performed an in-office review of Revisions 58 and 59 to the GGNS Emergency Plan, submitted September 24, 2007. These revisions: corrected the title of the Louisiana Governor's Office of Homeland Security and Emergency Preparedness, discontinued immediate notification of the Port Gibson Police Department following an emergency declaration due to the police department discontinuing 24-hour staffing, revised the means to notify the Port Gibson Police Chief of an emergency through the Claiborne County (Mississippi) Sheriff's Department, incorporated an independent spent fuel storage facility, updated the licensing basis of the licensee's emergency action level scheme to Nuclear Energy Institute (NEI) Report 99-01, "Methodology for Development of Emergency Action Levels," Revision 4, added detail to Emergency Action Level E-HU1, "Damage to a Loaded Cask Confinement Boundary," and corrected minor editorial errors.

These revisions were compared to the previous revisions, to the criteria of NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Revision 1, to the criteria of NEI Report 99-01, "Methodology for Development of Emergency Action Levels," Revision 4, and to the standards in 10 CFR 50.47(b) to determine if the revisions adequately implemented the requirements of 10 CFR 50.54(q). These reviews were not documented in a safety evaluation report and did not constitute approval of licensee changes, therefore these revisions are subject to future inspection.

The inspectors completed two samples as defined in Inspection Procedure 71114.04-05.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

The inspectors evaluated the conduct of a routine licensee emergency drill on February 6, 2008, to identify any weaknesses and deficiencies in classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the simulator control room and the technical support center to determine whether the event classification, notifications, and protective action recommendations were performed in accordance with procedures. The inspectors also attended the licensee drill critique to compare any inspector-observed weakness with those identified by the licensee staff in order to evaluate the

critique and to verify whether the licensee staff was properly identifying weaknesses and entering them into the CAP. As part of the inspection, the inspectors reviewed the drill package and other documents listed in the attachment.

This inspection constitutes one sample as defined in Inspection Procedure 71114.06-05.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification (71151)

.1 Unplanned Scrams per 7000 Critical Hours

a. Inspection Scope

The inspectors sampled licensee submittals for the Unplanned Scrams per 7000 Critical Hours PI for the period from the first quarter 2007 through the fourth quarter 2007. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in Revision 5 of the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," were used. The inspectors reviewed the licensee's operator narrative logs, condition reports, event reports and NRC inspection reports for the period of January 2007 through December 2007 to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the attachment to this report.

This inspection constitutes one unplanned scrams per 7000 critical hours sample as defined by Inspection Procedure 71151.

b. Findings

No findings of significance were identified.

.2 Unplanned Scrams with Complications

a. Inspection Scope

The inspectors sampled licensee submittals for the Unplanned Scrams with complications PI for the period from the first quarter 2007 through the fourth quarter 2007. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in Revision 5 of NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," were used. The inspectors reviewed the licensee's operator narrative logs, condition reports, event reports and NRC integrated inspection reports for the period of January 2007 through December 2007 to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or

transmitted for this indicator and none were identified. Specific documents reviewed are described in the attachment to this report.

This inspection constitutes one unplanned scrams with complications sample as defined by Inspection Procedure 71151.

b. Findings

No findings of significance were identified.

.3 Unplanned Transients per 7000 Critical Hours

a. Inspection Scope

The inspectors sampled licensee submittals for the unplanned transients per 7000 critical hours PI for the period from the first quarter 2007 through the fourth quarter. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in Revision 5 of the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," were used. The inspectors reviewed the licensee's operator narrative logs, condition reports, maintenance rule records, event reports and NRC integrated inspection reports for the period of January 2007 through December 2007 to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the attachment to this report.

This inspection constitutes one unplanned transients per 7000 critical hours sample as defined by Inspection Procedure 71151.

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 items Entered into the CAP

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 CAP at an appropriate threshold, that adequate attention was being given to timely corrective actions, and that adverse trends were identified and addressed. Attributes reviewed included: the complete and accurate identification of the problem; that timeliness was commensurate with the safety significance; that evaluation and disposition of performance issues, generic implications, common causes, contributing factors, root

causes, extent of condition reviews, and previous occurrences reviews were proper and adequate; and that the classification, prioritization, focus, and timeliness of corrective actions were commensurate with safety and sufficient to prevent recurrence of the issue. Minor issues entered into the licensee's CAP as a result 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 CAP Reviews

a. Inspection Scope

In order to assist with the identification of repetitive equipment failures and specific human performance issues for followup, the inspectors performed a daily screening of items entered into the licensee's CAP. This review was accomplished through inspection of the station's daily condition report packages.

These daily reviews were performed by procedure as part of the inspectors' daily plant status monitoring activities and, as such, did not constitute any separate inspection samples.

b. Findings

No findings of significance were identified.

.3 Selected Issue Followup Inspection: Concrete Cracks Identified in Standby Service Water Pump Houses

a. Inspection Scope

The inspectors reviewed condition reports documenting concrete cracks in the standby service water basins from 1997. The inspectors also reviewed engineering reports on allowable crack widths and monitoring programs for plant concrete structures.

The above constitutes completion of one in-depth problem identification and resolution sample.

b. Findings

Introduction. The inspectors identified a Green noncited violation of 10 CFR Part 50 Appendix B, Criterion XVI, for failing to implement effective corrective actions after identifying concrete cracking in the standby service water pump houses.

Description. During a system equipment alignment inspection on December 3, 2007, inspectors observed several cracks on the seismically designed concrete structures that protect both divisions of the safety related standby service water pumps and valves. These structures are built on top of a concrete slab that covers the top of two standby service water basins. The basins contain the cooling water that provides an ultimate heat sink to remove heat from plant auxiliaries that are required for a safe reactor shutdown.

During a followup review of the identified conditions, the inspectors determined that the plant discovered the concrete cracks in both the standby service water basin slab and pump houses in 1997. The plant performed a root cause evaluation identifying that dynamic loading from moving vehicles on the basin slab had caused the concrete cracks. The root cause addressed repair of the basin slab, and also stated that the cracks on the pump houses were much less severe and would be considered operable until Refuel 10 (October 1999). In addition, the root cause stated that there was no sign of rebar degradation in the standby service water pump houses and that the size, location and patterning of the cracks would not impact immediate operability. The inspectors reexamined the pump house structure and noted rust colored stains leaching from the cracks; a sign of rebar degradation. The inspectors also discovered that the licensee failed to complete an operability review of the cracks prior to startup from Refuel 10. In addition, the inspectors determined that the program that evaluates, monitors, and repairs cracks for all safety related structures only identified a single crack for the entire site and does not track other structural cracks previously identified in the CAP. The last program inspection had been performed as recently as October 25, 2007, and only identified the single crack that had been documented in previous inspections.

The plant design engineers and an independent concrete expert evaluated the condition of the cracks in the pump houses and concluded that the structures would retain their integrity through the remainder of the operating cycle, and that no immediate operability concern exists. The inspectors also consulted with a regional concrete expert and concluded that the cracks posed no immediate operability impact.

The plant has scheduled an inspection and evaluation of all safety related structures to baseline the deficient concrete monitoring program.

Analysis. The inspectors determined that the failure to evaluate, monitor and repair concrete cracks in safety related structures is a performance deficiency. This finding was more than minor because the cracks represent a degrading condition that if left uncorrected could become a more significant safety concern. The inspectors determined that this finding affected the mitigating systems cornerstone. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 worksheet, this finding was determined to be of very low safety significance since it did not represent an actual loss of a safety function. The cause of this finding has a crosscutting aspect in the area of human performance associated with work practices because licensee personnel failed to properly maintain and utilize the program for evaluating, tracking, and repairing identified concrete cracks in safety related structures. [H.4(b)]

Enforcement. 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," requires, in part, that conditions adverse to quality are promptly identified and corrected. Contrary to this requirement, the licensee failed to take adequate corrective action to prevent further degradation of the standby service water pump house structure due to improper

implementation of the crack monitoring program. Since this violation is of very low safety significance and has been entered in the licensee's CAP as CR-GGN-2007-05824, this violation is being treated as a noncited violation, consistent with Section VI.A of the Enforcement Policy: NCV 05000416/2008002-05, Failure to Evaluate Cracks in Standby Service Water Pump House Structure.

.4 Selected Issue Followup Inspection: Resin in Electro-Hydraulic Control (EHC) Fluid Causes Power and Pressure Oscillations

a. Inspection Scope

The inspectors reviewed condition reports documenting foreign material in the EHC system, including events from a 2003 resin intrusion into the EHC system. The inspectors reviewed the root cause analysis and corrective actions associated with the event. The inspectors also reviewed plant power and pressure trends for October, November, and December of 2007.

The above constitutes completion of one in-depth problem identification and resolution sample.

b. Findings

Introduction. The inspectors identified a Green finding involving ineffective corrective actions in response to resin intrusion in the EHC system.

Description. On October 15, 2007, the licensee identified a decreasing trend in the EHC system fluid pressures. Turbine stop valve control fluid pressures fell from approximately 146 psig to 122 psig over a 5-month period beginning in May 2007. During the investigation of the trend, plant personnel discovered that the EHC tank level indicator and tank low level alarm were not functional. The tank level had dropped to within a few inches from the level of the EHC pump suction strainers, and was masked by the deficient level monitoring equipment. Plant personnel initiated corrective actions to implement temporary level indication and added eight barrels (440 gallons) of EHC fluid to the tank. EHC tank level and system pressures returned to normal, however shortly after the fluid addition and over the following months, turbine control valves began showing erratic operation, causing oscillations in reactor pressure and requiring several reactor down powers. On January 12, 2008, the plant entered a forced outage to repair the main transformer auxiliary power system. During the forced outage, the plant inspected the filters in the EHC system and found a significant amount of resin in the filter plates. Plant personnel concluded that the addition of EHC fluid to the tank during the low tank level condition resulted in resin (which had migrated to the tank from an issue identified in 2003) being stirred up into the fluid and pumped through the turbine control system.

The inspectors completed a followup review of condition reports related to EHC issues and turbine control valve oscillations. The inspectors reviewed the corrective actions from a previous condition report involving a resin intrusion into the EHC system via a failed temporary ion-exchange filter in 2003. Review of the corrective actions associated with the 2003 event revealed that a long range recovery plan was developed and implemented to remove resin from the EHC system. However, the corrective action was closed without any licensee actions to remove resin from the EHC system. The failure to

implement effective corrective actions following the 2003 resin intrusion event directly resulted in EHC stability issues seen in late 2007.

Analysis. The performance deficiency involved the failure to implement effective corrective actions to remove resin from the EHC system. 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 MC 0609, "Significance Determination Process," Phase 1 worksheet, the finding was determined to be of 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. This issue was entered into the licensee's CAP as Condition Report CR-GGN-2007-04972.

Enforcement. No violation of NRC requirements occurred: FIN 0500416/2008002-06, "Ineffective Corrective Actions in Response to Resin in the Electro-hydraulic Control System."

40A3 Followup of Events and Notices of Enforcement Discretion (71153)

.1 Plant Shutdown Due to Loss of Main Transformer Auxiliary System Power

a. Inspection Scope

On January 12, 2008, operators received main transformer trouble alarms for the three main transformers. Building operators were dispatched to determine the cause of the alarms and discovered inoperable cooling pumps and fans on Main Transformer A. In addition, only one bank of fans was running on Main Transformer B and three fans on Main Transformer C. Plant operators initiated a manual scram to protect the main transformer from overheating. The investigation into the cause of the loss of power to the main transformer auxiliaries identified an overheated cable at the auxiliary power transfer switch due to a high resistance connection at the termination. The over heating caused the cables to melt resulting in a loss of Phase B to the cooling circuits.

This inspection constitutes one sample as defined in Inspection Procedure 71153-05.

b. Findings

No findings of significance were identified.

.2 High Pressure Core Spray Minimum Flow Valve Failed to Close

a. Inspection Scope

On March 5, 2008, the licensee was restoring from Division 3 ECCS testing. Following completion of the surveillance test, the licensee momentarily started the HPCS pump to verify breaker operability. The HPCS minimum flow valve, had dual indications as expected, but then showed no indication as the status light for HPCS motor-operated valve overload/power loss illuminated. The valve breaker was found in the tripped free condition. The breaker was reset and the HPCS minimum flow valve closed as expected. The inspectors reviewed the operators' response to the trip of HPCS,

minimum flow valve. The review included the cause determination and extent of condition of the breaker trip. Documents reviewed in this inspection are listed in the attachment.

This inspection constitutes one sample as defined in Inspection Procedure 71153-05.

b. Findings

Introduction. The inspectors identified a Green, self-revealing NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for failure to properly set the over current trip setpoint for the HPCS minimum flow valve.

Description. On March 5, 2008, the licensee was restoring from Division 3 ECCS testing. Following completion of the procedure, the licensee momentarily started the HPCS pump to verify breaker operability, the HPCS Minimum Flow Valve 1E22F012 had dual indications as expected, and then showed no indication as the status light for HPCS motor-operated valve overload/power loss illuminated. The HPCS 1E22F012 Breaker 52-170109 was found in the tripped free condition. The breaker was reset and Valve 1E22F012 closed as expected. Upon investigation by the licensee, it was determined that the conditions seen in this circuit were the result of changes made to the voltage tap settings on the bus during change out of the valve actuator in 1996. During the bus voltage tap setting change, the setting for the instantaneous over current setpoint for 1E22F012 was not evaluated in the course of the modification process. This resulted in the spurious over current trip due to the hard reversal close inrush current seen in this case. Also contributing to the instantaneous over current trip was the high grid voltage of 521 kV vice the normal 510 kV. The result of the breaker trip was that Valve 1E22F012 stuck open, making the valve inoperable. Valve 1E22F012 is required to open when the HPCS pump is run to prevent pump run out and damage, and is required to close to ensure maximum flow to the reactor when needed. It is also normally closed for containment isolation. The licensee adjusted the instantaneous over current setting for the 1E22F012 valve breaker to prevent spurious over current trips in the future.

Analysis. The performance deficiency involved the failure to properly evaluate and adjust the over current setting on 1E22F012 when bus voltage tap settings were changed in 1996. The finding was more than minor because it was associated with the barrier integrity cornerstone objective to provide reasonable assurance that the physical design barriers protect the public from radio-nuclide releases caused by accidents or events. Using the MC 0609, "Significance Determination Process," Phase 1 worksheet, the finding was determined to be very low safety significance since it did not result in a loss of the containment barrier. Additionally, the issue was screened and determined to not impact the HPCS mitigating system function.

Enforcement. 10 CFR Part 50, Appendix B, Criterion III, "Design Control," states, in part, that the design basis for systems, structures, and components are correctly translated into specifications, drawings, procedures, and instructions. Contrary to the above, in 1996 the licensee failed to correctly translate specifications for the instantaneous over current trip setting on the Valve 1E22F012 breaker which assured proper functioning per the design basis following bus voltage tap changes. Because this violation was of very low safety significance and was entered in the CAP as CR-GGN-2008-01201, this violation is being treated as an NCV consistent with

Section VI.A of the NRC Enforcement Policy: NCV 05000416/2008002-07; Inadequate Design Control of HPCS Minimum Flow Valve Motor-Operated Over Current Setpoint.

.3 Reactor Feed Pump Trip

a. Inspection Scope

On March 18, 2008, the reactor feed Pump B tripped resulting in recirculation flow control valve runback to approximately 69 percent power. The operating crew further reduced power to 56 percent by inserting control rods to exit the restricted region of the power flow map. The inspectors reviewed the operator's response to the trip of the feed pump and the trouble shooting plan. After performing checks of various equipment that input to the feed pump trip circuit, the licensee was unable to conclusively determine the root cause of the feed pump trip. The licensee elected to recover the feed pump and commence power ascension. During the power ascension the operating crew recognized that the turbine bypass valves came open while withdrawing control rods. This was due to the turbine generator load limiter being set at approximately 850 MWe vice 1400 MWe. This was a licensee identified violation of TSs 3.3.1.1, 3.3.2.1, and 3.3.4.1 and is document in Section 4OA7 of this report. Documents reviewed in this inspection are listed in the attachment.

This inspection constitutes one sample as defined in Inspection Procedure 71153-05.

b. Findings

No findings of significance were identified.

.4 Reactor Scram from Main Generator/Turbine Trip due to a Unit Differential Trip

a. Inspection Scope

On March 21, 2008, the unit scrambled due to a main generator/turbine trip from the Phase C unit differential current meter. The inspectors reviewed the response to the scram and observed the crew stabilizing the plant in Mode 3. The inspectors then followed the trouble shooting activities. The licensee was unable to conclusively determine the cause of the unit differential trip, but took actions to jumper out a suspect current transformer, replace a relay in the circuit, and align a generator current transformer into the Phase C unit differential circuit. The licensee returned the plant to 100 percent power with no issues noted. Documents reviewed in this inspection are listed in the attachment.

This inspection constitutes one sample as defined in Inspection Procedure 71153-05.

b. Findings

No findings of significance were identified.

.5 (Closed) LER 05000416/2007-003-00: "Reactor SCRAM Due to Decreasing Reactor Vessel Water Level"

On August 21, 2007, the plant experienced an automatic scram from 100 percent power due to decreasing reactor water level. This was a result of Feed Pump A governor control valve closing, due to an unexpected power failure interrupt signal from the INFI-90 digital feedwater control panel. The licensee performed a root cause analysis but could not find a conclusive cause. The licensee could not reproduce this failure during testing. The licensee developed multiple contributing causes, all of which involved the power supply cards in the INFI-90 digital feedwater control system. Corrective actions for all possible contributing causes have been completed with the exception of replacing the INFI-90 system which they have committed to do in their next refueling outage. No findings of significance were identified. This LER is closed.

4OA6 Management Meetings

Exit Meeting Summary

On January 11, 2008, the inspector conducted a telephonic exit meeting to present the results of the in-office inspection of licensee changes to the emergency plan, to Mr. M. Guynn, Manager, Emergency Preparedness, who acknowledged the findings. The inspector confirmed that proprietary information was not provided or examined during the inspection.

On April 7, 2008, the inspectors presented the inspection results to Mr. James R. Douet, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

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.A of the NRC Enforcement Policy for being dispositioned as NCVs. Documents reviewed are listed in the attachment.

- TS 3.8.1 requires two offsite power sources to supply the onsite Class 1E electric power distribution system. Contrary to this requirement, control room operators discovered that feeder voltage was greater than the TS limit for both 500 kV feeders causing both sources to be inoperable. Upon further investigation by the plant personnel it was determined that for approximately 25 hours during the previous 2 days the plant was in violation of the TS requirement. This resulted in missed surveillances, which are required by TS Action Statement 3.8.1.A. The plant performed an operability evaluation of safety related equipment supplied by these safety buses and determined for the short period of time that these voltages were in excess of TS limits the equipment remained operable. This issue was documented in the licensee's CAP program as CR-GGN-2008-1499 and 2008-1508. This finding is of very low safety significance because there was no actual loss of operability.

- GGNS Facility Operating License Condition 2.C(41) states, in part, that the plant “shall implement and maintain in effect all provisions of the Fire Protection Program” as described in the UFSAR. The fire protection program requires that fire barriers contain the effects of possible fires for the minimum amount of time for which the fire barrier is rated. Contrary to this requirement, plant personnel discovered structural steel fireproofing missing from a steel column that is part of a 3 hour fire barrier between the Division I and Division II safeguard switchgear rooms. The structural steel requires fireproofing to maintain the fire barrier rating time. The fireproofing was either removed or damaged during maintenance to replace Kaowool with 3-M Interam fire wrap. This issue was documented in the licensee’s CAP program as CR-GGN-2008-00914. Using the “Significance Determination Process,” Manual Chapter 0609, Appendix F, the finding was determined to impact the fire confinement category because the fire barrier separated one fire area from another. A moderate degradation rating was assigned because the structural steel would provide some protection from fire propagation. The finding was characterized as having very low safety significance because both areas contained non-degraded automatic gaseous room-flooding fire suppression systems.
- TS 3.3.1.1 for reactor protection system instrumentation, TS 3.3.2.1 control rod block instrumentation, and TS 3.3.4.1 end of cycle recirculation pump trip instrumentation requires that turbine bypass valves shall not be opened if reactor power is greater than 40 percent or while control rods are being withdrawn. Contrary to this requirement, while increasing reactor power from 65 percent, control room operators discovered that the ‘turbine bypass Valves A and B were open while the plant was ascending in power by withdrawing control rods. The operating crew immediately stopped the withdrawal of control rods, thus exiting the plant from the conditions of TS 3.3.2.1. The operating crew reduced reactor power with core flow, automatically closing the bypass valves exiting the plant from the conditions of TSs 3.3.1.1 and 3.3.4.1. The reason the turbine bypass valves opened during power ascension was due to operators not setting the turbine generator load limiter to 1400 MWe following a feed pump trip earlier in the week. This error was made due to a nonspecific order, inadequate procedure guidance and incomplete turnover between operating crews. The plant performed an evaluation of the event and concluded that the protective functions credited during operations above 40 percent rated thermal power did not impact the protective functions of reactor protection system, control rod block, or end of cycle recirculation pump trip. This issue was documented in the licensee’s CAP program per CR-GGN-2008-01448. This issue was reviewed by regional management and determined to be of very low safety significance.

ATTACHMENT: SUPPLEMENT INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

D. Barfield, Director, Engineering
B. Blanche, Assistant Manager, Operations
M. Causey, Senior Lead Technical Specialist
R. Collins, Manager, Corrective Actions and Assessments
D. Coulter, Licensing Specialist, Plant Licensing
D. Cupstid, Superintendent, Nuclear and Industrial Safety
P. Different, Senior Lead Engineer, Reactor Engineering
R. Douet, Vice President, Operations
B. Edwards, Minority Owner Specialist
R. Gardner, Manager, Maintenance
M. Guynn, Manager, Emergency Preparedness
E. Harris, Manager, Quality Assurance
R. Jackson, Licensing Specialist, Plant Licensing
D. Jones, Manager, System Engineering
M. Krupa, Director, Nuclear Safety and Assurance
G. Lantz, Supervisor, Design Engineering
M. Larson, Acting Manager, Plant Licensing
M. McAdory, Senior Operations Instructor
D. McDirmid, Maintenance Rule Engineer
J. Owens, Licensing Specialist, Plant Licensing
W. Parman, Manager, Component Engineering
M. Rohrer, Manager, Planning, Scheduling and Outages
T. Tankersley, Manager, Training
T. Thornton, Manager, Design Engineering
D. Wilson, Supervisor, Design Engineering
F. Wilson, Manager, Operations
R. Wilson, Superintendent, Radiation Protection
P. Worthington, Supervisor, Engineering

NRC Personnel

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

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened

None

Opened and Closed

05000416/2008002-01	NCV	Failure to Perform an Adequate Inspection of Probable Maximum Precipitation Door Seals Protecting Safety Related Equipment (Section 1R01)
05000416/2008002-02	NCV	Failure to Properly Implement a Compensatory Fire Watch per Station Fire Protection Procedures (Section 1R05)
05000416/2008002-03	NCV	Failure of Licensed Senior Reactor Operators to Maintain the Required Proficiency to Maintain Their License Current (Section 1R11)
05000416/2008002-04	NCV	Failure to Perform a Required Technical Specification Surveillance (Section 1R22)
05000416/2008002-05	NCV	Failure to Evaluate Cracks in Standby Service Water Pump House Structure (Section 4OA2.3)
05000416/2008002-06	FIN	Ineffective Corrective Actions in Response to Resin in the Electro-hydraulic Control System (Section 4OA2.4)
05000416/2008002-07	NCV	Inadequate Design Control of HPCS Minimum Flow Valve Motor-Operated Valve Over Current Setpoint (Section 4OA3.2)

Closed

05000416/2007-003-00	LER	Reactor SCRAM Due to Decreasing Reactor Vessel Water Level (Section 4OA3.5)
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Discussed

None

LIST OF DOCUMENTS REVIEWED

The following is a partial list of documents reviewed during the inspection. Inclusion on this list does not imply that the NRC inspector reviewed the documents in their entirety, but rather that selected sections or portions of the documents were evaluated as part of the overall inspection effort. Inclusion of a document on this list does not imply NRC acceptance of the document or any part of it, unless this is stated in the body of the inspection report.

Section 1R01: Adverse Weather Protection

Condition Reports

CR-GGN-2005-01245	CR-GGN-2007-05626	R-GGN-2008-01123
CR-GGN-2006-00131	CR-GGN-2008-00027	CR-GGN-2008-01169
CR-GGN-2006-01518	CR-GGN-2008-01080	CR-GGN-2008-01643

Procedures

NUMBER	TITLE	REVISION
04-1-03-A30-1	Cold Weather Protection	18
04-1-03-A30-4	Operations Boat Checks	2
05-1-02-VI-1	Off-Normal Event Procedure Flooding	105
05-1-02-VI-2	Off-Normal Event Procedure Hurricanes, Tornados and Severe Weather	109
07-S-14-310	Inspection of Mechanical Seals on Doors	4
ENS-EP-302	Severe Weather Response	7

Work Orders

WO51054703	WO51191068
WO51191667	WO51551403

Other

LO-GLO-2006-0040
EC-174
ER-GG-2003-0120

Section 1R04: Equipment Alignment

NUMBER	TITLE	REVISION
04-1-01-C41-1	Standby Liquid Control System	116
04-1-01-E12-1	Residual Heat Removal System	128
04-1-01-E51-1	Reactor Core Isolation Cooling System	125

04-1-01-P64-1	Fire Protection System	53
06-OP-SP64-M-0001	Fire Pump Monthly Operability Test	105
06-ME-SP64-R-0001	Fire Protection Water System Diesel Check	103

Work Orders

WO107982 WO51641641

Other

Drawing M-1082; Standby Liquid Control System; Revision 27
Drawing M1083A; Reactor Core Isolation Cooling System; Revision 33
Drawing M1083B; Reactor Core Isolation Cooling System; Revision 36
Drawing M-1085B; P&ID Residual Heat Removal System; Revision 60
Tagout Sheet P64-40, Clearance Folder GGNS1C16-1
Drawing M-0035; Fire Protection System; Revision 65

Section 1R05: Fire Protection

Condition Reports

CR-GGN-2008-00450 CR-GGN-2008-00860 CR-GGN-2008-00869

Procedures

GGNS Fire Pre-Plan DG-02; Revision 3
GGNS Fire Pre-Plan C-02; Revision 3
GGNS Fire Pre-Plan C-03; Revision 3
GGNS Fire Pre-Plan A-32; Revision 0

Other

Auxiliary Building Fire Watch Rounds, February 19, 2008

Section 1R11: Licensed Operator Requalification Program

Condition Report

CR-GGN-2008-01126

Procedures

NUMBER	TITLE	REVISION
01-S-04-2	Licensed Operator Requalification Training	15
01-S-06-2	Access and Conduct In The Control Room	13
02-S-01-39	Maintaining Watchstanding Proficiency	1

Other

GSMS-LOR-WEX02; Reactor Level Transmitter Failure / Recirc Pump Double Downshift/
LOCA / Switchyard Loss / Loss of 17AC; Revision 14

Regulatory Issue Summary 2007-29; Clarified Guidance For License Operator Watch-Standing
Proficiency; December 27, 2007

Standing Order No. 08-0019; Shift Supervisor / STA Position License Status

Section 1R12: Maintenance Effectiveness

Condition Reports

CR-GGN-2005-05070	CR-GGN-2006-04762	CR-GGN-2007-02800
CR-GGN-2005-05232	CR-GGN-2007-00208	CR-GGN-2007-03455
CR-GGN-2006-01090	CR-GGN-2007-00522	CR-GGN-2007-03741
CR-GGN-2006-01597	CR-GGN-2007-02335	CR-GGN-2007-05028
CR-GGN-2006-02614	CR-GGN-2007-02344	CR-GGN-2007-05139
CR-GGN-2006-03028	CR-GGN-2007-02495	
CR-GGN-2006-03253	CR-GGN-2007-02690	

Procedures

NUMBER	TITLE	REVISION
EN-DC-203	Maintenance Rule Program	0
EN-DC-204	Maintenance Rule Scope and Basis,	0
EN-DC-205	Maintenance Rule Monitoring	0
EN-DC-206	Maintenance Rule (a)(1) Process	0

Work Orders

WO90469	WO101280	WO123176
WO92569		

Other

GGNS Maintenance Rule Failure Database for System E61
GGNS Maintenance Rule (a)(1) Systems Report, January 2008
GGNS Maintenance Rule System Notebook

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Condition Reports

CR-GGN-2008-00358 CR-GGN-2003-02816 CR-GGN-2008-00379

Procedures

NUMBER	TITLE	REVISION
01-S-18-6	Risk Assessment of Maintenance Activities	5
EN-WM-101	On-Line Work Management Process	3
EN-WM-102	Work Implementation and Closeout	1
05-1-01-VI-2	Hurricanes, Tornados, and Severe Weather	108
05-1-02-V-5	Loss of Feedwater Heating;	109
05-1-02-V-5	Off-Normal Event Procedure Loss of Feedwater Heating	107-108

Work Orders

WO51203093 WO51203197 WO134642
WO51205821 WO51203275

Other

ODMI EN-OP-111; Continued Plant Operation Following 01/21/08 "B" Low Pressure Heater Isolation; Revision 3

Standing Orders 08-006, 08-008 and 08-013; Plant Operation with the "B" Low Pressure Heater String Isolated

EC-5467, Justify LPFWH String OOS for Power Operation, Revision 0

EC-5484, 2 FWH String Operation & turbines, Revision 0

ODMI, Continued Plant Operation Following 01/21/08 B Low Pressure Feedwater Heater String Isolation

Section 1R15: Operability Evaluations

Condition Reports

CR-GGN-2007-04147 CR-GGN-2008-00469 CR-GGN-2008-00993
CR-GGN-2007-04240 CR-GGN-2008-00636 CR-GGN-2008-01164
CR-GGN-2007-04715 CR-GGN-2008-00911
CR-GGN-2008-00175 CR-GGN-2008-00939

Procedures

EN-OP-104; Operability Determinations; Revision 2

EN-LI-102; Corrective Action Process; Revision 12

04-1-03-C11-7-01P; Control Rod Settle and Insertion Test; Revision 4; Completed August 22, 2007

04-1-03-C11-7-01P; Control Rod Settle and Insertion Test; Revision 5; Completed October 20, 2007 and December 15, 2007

06-RE-SC11-V-0402; Control Rod Scram Testing - Individual Scram, Manual Analysis; Revision 115

03-1-01-3; Plant Shutdown; Revision 116

Work Orders

WO124245
WO51547419

WO52914

WO52915

Other

Calculation MC-Q1111-04016, Cumulative Operating Fatigue Usage Factors for Reactor Pressure Vessel Components, Class 1 Piping and Containment Penetration – Updated for RF11, RF12, and RF13, Revision 0

Calculation MC-Q1111-90170, Cumulative Operating Fatigue Usage Factors for Reactor Pressure Vessel Components, Class 1 Piping and Containment Penetration, Revision 0

Calculation MC-Q1111-95039, Cumulative Operating Fatigue Usage Factors for ECCS Nozzles, Revision 0

Single Point Trend – B33N021.C88, February 22, 2008 20:00-20:30

Telecom Conversation Record GTC2008-00003, Thermexchanger Jacket Water and Lube Oil Coolers

TDI Owners Group; GGNS – Unit 1, Turbocharger Component Part No. MP022/023

Section 1R18: Plant Modifications

Condition Reports

CR-GGN-2007-05314
CR-GGN-2008-00333

CR-GGN-2008-00830

CR-GGN-2008-01651

Procedures

NUMBER	TITLE	REVISION
EN-DC-136	Temporary Modifications	3
04-1-03-A30-1	Cold Weather Protection	18

Section 1R19: Post Maintenance Testing

Condition Reports

CR-GGN-2006-00343 CR-GGN-2008-00794

Procedures

NUMBER	TITLE	REVISION
06-IC-1C51-SA-0001	Average Power Range Monitor Calibration	108
06-ME-1000-R-0003	Safety and Relief Valve Testing; Revision	108
06-OP-1C51-V-003	APRM Functional Test – Mode 1,2	113
06-OP-1P41-Q-0005	Standby Service Water Loop B Valve and Pump Operability Test	118
07-S-12-127	Installation and Operation of VOTES Diagnostic Testing Equipment	8
EN-AD-102	Procedure Adherence and Level of Use	1
EN-HU-102	Human Performance Tools	2
EN-MA-101	Conduct of Maintenance	5

Work Orders

WO137976 WO141781

Other

Drawing 164C5434; Auxiliary Unit First Made For APRM Page; Revision 3
GGNS-90-0003, Engineering Report for Safety Related Valve Functions, Revision 0

Section 1R20: Outage Activities

Condition Reports

-

CR-GGN-2008-01000 CR-GGN-2008-01031 CR-GGN-2008-01051
CR-GGN-2008-01026

Procedures

03-1-01-2; Power Operations; Revision 135
03-1-01-3; Plant Shutdown; Revision 116

Other

Engineering Change 6247; Allow startup of Turbine and operation on two bypass valves until RF-16

Section 1R22: Surveillance Testing

Condition Reports

CR-GGN-2008-00737 CR-GGN-2008-01202

Procedures

NUMBER	TITLE	REVISION
04-1-01-E22-1	High Pressure Core Spray System	110
06-OP-1E12-Q-024	LPCI/RHR Subsystem B Quarterly Functional Test	110
06-OP-1E22-Q-0005	HPCS Quarterly Functional Test	116

Work Orders

WO51512544 WO51568259

Other

-

Drawing M-1086; P&ID High Pressure Core Spray System; Revision 30

Section 1EP6: Drill Evaluation

Condition Reports

CR-GGN-2008-00672 CR-GGN-2008-00674 CR-GGN-2008-00675
CR-GGN-2008-00673

Other

First Quarter Emergency Preparedness Drill; February 6, 2008

Section 4OA1: Performance Indicator Verification

Condition Reports

CR-GGN-2007-2743 CR-GGN-2007-4128

Other

-
GGNS - NRC Integrated Inspection Reports; 05000416/2007002
GGNS - NRC Integrated Inspection Reports; 05000416/2007003
GGNS - NRC Integrated Inspection Reports; 05000416/2007004
GGNS - NRC Integrated Inspection Reports; 05000416/2007005
LER 2007-003-00 - Reactor SCRAM due to Decreasing Coolant Level
LER2007-002-00 - Reactor SCRAM due to Turbine Trip Caused by Loss of Condenser Vacuum
NEI Document 99-02, Regulatory Assessment Performance Indicator Guideline; Revision 5

Section 4OA2: Problem Identification and Resolution

Condition Reports

CR-GGN-1997-00194	CR-GGN-2007-04972	CR-GGN-2007-05634
CR-GGN-2003-00706	CR-GGN-2007-05152	CR-GGN-2007-05635
CR-GGN-2007-04972	CR-GGN-2007-05395	CR-GGN-2007-05824

Work Orders

MAI 329832

Other

Grand Gulf Nuclear Station Engineering Report for Allowable Crack Widths for Concrete and CMU Walls; GGNS-97-0043

STI 2007-0008; Hydraulically Isolating One e/H Converter at a Time to Identify E/H Design Response Issues

STI 2003-0003; Manual ATT of HP Control Valves

Section 4OA3: Event Followup

Condition Reports

CR-GGN-2007-01345	CR-GGN-2007-01617	CR-GGN-2008-01476
CR-GGN-2007-01568	CR-GGN-2008-00174	CR-GGN-2008-01476
CR-GGN-2007-01585	CR-GGN-2008-01201	CR-GGN-2008-01478
CR-GGN-2007-02559	CR-GGN-2008-01204	
CR-GGN-2007-04128	CR-GGN-2008-01448	

Procedures

NUMBER	TITLE	REVISION
01-S-06-26	Post Trip Analysis GGNS Unit 1	Scram No 118
03-1-01-2	Power Operations	135

Others

Calculation MC-01E22-92002; HPCS Pump Min-Flow Line Orifice; Revision 0
Basic EHC Control Diagram; Dated September 21, 2006
LER 05000416/2007-003-00; Reactor SCRAM Due to Decreasing Reactor Vessel Water Level

Section 40A7: Licensee-Identified Violations

CR-GGN-2007-04715	CR-GGN-2008-01499	CR-GGN-2008-01508
CR-GGN-2008-00914		

Procedures

NUMBER	TITLE	REVISION
06-OP-1R20-W-001	Plant AC and DC Electrical Power Distribution Weekly Lineup	106
ENS-DC-109	Off Site Power Supply Design Requirements	2
ENS DC-201	ENS Transmission Grid Monitoring	2

LIST OF ACRONYMS USED

CAP	corrective action program
CFR	<i>Code of Federal Regulations</i>
ECCS	emergency core cooling system
EHC	electro-hydraulic control
GGNS	Grand Gulf Nuclear Station
HPCS	high pressure core spray
LER	Licensee Event Report
NCV	noncited violation
NEI	Nuclear Energy Institute
PI	performance indicator
PMP	probable maximum precipitation
SM	shift manager
SRO	senior reactor operator
SS/STA	shift supervisor/ shift technical advisor
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report