

# Grand Gulf 1

## 4Q/2012 Plant Inspection Findings

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### Initiating Events

**Significance:** G Dec 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Failure to Evaluate the Risk Significances and Develop Action Plans to Address Equipment Identified During Extent of Condition Review for a Post Scram Root Cause Analysis**

Green. The inspectors identified a non-cited violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," involving the licensee's failure to follow procedure EN-LI-118, "Root Cause Evaluation Process," Revision 18, in that they failed to evaluate the risk significances and develop action plans to address equipment identified during their extent-of-condition review for a post-scram root cause analysis. The licensee entered this issue into their corrective action program as Condition Report CR-GGN-2012-11950. The immediate corrective actions included assigning corrective actions for operations personnel to properly evaluate the risk significance of the identified components and perform appropriate corrective actions to correct the degraded conditions.

The licensee's failure to properly determine risk significance and associated action plans to correct degraded equipment that could challenge safe plant operation is a performance deficiency. The performance deficiency is more than minor and is therefore a finding because if left uncorrected, it would have the potential to lead to a more significant safety concern. Specifically, the failure to take corrective actions to correct degraded equipment has the potential to lead to initiating events resulting in plant transients. Using NRC Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," the inspectors determined that the issue affected the Initiating Events Cornerstone. In accordance with NRC Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings at Power," the inspectors determined that the issue has very low safety significance (Green) because the finding did not cause a reactor trip or the loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition.

The inspectors determined that the apparent cause of this finding was that when operations management directed operators to identify the degraded equipment, they did not encourage those operators to comply with Procedure EN-LI-118. Therefore, the finding has a cross-cutting aspect in the human performance area, work practices component because the licensee did not define and effectively communicate expectations regarding procedural compliance. [H.4 (b)] (Section 4OA3).

Inspection Report# : [2012005](#) (*pdf*)

**Significance:** G Jun 30, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

#### **Failure of Hot Work Fire Watch to Follow Procedural Requirements**

The inspectors reviewed a self-revealing non-cited violation of Technical Specifications 5.4.1(a), for failure of the hot-work fire watch to follow procedural requirements, which resulted in a fire in main condenser A. On April 11, 2012, at 6:11 p.m., hot-work was in progress inside the condenser A in the upper southeast corner at 150 foot elevation. Cutting was being performed by contract boilermakers using an oxy-acetylene torch, with ventilation exhaust and supply provided by nearby HEPA hoses. The torch cutting operation produced hot slag, which exited the barrier provided by the fire blankets and ignited the nearby HEPA hoses, air conditioning hoses, and eventually the acetylene hoses. Contract pipefitters in the area were able to extinguish the fire. The main control room was informed of the fire inside condenser A and dispatched the fire brigade to the scene. The operations shift manager declared a notice of unusual event at 6:26 p.m. due to a fire in the protected area lasting longer than 15 minutes. Members of the fire brigade entered the condenser bay at 6:42 p.m. and reported to the control room there was no fire present, only smoke. The notice of unusual event was exited at 7:00 p.m. Short term corrective actions included site management

placing a stop work order on all hot-work until a complete investigation of the event could be performed. The licensee entered this issue into the corrective action program as Condition Report CR-GGN-2012-05418.

The finding is more than minor because it is associated with the protection against external factors attribute of the Initiating Events Cornerstone and adversely affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. The inspectors reviewed Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," that states in the Assumptions and Limitations section, "The Fire Protection SDP focuses on risks due to degraded conditions of the fire protection program during full power operation of a nuclear power plant. This tool does not address the potential risk significance of fire protection inspection findings in the context of other modes of plant operation (i.e., low power or shutdown)." Therefore, the senior reactor analyst evaluated the finding in accordance with Manual Chapter 0609, Appendix G, Attachment 1, "Shutdown Operations Significance Determination Process Phase 1 Operational Checklists for both PWRs and BWRs." The finding did not require a quantitative assessment because adequate mitigating equipment remained available; the finding did not increase the likelihood of a loss of reactor coolant system inventory; the finding did not degrade the ability to terminate a leak path or add reactor coolant system inventory; and the finding did not degrade the ability to recover decay heat removal if lost. Therefore, the finding screened as Green, having very low safety significance. The inspectors determined that the apparent cause of this finding was that site management did not ensure that hot-work supervisors were engaged in ensuring compliance with procedural requirements. This finding had a cross-cutting aspect in the area of human performance associated with work practices component because the licensee failed to ensure supervisory oversight of hot-work activities is performed within procedural requirements such that nuclear safety is supported [H.4(c)] (Section 40A3)  
Inspection Report# : [2012003](#) (pdf)

**Significance:** G Mar 23, 2012

Identified By: Self-Revealing

Item Type: FIN Finding

**Manual Reactor Scram Caused by Failure to Ensure the Main Steam Supply Valve to Reactor Feed Pump Turbine B was Full Open**

Green

. The inspectors reviewed a Green self-revealing finding for the failure to ensure the correct position (full open) of the main steam supply valve 1N11-F014B to reactor feed pump turbine B, which resulted in a manual reactor scram due to decreasing reactor water level. During plant shutdown activities to begin refueling outage 18, the at-the-controls operator manually scrammed the reactor from approximately 23 percent rated thermal power due to the decreasing reactor water level. Water level in the reactor was decreasing because valve 1N11-F014B was not fully open, and because pressure in the main steam lines had been reduced when the crew opened turbine bypass valves to begin cooling the main turbine. With valve 1N11-F014B less than fully open and reduced steam pressure, the operating feed pump wasn't able to maintain water level. After the scram, reactor core isolation cooling and reactor feed pump turbine A were used to restore water level. The licensee plans to repair valve 1N11-F014B during the current refuelling outage. The licensee entered this issue into their corrective action program as condition report CR-GGN-2012-01838.

The finding is more than minor because it is associated with the Initiating Events Cornerstone attribute of human performance and affected the associated cornerstone objective to limit the likelihood of those events that upset plant stability and that challenge critical safety functions during power operations. Using Inspection Manual Chapter 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," the inspectors concluded that the finding contributed to both the likelihood of a reactor trip and the likelihood that mitigation equipment would not be available. The inspectors, in consultation with the regional senior reactor analyst, performed a Phase 2 estimation using the pre-solved work sheets for Grand Gulf Nuclear Station. The inspectors determined by entering the power conversion system column that the finding was of very low safety significance (Green). This result was validated by the senior reactor analyst using the current revision of the plant-specific SPAR model. The inspectors determined the finding has a cross-cutting aspect in the area of human performance associated with the decision-making component because the operating staff proceeded with the start up of the reactor feed pump B with the main steam supply valve 1N11-F014B in an unknown position [H.1(b)](Section 1R11).

Inspection Report# : [2012002](#) (pdf)

**Significance:** G Mar 23, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Perform an Online Risk Assessment Per Severe Weather Off Normal Procedure Due to a Declared Tornado Warning Affecting Grand Gulf Nuclear Station**

Green. The inspectors identified a Green non-cited violation of Technical Specifications 5.4.1.a for the failure to perform an online risk assessment per severe weather off normal procedure due to a declared tornado warning affecting Grand Gulf Nuclear Station. At 7:41 p.m., on February 15, 2012, the National Weather Service issued a tornado warning for Claiborne County, the county in which Grand Gulf Nuclear Station is located. In response to a tornado warning, licensee procedures required them to enter Off-Normal Operating Procedure 05-1-02-VI-2, "Severe Weather," and evaluate online risk. This severe weather condition would have resulted in the licensee entering into an orange risk condition. On February 16, 2012, the inspectors identified that the licensee had not made a log entry for entry into their off normal severe weather procedure during the preceding evening and therefore had not evaluated online risk status for the severe weather condition. In response to the inspectors' observations, the licensee initiated a condition report detailing the failures to enter the off normal procedure and enter the correct risk condition. The licensee has implemented short-term corrective actions to ensure the site adequately evaluates the risk associated with adverse weather. The licensee entered this issue into their corrective action program as condition report CR-GGN-2012-01707.

The finding is more-than-minor because it is associated with the Initiating Events Cornerstone attribute of protection against external events, and it affected the associated cornerstone objective to limit the likelihood of those events that upset plant stability and that challenge critical safety functions during power operations.

- 3 -

Using Inspection Manual Chapter 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," Appendix K; "Maintenance Risk Assessment and Risk Management Significance Determination Process," Flowchart 1; "Assessment of Risk Deficit"; and consulting with the regional senior reactor analyst, the inspectors determined the finding to be of very low safety significance based on a licensee's calculated determination of the incremental core damage probability deficit of 4.0E-08. This result was validated by the senior reactor analyst using the current revision of the plant-specific SPAR model. The inspectors determined the finding has a cross-cutting aspect in the area of human performance associated with the resources component because the on-shift senior reactor operators did not have adequate access to current weather information that would prompt control room personnel to re-evaluate risk due to changing weather conditions [H.2(d)](Section 1R13).

Inspection Report# : [2012002](#) (pdf)

## Mitigating Systems

**Significance:**  Dec 31, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

**Failure to Implement Adequate Procedure Instructions to Perform Preventive Maintenance Requiring The Periodic Replacement of the Control Relays in the GE Magne Blast Circuit Breakers**

Green. The inspectors reviewed a self-revealing non-cited violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the licensee's failure to complete preventive maintenance tasks on the high pressure core spray division III diesel generator output breaker in accordance with the corresponding preventive maintenance task template. The licensee entered this issue in their corrective action program as Condition Report CR-GGN-2012-07992. The immediate corrective actions included replacing the failed control relay and restoring operability to the division III diesel generator. The long term corrective actions included revising breaker refurbishment/replacement procedure with directions to replace the control relay and change the procedure frequency to every 10 years versus every 12 years.

The inspectors determined that this performance deficiency was more than minor and is therefore a finding because it is associated with the equipment performance attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, this failed control relay caused the subject breaker to fail to close during the division III diesel generator monthly surveillance on June 5, 2012. The inspectors used NRC Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," to determine that the issue

affected the Mitigating System Cornerstone. Because the finding pertained only to a degraded condition while the plant was shutdown, the inspectors used Manual Chapter 0609, Appendix G, "Shutdown Operations Significance Determination Process," Checklist 8, "Cold Shutdown or Refueling Operation – Time to Boil > 2 Hours: RCS Level < 23' Above Top of Flange," to determine that the finding was of very low safety significance because it did not increase the likelihood of a loss of reactor coolant system inventory; did not degrade the licensee's ability to terminate a leak path or add RCS inventory when needed; did not significantly degrade the licensee's ability to recover decay heat removal if lost; and did not affect the safety/relief valves (Green). The inspectors determined that the cause of this finding was a latent issue that is not reflective of current performance, therefore no cross-cutting aspect was identified. (Section 1R20.b).

Inspection Report# : [2012005](#) (*pdf*)

**Significance:**  Dec 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Establish Gain Settings on APRM and LPRM Instruments in Accordance with Design Requirements**

Green. The inspectors identified a non-cited violation of 10 CFR 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to establish the gain settings used on the power range neutron monitoring system in accordance with design requirements. The licensee entered this issue into their corrective action program as Condition Report CR-GGN-2013-00177. The immediate corrective actions included adjusting gain settings for their average power range monitor (APRM) instruments to indicate actual core thermal power as determined by the heat balance. In addition, the licensee revised their neutron monitoring procedure to set the initial gains for the average power range monitor to the maximum value to maintain conservative power indication during future startups. They also changed their local power range monitor replacement procedure to use the vendor specified initial gain setting of 3.692 prior to startup. The finding was more than minor because it affected the design control attribute of the Mitigating Systems Cornerstone and impacted the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the incorrect gain settings caused a violation of technical specification 3.0.4 by rendering the APRM Neutron Flux High – Setdown scram function and the Neutron Flux – Upscale, Startup control rod block function inoperable prior to entry into Mode 2. In accordance with NRC Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," the inspectors determined that the issue affected the Mitigating Systems Cornerstone. In accordance with NRC Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings at Power", the inspectors determined that the issue had very low safety significance (Green) because although the finding affected a single reactor protection system trip signal to initiate a reactor scram, it did not affect the function of other redundant trips or diverse methods of reactor shutdown, did not involve control manipulations that unintentionally added positive reactivity, and did not result in a mismanagement of reactivity by operators. Because the performance deficiency occurred in the past and is not reflective of current licensee performance, this finding was not assigned a cross-cutting aspect. (Section 4OA3).

Inspection Report# : [2012005](#) (*pdf*)

**Significance:**  Sep 21, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Follow Procedure Results in Inadequate Operability Determinations**

Green. The inspectors identified two examples of a non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," regarding the licensee's failure to follow the requirements of Procedure EN-OP-104, "Operability Determinations." Specifically, for Condition Report CR-GGN-2012-09690, which documents an oil leak on the standby liquid control pump B, and for Condition Report CR-GGN-2012-09889, which documents degraded bolts on a flanged connection on standby service water B piping, the licensee failed to validate that operability evaluations completed for prior non-conforming conditions bounded the conditions documented in the new condition reports. As immediate corrective actions, the licensee re-performed the evaluations and established an adequate basis for operability for the conditions described in the two condition reports listed above. The licensee entered this issue into their corrective action program as CR-GGN-2012-09735 and CR-GGN-2012-10664.

The finding was more than minor because if left uncorrected, not performing operability determinations in accordance with procedure could lead to a more significant safety concern. Specifically, if a condition renders a safety related system inoperable and because of this performance deficiency the licensee incorrectly determines that the system is operable, then this performance deficiency could result in a safety related system remaining inoperable for a long period of time. Using NRC Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," the inspectors determined that the issue affected the Mitigating Systems Cornerstone. In accordance with NRC Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings at Power," the inspectors determined that the issue has very low safety significance (Green) because although it affected the design or qualification of a mitigating system, the system maintained its operability.

The finding had a cross-cutting aspect in the problem identification and resolution area, corrective action program component because the licensee failed to properly evaluate for operability conditions adverse to quality [P.1(c)] (Section 1R15).

Inspection Report# : [2012004](#) (*pdf*)

**Significance:**  Sep 10, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

**Preconditioning of 4160 Vac Circuit Breakers for As-Found Tests**

Green. The team identified a Green non-cited violation of 10 CFR 50, Appendix B, Criterion XI, "Test Control," which states, in part, "A test program shall be established to assure that all testing required to demonstrate that structures, systems, and components will perform satisfactorily in service is identified and performed in accordance with written test procedures which incorporate the requirements and acceptance limits contained in applicable design documents." Specifically, prior to July 27, 2012, the licensee's preventive maintenance Procedures 07-S-12-41, 07-S-12-42, and 07-S-12-61 failed to assure that the 4160 Vac circuit breakers would perform satisfactorily in service when the licensee performed maintenance prior to completing "as-found" tests to verify past operability of the circuit breakers. This finding has been entered into licensee's corrective action program as Condition Reports CR-GGN-2012-09035 and CR- GGN-2012-9103.

The team determined that failure to establish a test program which ensures that test and maintenance procedures associated with safety-related 4160 Vac circuit breakers would perform satisfactorily in service was a performance deficiency. This finding was more than minor because, if left uncorrected, it would lead to a more significant safety concern. Specifically, the failure to perform "as-found" tests prior to performing maintenance in preventive maintenance procedures was a significant programmatic deficiency which could cause unacceptable conditions to go undetected. Using the Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process for Findings At Power," the issue screened as having very low safety significance (Green) because it was a design or qualification deficiency that did not represent a loss of safety function. This finding had a crosscutting aspect in the area of human performance, resources component, because the licensee failed to ensure that test and maintenance procedures were complete, accurate, and up-to-date to assure nuclear safety. [H.2(c)] (1R21.2.1)

Inspection Report# : [2012008](#) (*pdf*)

**Significance:**  Sep 10, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Establish a Testing Program for Safety Related 125 Vdc Circuit Breakers**

Green. The team identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," which states, in part, "A test program shall be established to assure that all testing required to demonstrate that structures, systems, and components will perform satisfactorily in service is identified and performed in accordance with written test procedures which incorporate the requirements and acceptance limits contained in applicable design documents." Specifically, prior to July 27, 2012, the licensee failed to establish a test program for 125 Vdc safety related molded case circuit breakers incorporating the requirements of IEEE 308, to ensure the breakers would not degrade and would perform satisfactorily in service. The finding was entered into the licensee's corrective action

The team determined that the failure to establish a testing program incorporating the requirements of IEEE 308 was a performance deficiency. The finding was more than minor, because if left uncorrected, it would lead to a more significant safety concern. Specifically, the failure to establish a testing program was a significant programmatic deficiency that would lead to missed opportunities to detect potential common cause failures from degradation of performance in more than one redundant safety division. Using the Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process for Findings At-Power," the issue screened as having very low safety significance (Green) because it was a design or qualification deficiency that did not represent a loss of safety function. This finding had a crosscutting aspect in the area of problem identification and resolution, corrective action program component; because the licensee failed to thoroughly evaluate problems such that resolutions address cause and extent of condition. Specifically, the licensee failed to thoroughly evaluate the extent of condition associated with previously identified NRC violation involving the failure to test 480 Vac molded case circuit breakers identified during the 2009 component design basis inspection. [P.1(c)] (1R21.2.2)

Inspection Report# : [2012008](#) (*pdf*)

**Significance:** G Sep 10, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Obtain NRC Approval for a Change to Credible Passive Failures in the Standby Service Water System**

Severity Level IV. The team identified a Severity Level IV non-cited violation of 10 CFR 50.59, "Changes, Tests and Experiments" which states, in part, that "a licensee shall obtain a license amendment pursuant to Section 50.90 prior to implementing a proposed change, test, or experiment if this activity would; result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component important to safety previously evaluated in the final safety analysis report (as updated)." Specifically, on August 18, 1987, the licensee implemented a change to the updated safety analysis report which limited credible passive failures in the standby service water system to pump and valve seal leakage without obtaining a license amendment. This finding was entered into the licensee's corrective action program as Condition Report CR GGN 2012 09267.

The team determined that the licensee's failure to receive prior NRC approval for changes in licensed activities regarding single passive failure criteria for the standby service water system was a performance deficiency. The performance deficiency was evaluated using traditional enforcement because the finding had the ability to impact the regulatory process. The performance deficiency was more than minor because there was a reasonable likelihood that the change would require NRC review and approval prior to implementation. In accordance with the NRC Enforcement Manual, risk insights from the Inspection Manual Chapter 0609, "Significance Determination Process," are used in determining the significance of 10 CFR 50.59 violations. Using the Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process for Findings At-Power," the team determined that the finding represented a loss of system safety function in that the standby service water system could not meet its 30-day mission time to provide decay heat removal. Therefore, a Detailed Risk Evaluation was necessary. In accordance with Manual Chapter 0609, Appendix A, Section 6, "Detailed Risk Evaluation," the senior reactor analyst evaluated the risk of the degraded condition that resulted from the finding. According to the Risk Assessment of Operational Events Handbook, Volume 1 – Internal Events, Section 4.1, "Mission Time Modeling," in most events, 24 hours is sufficient time to bring numerous resources to bear on core cooling. In some events, the choice is conservative and the analysis results are overestimates. Additionally, the analyst determined that Section 4.2 on increasing mission time was not applicable to the subject finding because the decrease in standby service water system water inventory would be obvious and there would be days to respond with makeup sources. Therefore, the analyst determined that the finding was of very low safety significance (Green) because, although the standby service water system could not provide 30 days of decay heat removal without operator action to provide makeup water to the system, it would have been able to complete its 24-hour risk significant mission time. Since the finding had very low safety significance, the finding was determined to be Severity Level IV, in accordance with the NRC Enforcement Policy. The finding does not have a crosscutting aspect because the most significant contributor to the finding does not reflect current licensee performance. (1R21.2.3)

**Significance:**  Sep 10, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Promptly Enter an NRC Violation Regarding the Standby Service Water System into the Corrective Action Program**

Green. The team identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, “Corrective Action,” which states, in part, that “Measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformance are promptly identified and corrected.” Specifically, on July 12, 2012, the NRC informed the licensee of a violation of 10 CFR 50.59 requirements, but the licensee failed to promptly identify this as an adverse condition and enter this condition into their corrective action program until July 19, 2012. The finding was entered into the licensee’s corrective action program as CR-GGN-2012-10075.

The team determined that the licensee’s failure to promptly enter the NRC violation as condition adverse to quality into the corrective action program was a performance deficiency. This finding was more than minor because it adversely affected the design control attribute of the Mitigating Systems Cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the licensee failed to promptly document a violation of 10 CFR 50.59, which delayed an operability evaluation that ultimately determined that compensatory measures were required to ensure that the standby service water system could perform its specified safety function for its entire mission time. Using the Inspection Manual Chapter 0609, Appendix A, “The Significance Determination Process for Findings At-Power,” the team determined that the finding represented a loss of system safety function in that the standby service water system could not meet its 30-day mission time to provide decay heat removal. Therefore, a Detailed Risk Evaluation was necessary. In accordance with Manual Chapter 0609, Appendix A, Section 6, “Detailed Risk Evaluation,” the senior reactor analyst evaluated the risk of the degraded condition that resulted from the finding. According to the Risk Assessment of Operational Events Handbook, Volume 1 – Internal Events, Section 4.1, “Mission Time Modeling,” in most events, 24 hours is sufficient time to bring numerous resources to bear on core cooling. In some events, the choice is conservative and the analysis results are overestimates. Additionally, the analyst determined that Section 4.2 on increasing mission time was not applicable to the subject finding because the decrease in standby service water system water inventory would be obvious and there would be days to respond with makeup sources. Therefore, the analyst determined that the finding was of very low safety significance (Green) because, although the standby service water system could not provide 30 days of decay heat removal without operator action to provide makeup water to the system, it would have been able to complete its 24-hour risk significant mission time. This finding had a crosscutting aspect in the area of problem identification and resolution, corrective action program component, because the licensee failed to ensure that issues potentially impacting nuclear safety are promptly identified, fully evaluated, and that actions are taken to address safety issues, in a timely manner, commensurate with their safety significance. Specifically, the licensee did not implement a corrective action program with a low threshold for identifying issues completely, accurately, and in a timely manner commensurate with their safety significance. [P.1(a)] (1R21.2.3)

Inspection Report# : [2012008](#) (pdf)**Significance:**  Sep 10, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Follow the Operability Determination Process Procedure**

Green. The team identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings” which states, in part, that “Activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings.” Specifically, from July 19, 2012, to July 29, 2012, the licensee failed correctly evaluate the operability of the standby service water system with a degraded or nonconforming condition and failed to document a sound basis for a reasonable expectation of operability of the standby service water system as required by Procedure EN-OP-104, “Operability Determination Process.” The finding

was entered into the licensee's corrective action program as Condition Report CR-GGN-2012-09356.

The team determined that the failure to implement the requirements of the operability determination process procedure was a performance deficiency. The finding was more than minor because it adversely affected the equipment performance attribute of the Mitigating Systems Cornerstone to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the standby service water system was incapable of performing its specified safety function for the entire 30-day mission time without compensatory measures. Using the Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process for Findings At-Power," the team determined that the finding represented a loss of system safety function in that the standby service water system could not meet its 30-day mission time to provide decay heat removal. Therefore, a Detailed Risk Evaluation was necessary. In accordance with Manual Chapter 0609, Appendix A, Section 6, "Detailed Risk Evaluation," the senior reactor analyst evaluated the risk of the degraded condition that resulted from the finding. According to the Risk Assessment of Operational Events Handbook, Volume 1 – Internal Events, Section 4.1, "Mission Time Modeling," in most events, 24 hours is sufficient time to bring numerous resources to bear on core cooling. In some events, the choice is conservative and the analysis results are overestimates. Additionally, the analyst determined that Section 4.2 on increasing mission time was not applicable to the subject finding because the decrease in standby service water system water inventory would be obvious and there would be days to respond with makeup sources. Therefore, the analyst determined that the finding was of very low safety significance (Green) because the standby service water system could have been able to complete its 24-hour risk significant mission time although it could not provide 30 days of decay heat removal without operator action to provide makeup water to the system. This finding had a crosscutting aspect in the area of human performance, decision making component, because the licensee did not make decisions that demonstrated that nuclear safety was an overriding priority. Specifically, the licensee did not make safety significant decisions using a systematic process to ensure safety is maintained. [H.1(a)] (1R21.2.3)

Inspection Report# : [2012008](#) (pdf)

**Significance:**  Sep 10, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to Incorporate Test and Inspection Requirements for 4160 Vac Circuit Breakers into Preventive Maintenance Procedures**

Green. The team identified a Green non-cited violation of 10 CFR 50, Appendix B, Criterion XI, "Test Control," which states, in part, "A test program shall be established to assure that all testing required to demonstrate that structures, systems, and components will perform satisfactorily in service is identified and performed in accordance with written test procedures which incorporate the requirements and acceptance limits contained in applicable design document." Specifically, prior to July 27, 2012, the licensee's safety-related 4160 Vac circuit breaker preventive maintenance Procedures 07-S-12-41, 07-S-12-42, and 07 S 12-61 failed to incorporate inspection and test requirements for minimum voltage tests, reduced voltage tests, and inspection of auxiliary switch relay contacts as established in the licensee's circuit breaker maintenance program. This condition was entered into the licensee's corrective action program as Condition Reports CR GGN 2012-08885 and CR-GGN-2012-09111.

The team determined that the failure to incorporate required tests and inspections into preventive maintenance procedures for safety related 4160 Vac circuit breakers was a performance deficiency. This finding was more than minor because, if left uncorrected, it would lead to a more significant safety concern. Specifically, the failure to incorporate the testing, cleaning, and inspection requirements into preventive maintenance procedures were a significant programmatic deficiency which could cause unacceptable conditions to go undetected. Using the Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process for Findings At-Power," the issue screened as having very low safety significance (Green) because it was a design or qualification deficiency that did not represent a loss of safety function. This finding had a crosscutting aspect in the area of problem identification and resolution, operating experience component, because the licensee failed to use operating experience information, including vendor recommendations and internally generated lessons learned, to support plant safety. Specifically, the licensee did not implement and institutionalize operating experience through changes to processes, procedures, equipment, and training programs. [P.2(b)] (1R21.2.4)

**Significance:** G Jun 30, 2012

Identified By: NRC

Item Type: FIN Finding

**Failure to Ensure Materials are Stored Properly in the 500 KV Switchyard**

The inspectors identified a finding for the licensee's failure to ensure that materials or equipment were not stored under energized lines or near energized equipment in accordance with station procedures. On May 21, 2012, the inspectors were performing a grid stability inspection and toured the 500 KV switchyard with the system switchyard engineer. During the tour, the inspectors identified numerous cylindrical shaped items stored under a 500 KV power line, which posed a missile hazard to the offsite source of power. The licensee determined that the items in question were bushing sleeves that were left in the switchyard following 500 KV breaker maintenance. The inspectors researched station procedures and determined that the cylindrical items stored under the energized 500 KV power line did not meet procedure requirements for the storage of materials and equipment. Immediate corrective actions included having the items removed from the switchyard. The licensee entered this issue into their corrective action program as Condition Report CR-GGNS-2012-07362.

The finding is more than minor because it is associated with the protection against external factors attribute of the Mitigation 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. The inspectors reviewed Manual Chapter 0609, Attachment A, "Phase 1 – Initial Screening and Characterization of Findings." Attachment A, Table 4.a, states that a Phase 3 is required if the finding is potentially risk significant due to external initiating event core damage accident sequences. The inspectors determined that the failure to properly store the bushing sleeves in the switchyard could have resulted in a loss of offsite power during a severe weather initiating event. Therefore, the senior reactor analyst evaluated the finding to determine its significance using hand calculations and the site-specific SPAR model. The analyst determined that the probability of having straight-line winds or winds generated by hurricanes or tornados that were strong enough to throw the bushing sleeves into switchyard electrical equipment was between  $2.5 \times 10^{-1}$  and  $2.0 \times 10^{-2}$  /year. The analyst also determined that the conditional probability that bushing sleeves thrown by winds would result in a loss of offsite power was between  $1.2 \times 10^{-1}$  and  $1.1 \times 10^{-7}$ . Finally, the SPAR model calculated that the conditional core damage probability for a loss of offsite power initiated in the switchyard was  $5.3 \times 10^{-5}$ . Using these values, under all scenarios evaluated by the analyst, the change in core damage frequency caused by the subject performance deficiency was below  $1 \times 10^{-6}$ . Therefore, the finding was of very low safety significance (Green). The inspectors determined the finding has a cross-cutting aspect in the area of problem identification and resolution associated with the corrective action program component because the licensee did not implement the corrective action program with a low threshold for identifying materials improperly stored in the 500 KV switchyard [P.1(a)](Section 1R01).

Inspection Report# : [2012003](#) (pdf)**Significance:** G Jun 30, 2012

Identified By: Self-Revealing

Item Type: FIN Finding

**Loss of Alternate Method of Decay Heat Removal Due to Reactor Water Clean Up Pumps Tripping on Low Suction Flow Signal**

Green. The inspectors reviewed a self-revealing finding for the licensee's failure to identify that de-energizing non-safety electrical bus 13BD1 and 13BD2 would cause the reactor water clean-up pumps A and B to trip on a low suction flow signal. On April 24, 2012, the plant was shut down for refueling outage 18, the residual heat removal system B was in service, and the reactor water clean-up system was in standby mode as the alternate shutdown cooling system. In this configuration, the plant was in yellow risk due to having two available systems for decay heat removal. At 10:00 a.m., both reactor water clean-up pumps tripped on low pump suction flow, causing the plant to enter an unplanned orange risk configuration for only having one system available for decay heat removal. The licensee determined the reactor water pumps tripped while opening the feeder breaker for the 13BD1 and 13BD2 buses (breaker 152-1305) for scheduled maintenance. When breaker 152-1305 was opened, optical isolator AT12 caused the pump low suction flow trip control contacts to close, which initiated the low suction flow alarm and caused the pumps to trip. Immediate corrective actions included restoring reactor water clean-up as the alternative source of decay heat removal by closing breaker 152-1305 and re-energizing the 13BD1 and 13BD2 buses. The licensee entered

this issue into their corrective action program as Condition Reports CR-GGN-2012-06092 and CR-GGN-2012-06105.

The finding is more than minor because it is associated with the configuration control attribute of the Mitigating Systems Cornerstone and it affected the cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using Inspection Manual Chapter 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," the inspectors determined that the finding was of very low safety significance (Green) because the finding did not represent a loss of a system safety function. The inspectors determined that the cause of this finding was a latent issue; therefore no cross-cutting aspect was assigned (Section 1R13).

Inspection Report# : [2012003](#) (*pdf*)

**Significance:** G Jun 30, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

**Inadequate Corrective Actions to Address Configuration Control of Previous Non-cited Violation**

Green. The inspectors identified a non-cited violation of very low safety significance of 10 CFR Appendix B, Criterion XVI, "Corrective Action," for failure to implement adequate corrective actions for a previous NRC-identified non-cited violation. The previous finding involved a failure to maintain configuration control of various systems in the plant. In response to the previous finding, the licensee performed an apparent cause evaluation and developed actions to address the causes and extent of condition. However, the inspector identified that the actions pertaining to the extent of condition were not properly implemented and, as a result, the deficiency identified by the inspector was not fully resolved. The licensee failed to identify brass compression fittings installed on drain tailpieces of the standby service water system instead of stainless steel fittings as required by design documents. Furthermore, the licensee failed to update applicable design drawings allowing sacrificial compression fittings to be installed. The licensee performed corrective actions to restore configuration control. This issue was entered into the licensee's corrective action program as Condition Reports CR-GGN-2012-04003, CR-GGN-2012-4180, and CR-GGN-2012-04233.

The issue is more than minor because, if left uncorrected, it could become a more significant safety concern. Specifically, the issues identified by the inspector impacted the licensee's ability to establish and maintain configuration control for equipment relied on for safe operation of the plant. The design control attribute of the Mitigating Systems Cornerstone and the cornerstone's objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences were affected. Until the issues are fully resolved, the licensee continues to be vulnerable to gaps in their system configuration control. The finding was determined to be of very low safety significance (Green) using Attachment 4 to IMC 0609, "Significance Determination Process," because it did not result in an actual loss of safety function. The inspectors also determined that the finding had a cross-cutting aspect in the area of human performance associated with the resources component because the licensee did not provide adequate training of personnel so that the inappropriately installed fittings could be identified during system walkdowns [H.2(b)] (Section 1R08).

Inspection Report# : [2012003](#) (*pdf*)

**Significance:** G Jun 30, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Implement a Surveillance Requirement to Assure that the Limiting Condition for Operation Will be Met**

Green. The inspectors identified a non-cited violation of 10 CFR Part 50.36, "Technical Specifications," involving the failure to implement a surveillance requirement to assure that the limiting conditions for operation of the ultimate heat sink will be met. Technical Specifications requires two cooling towers and two cooling basins, with the volume of the two basins constituting the entire inventory of the ultimate heat sink. Therefore, an interconnecting siphon line is installed to transfer water between the two cooling tower basins. That siphon line has the safety-related function of ensuring the availability of enough cooling water to satisfy ultimate heat sink requirements. Technical Specification 3.7.1 includes Surveillance Requirement 3.7.1.1, which verifies the water level in each cooling tower basin every 24 hours, and Surveillance Requirement 3.7.1.2, which verifies each cooling tower fan every 31 days. However, the inspectors identified that Technical Specification 3.7.1 does not include a surveillance requirement to verify that the

interconnecting siphon line will perform its safety-related function. On May 20, 2012, the licensee performed an operability test for the siphon line and determined that it was operable. The licensee is currently performing a preventative maintenance task as a compensatory action to ensure operability of the siphon line until a license amendment can be submitted to the NRC that establishes a surveillance requirement. The licensee documented this violation in Condition Reports CR-GGN-2012-08257 and CR-GGN-2012-08537.

The violation is more than minor because it is associated with the design control attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, without a surveillance requirement that verifies the interconnecting siphon line can perform its safety-related function, the licensee cannot ensure that sufficient cooling water is available following an accident. The inspectors evaluated the finding using Inspection Manual Chapter (IMC) 0609, Attachment 4, "Phase 1 – Initial Screening and Characterization of Findings" and determined that the finding was of very low safety significance (Green) because the finding was a design or qualification deficiency confirmed not to result in a loss of operability or function; did not represent a loss of safety system function; did not represent actual loss of safety function of a single train for greater than its technical specification allowed outage time; and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. The finding had a cross-cutting aspect in the human performance area associated with the resources component because the licensee did not ensure that equipment was adequate to assure nuclear safety, in that the licensee had recently reviewed documentation associated with a modification to the siphon line but failed to identify that operability of the UHS could not be established without a technical specification surveillance requirement to ensure operability of the siphon line [H.2(c)] (Section 1R19).

Inspection Report# : [2012003](#) (*pdf*)

**Significance:** G Jun 30, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Failure to Follow a Post-Modification Test Procedure**

Green. The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," involving the licensee's failure to follow a post-modification test procedure for the interconnecting siphon line between the two standby service water system cooling tower basins. Operability of the ultimate heat sink is based on a minimum water level in the two standby service water cooling tower basins, an operable interconnecting siphon between the basins, and four operable cooling tower fans (two per basin). At extended power uprate conditions, the configuration of the basins and the original siphon line would not support 30 days of operation of both trains of the standby service water system and the high pressure core spray service water systems without makeup, so the licensee performed a modification (EC 25649), which involved replacing the original siphon line with a new siphon line in order to transfer water from one basin to the other. On March 28, 2012, after completing the modification, the licensee performed post-modification testing to determine the piping friction loss coefficient of the modified siphon line and to evaluate its acceptability against the worst-case friction loss coefficient documented in EC 25649. The licensee deviated from the test procedure, as-written, and performed the test with an inadequate pressure gauge instead of the specified gauge. After inspectors challenged the validity of these test results, the licensee performed another test of the siphon line with a different method that did not require the use of a pressure gauge to measure the piping friction loss coefficient. The inspectors reviewed the subsequent test data and found the test results to be satisfactory. The licensee documented this concern in Condition Report CR-GGN-2012-05260.

The finding is more than minor because it is associated with the design control attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, the use of an unqualified gauge invalidated the test results, and a different test method had to be developed to determine the piping friction loss coefficient for the siphon line. The inspectors evaluated this finding using Inspection Manual Chapter 0609, Attachment 4, "Phase 1 – Initial Screening and Characterization of Findings," and determined that the finding was of very low safety significance (Green) because the finding was not a design or qualification deficiency confirmed to result in loss of operability or function; did not represent a loss of safety system function; did not represent actual loss of safety function of a single train for greater than its technical specification allowed outage time; and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. The finding had a cross-cutting aspect in the human performance area associated with work practices component because

licensee personnel proceeded in the face of uncertainty or unexpected circumstances. Specifically, the licensee proceeded with the test without verifying that the pressure gauge was suitable for the test conditions after observing unexpected measurements with the gauge [H.1(a)] (Section 1R19).

Inspection Report# : [2012003](#) (pdf)

**Significance:**  Mar 23, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Take Timely Corrective Actions Associated with Division 1 and 2 Standby Service Water Safety Related Cables that were Partially Submerged in Cable Manhole/Vault**

Green

. The inspectors identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to take timely corrective actions to correct a condition adverse to quality associated with division 1 and 2 standby service water safety related cables that were partially submerged in a cable manhole/vault. The inspectors reviewed work order 52284535 and noted that the sump pump for manhole/vault MH-01, which contained standby service water cables for division 1 and 2, was determined to be non-functional on September 10, 2011. The inspectors determined that a work order to repair the non-functioning sump pump had been developed but that the work order had not yet been scheduled. During a subsequent inspection, manhole/vault MH-01 was found to contain approximately three feet of water, with water partially covering some of the safety related cables. The electricians immediately pumped manhole/vault MH-01 and wrote a condition report. The licensee repaired the sump pump the next week and declared it functional. The cables remained operable based on the results of meggar tests. The licensee entered this issue into their corrective action program as condition reports CR-GGN-2012-00503, 01324, and 01389.

The finding is more than minor because it is associated with the equipment performance attribute of Mitigating System 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 Inspection Manual Chapter 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," the inspectors determined that the finding was of very low safety significance (Green) because the finding was not a design or qualification deficiency, did not represent either a loss of system safety function or an actual loss of safety function of a single train of one or more non-Technical Specification trains of equipment designated as risk significant, and did not screen as potentially risk-significant due to a seismic, flooding, or severe weather initiating event. The finding had a cross-cutting aspect in the area of human performance associated with the work practices component, in that the licensee personnel did not initiate a condition report as required by licensee procedure when the work order associated with sump pump testing of MH-01 determined that the sump pump was not functioning properly [H.4(b)] (Section 1R06).

Inspection Report# : [2012002](#) (pdf)

**Significance:**  Mar 23, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Correct a Condition Adverse to Fire Protection, in That the Licensee Failed to Adequately Provide Contingency Lighting in the Fire Brigade Dress Out Area While Normal Lighting was Inoperable**

Green. The inspectors identified a Green non-cited violation of Facility Operating License Condition 2.C(41), for the failure to correct a condition adverse to fire protection. Specifically, the licensee failed to adequately provide contingency lighting in the fire brigade dress out area while normal lighting was inoperable due to maintenance on an associated breaker. The inadequate lighting delayed fire brigade response to a potential fire in the turbine building. Immediate corrective action included placing temporary lighting in the area. Normal lighting to the area was restored the next week. The licensee entered this issue into their corrective action program as condition report CR-GGN-2012-01488.

The finding is more than minor because it is associated with the protection against external factors attribute of the Mitigating System 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 Inspection Manual Chapter 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," the inspectors determined from table 3b that issues related to performance of the fire brigade are not included in Appendix F and require NRC management review using Appendix M. Regional management review evaluated the overall impact of lighting issue

in the fire brigade dress out area and concluded that, while the fire protection defense-in-depth was affected by the performance deficiency, the overall defense-in-depth of the front-line systems was not impacted because of train separation and safe shutdown analysis at the site. Therefore the finding screened as having very low safety significance (Green) in accordance with Manual Chapter 0609, Appendix M. The inspectors determined the finding had a cross-cutting aspect in the area of human performance associated with the work control component, in that licensee personnel failed to ensure adequate job site conditions (lighting in the fire bridge dress out area) were in place prior to performance electrical maintenance in the turbine building [H.3(a)] (Section 40A3).

Inspection Report# : [2012002](#) (pdf)

**Significance:**  Oct 21, 2011

Identified By: NRC

Item Type: VIO Violation

**Inadequate Corrective Action for a Leak on the Division II Emergency Diesel Generator Lube Oil Sump**

Green. The team identified a Green cited violation of 10 CFR 50 Appendix B, Criterion XVI, “Corrective Actions,” for the failure to promptly identify and correct a leak on the Division II emergency diesel generator lube oil sump. Despite identification of the leak in 2004, ineffective attempts to repair the leak and previous identification by the NRC in 2009, the licensee dispositioned the leak as “accept as-is” without a full understanding of the lube oil sump leak and potential consequences. The licensee entered this condition into their corrective action program as condition report CR-GGN-2011-8880.

The condition was discovered and documented by the licensee in 2004. This finding was initially determined by the NRC to be a minor violation in 2009. Paragraph F of Section 2.10 of the NRC Enforcement Manual states in part that where a licensee does not take corrective action for a minor violation, the matter should be considered more than minor and associated with a green inspection finding and dispositioned in a cited or noncited violation, as appropriate. This finding is now determined to be more than minor because if left uncorrected the failure to restore the lube oil sump for the Division II emergency diesel generator to design conditions would have the potential to lead to a more significant safety concern, specifically, the leak could worsen and potentially affect operability of the emergency diesel generator. Due to the licensee’s failure to restore compliance within a reasonable time after the violation was identified, this violation is being cited as a Notice of Violation consistent with Section 2.3.2 of the Enforcement Policy. This finding affects the mitigating systems cornerstone. Using Manual Chapter 0609.04, “Phase 1 - Initial Screening and Characterization of Findings,” this finding was of very low safety significance because it did not create a loss of system safety function of a single train for greater than the technical specification allowed outage times, and did not affect seismic, flooding, or severe weather initiating events. This finding has a cross-cutting aspect in the area of problem identification and resolution associated with the corrective action program component because the licensee failed to thoroughly evaluate this problem such that the resolutions addressed the causes [P.1(c)]. (Section 40A2.5d)

Inspection Report# : [2011006](#) (pdf)

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## Barrier Integrity

**Significance:**  Dec 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Make Timely Corrective Actions to Repair the Degraded Auxiliary Building Water Intrusion Barrier**

Green. The inspectors identified a non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, “Corrective Action,” involving the failure to correct a condition adverse to quality in a timely manner. Specifically, the licensee failed to correct multiple degraded conditions associated with the auxiliary building water intrusion barrier. The licensee entered this issue into their corrective action program as Condition Report CR-GGN-2012-10314. Corrective actions included generating Work Order 318398 and delegating funds to repair the water intrusion barrier at the next available opportunity.

The finding is more than minor because if left uncorrected, the condition of a degraded auxiliary building water

intrusion barrier could lead to a more significant safety concern. Specifically, continued degradation of the water intrusion barrier could lead to the auxiliary building (secondary containment) being degraded such that the standby gas treatment system would not be able to achieve and maintain the design negative pressure of ¼ inch water column within 120 seconds. Using Inspection Manual Chapter 0609, Attachment 4, “Initial Characterization of Findings,” the inspectors determined that the finding affected the Barrier Integrity Cornerstone. In accordance with Inspection Manual Chapter 0609, Appendix A, “The Significance Determination Process (SDP) for Findings at Power,” the inspectors determined that the finding had very low safety significance (Green) because the finding only represents a degradation of the radiological barrier function provided for the auxiliary building and standby gas treatment system. The inspectors determined that the apparent cause of this finding was that the licensee had failed to classify the degraded water intrusion barrier as a condition adverse to quality that warranted correction in a timely manner. Therefore, the finding has a cross-cutting aspect in the problem identification and resolution area, corrective action program component because the licensee failed to properly classify conditions adverse to quality [P.1(c)](Section 1R12).

Inspection Report# : [2012005](#) (pdf)

**Significance:**  Dec 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Adequately Monitor the Condition of the Auxiliary Building Water Intrusion Barrier**

Green. The inspectors identified a non-cited violation of 10 CFR 50.65(a)(2), for the failure to monitor the performance of the auxiliary building water intrusion barrier. The licensee entered this issue into their corrective action program as Condition Report CR-GGN-2012-11740. Corrective actions included initiating Condition Report CR-GGN-2012-12286, in which the licensee concluded the degraded water intrusion barrier had experienced a Maintenance Rule Functional Failure and required further evaluation to determine if the barrier should be classified in 10 CFR 50.65 (a)(1).

The finding is more than minor because if left uncorrected, the failure to monitor the performance of the auxiliary building water intrusion barrier in accordance with the maintenance rule program could lead to a more significant safety concern. Specifically, continued unmonitored degradation of the water intrusion barrier could compromise the integrity of the secondary containment function of the auxiliary building. Using Inspection Manual Chapter 0609, Attachment 4, “Initial Characterization of Findings,” the inspectors determined that the finding affected the Barrier Integrity Cornerstone. In accordance with Inspection Manual Chapter 0609, Appendix A, “The Significance Determination Process (SDP) for Findings at Power,” the inspectors determined that the finding had a very low safety significance (Green) because the finding only represents a degradation of the radiological barrier function provided for the auxiliary building and standby gas treatment system. The inspectors determined that the apparent cause of this finding was the licensee failed to recognize that the auxiliary building water intrusion barrier was scoped into their Maintenance Rule program with the monitoring criteria of zero occurrences of water intrusion barrier degradation. Therefore, the finding had a cross-cutting aspect in the human performance area, work practices component because the licensee failed to follow maintenance rule program procedures [H.4(b)](Section 1R12).

Inspection Report# : [2012005](#) (pdf)

**Significance:**  Jun 30, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

**Failure to Follow Procedure Results in Loss of Decay Heat Removal to the Spent Fuel Pool**

Green. The inspectors reviewed a self-revealing non-cited violation of Technical Specifications 5.4.1(a), involving a loss of decay heat removal in the spent fuel pool due to station personnel failing to correctly follow operation of pool gate seal air supply procedure. On April 17, 2012, Grand Gulf Nuclear Station was preparing to drain the reactor cavity to reinstall the vessel head after the completion of refueling activities. In preparation, the upper containment pool to the reactor cavity gate was installed by General Electric-Hitachi technicians with Entergy oversight. Technicians were directed by procedure to verify that all supply isolation toggle valves to the gate seals were open and secured in place.

However, technicians failed to complete this action correctly and the control room was informed that all prerequisites were completed and began the cavity drain down. The control room immediately noticed the fuel pool drain tank level was decreasing and attempted to makeup to the tank via the normal makeup valve. When the fuel pool drain tank level

reached 17 percent full, both fuel pool cooling and cleanup pumps tripped as expected, resulting in loss of decay heat removal to the spent fuel pool. The main control room entered the off-normal event procedure for inadequate decay heat removal, and they secured the drain down evolution. Approximately 47 minutes later, spent fuel pool cooling was re-established. During this event, the spent fuel pool temperature did not exceed the limits required by Technical Requirements Manual Section 6.7.4 (140°F). Short term corrective actions included restoring decay heat removal to the spent fuel pool and conducting a human performance review of the event. The licensee entered this issue into the corrective action program as Condition Report CR-GGN-2012-05756.

The finding is more than minor because it is associated with the human performance attribute of the Barrier Integrity Cornerstone and adversely affects the cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Using Inspection Manual Chapter 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," the inspectors determined that the finding was of very low safety significance (Green) because the finding only represented a loss of spent fuel pool cooling that would not preclude restoration of cooling to the spent fuel pool prior to pool boiling. This finding has a cross-cutting aspect in the area of human performance associated with the work practices component because licensee personnel failed to use adequate self- and peer-checking techniques to ensure gate seals were properly inflated prior to cavity drain down [H.4(a)] (Section 1R20).

Inspection Report# : [2012003](#) (*pdf*)

**Significance:**  Mar 23, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

### **Modification of the Spent Fuel Pool without Prior NRC Approval**

SLIV. The inspectors identified a Severity Level IV non-cited violation of 10 CFR 50.59, "Changes, Tests and Experiments," when the licensee failed to obtain a license amendment prior to implementing a proposed change to the plant that required a change to Technical Specifications. The 10 CFR 50.59 evaluation performed by the licensee is dated January 24, 2001, thus it was performed under the requirements of the old rule based on the Entergy Operations letter dated March 5, 2001. In the 10 CFR 50.59 evaluation for the removal of Blackness Testing and the division of the spent fuel pool into two regions, the licensee determined that the modifications did not require a change to Technical Specifications. However, 10 CFR 50.36, "Technical Specifications," Section 4, "Design Features," requires that design features such as geometric arrangements, which, if altered or modified, would have a significant effect on safety, must be incorporated into Technical Specifications. The NRC considers that the establishment of two regional zones in the spent fuel pool, each having specific loading criteria to maintain keff less than 0.95, constitutes design features which, if altered or modified would have a significant effect on safety. Therefore, these design features should have been incorporated into the Technical Specifications. In a letter dated September 8, 2010, (ML102660403), the licensee submitted a power up-rate license amendment request. The NRC staff is currently reviewing the license request, which includes the licensee's technical justification for the spent fuel pool changes described above. Based on preliminary review of the amendment request, the NRC staff has determined that an immediate safety concern does not exist. The licensee has entered this issue into their corrective action program as condition report CR-GGN-2012-01077.

The finding is more than minor because it is associated with the design control attribute of the Barrier Integrity Cornerstone and adversely affected the cornerstone objective to provide reasonable assurance that physical design barriers (fuel cladding, reactor coolant system, containment) protect the public from radionuclide releases caused by accidents or events. Inspectors performed a Phase 1 screening, in accordance with Inspection Manual Chapter 0609, Attachment 4, "Phase 1 – Initial Screening and Characteristics of Findings," and determined that the finding was of very low safety significance (Green) because it did not result in the loss of cooling to the spent fuel pool, did not result from fuel handling errors that caused damage to fuel clad integrity, and it did not result in a loss of spent fuel pool inventory. This finding is a latent issue and is not indicative of current performance; therefore, no cross-cutting aspect was identified (Section 1R15).

Inspection Report# : [2012002](#) (*pdf*)

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## **Emergency Preparedness**

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## Occupational Radiation Safety

**Significance:** G Dec 31, 2012

Identified By: Self-Revealing

Item Type: FIN Finding

### **Failure to Adequately Plan and Control Work Activities to Maintain ALARA**

Green. The inspector reviewed a self-revealing finding of very low safety significance because during the refueling outage 18 extended power upgrade, the licensee did not adequately plan and control work activities for the design and replacement of the new fuel pool cooling heat exchangers. Specifically, outage personnel did not perform adequate pre-outage walkdowns, which resulted in significant unplanned collective exposure. Actual collective dose and hours for Radiation Work Permit 2012-1086, "Fuel Pool Cooling & Cleanup Heat Exchanger Replacement," was 23.9 person-rem and 12,237 RWP-hours, respectively. This is compared to the initial planned estimate of 3.74 person-rem and 1,905 RWP-hours. This finding and procedural concern was entered into the corrective action program as Condition Reports CR-GGNS-2012-09011 and CR-GGNS-2012-12398.

The failure to appropriately use ALARA planning and controls procedures to prevent unplanned and unintended collective doses was a performance deficiency. This performance deficiency was more than minor because it affected the Occupational Radiation Safety Cornerstone attribute of Program and Process in that the failure to adequately implement ALARA procedures caused the collective radiation dose for the job activity to exceed the planned dose by more than 50 percent. In addition, this type of issue is addressed in Example 6.j of IMC 0612, Appendix E, "Examples of Minor Issues." Using the Occupational Radiation Safety Significance Determination Process, the inspector determined this performance deficiency to be a finding of very low safety significance because although it involved ALARA planning and controls, the licensee's latest rolling three-year average does not exceed 240 person-rem. This finding has a cross-cutting aspect in the human performance area, work control component, because the licensee failed to evaluate the impact of work scope change on human performance and interdepartmental communication and coordination prior to commencing work activities. Specifically, there was inappropriate coordination and communication of work activities between work groups [H.3(b)](Section 2RS02).

Inspection Report# : [2012005](#) (*pdf*)

**Significance:** G Dec 31, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

### **Failure To Follow the Radiation Work Permit Requirements During Reactor Cavity High Water Operations**

Green. The inspectors reviewed a self-revealing non-cited violation of Technical Specification 5.4.1 for failure to comply with radiological exposure controls specified in Radiation Work Permit 2012-1402, "Refuel Floor High Water Activities." Specifically, radiation exposure controls in the RWP required the licensee to verify that fuel pool cleanup (demineralizers) was in-service, and if dose rates increased by more than 0.2 millirem/hour, change the resins. During reactor cavity operations, both fuel pool demineralizer trains were inoperable at least 25 days. In addition, the dryer separator pool and reactor cavity were isolated from the fuel pool clean up system. Consequently, general area radiation levels on the reactor cavity floor increased from 0.4 millirem/hour to 6.0 millirem/hour. The actual collective dose and hours for the work activity was 8.24 person-rem and 9,000 RWP-hours, respectively. This is compared to the planned initial estimate of 4.60 person-rem and 6,987 RWP-hours. This Radiation Work Permit and procedure violation was documented in the licensee's corrective action program as Condition Reports CR-GGNS-2012-04288 and CR-GGNS-2012-12401.

The licensee's failure to comply with the RWP to prevent unplanned and unintended collective doses was a performance deficiency. This performance deficiency was more than minor because it affected the Occupational Radiation Safety Cornerstone attribute of Program and Process in that the failure to adequately implement ALARA procedures caused the collective radiation dose for the job activity to exceed the planned dose by more than 50 percent. In addition, this type of issue is addressed in Example 6.i of IMC 0612, Appendix E, "Examples of Minor Issues." Using the Occupational Radiation Safety Significance Determination Process, the inspector determined this performance deficiency to be a non-cited violation of very low safety significance because although it involved ALARA planning and controls, the licensee's latest rolling three-year average does not exceed 240 person-rem. The violation involved a cross-cutting aspect in the human performance area, work control component, because the licensee did not appropriately coordinate work activities by incorporating actions to address the need for work groups to communicate and coordinate with each other during activities in which interdepartmental coordination was

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## Public Radiation Safety

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### Security

Although the Security Cornerstone is included in the Reactor Oversight Process assessment program, the Commission has decided that specific information related to findings and performance indicators pertaining to the Security Cornerstone will not be publicly available to ensure that security information is not provided to a possible adversary. Other than the fact that a finding or performance indicator is Green or Greater-Than-Green, security related information will not be displayed on the public web page. Therefore, the [cover letters](#) to security inspection reports may be viewed.

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### Miscellaneous

**Significance:**  Jun 30, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Inappropriate Use of Waivers to Allow Workers to Exceed the Minimum Day Off Rule**

Green. The inspectors identified a non-cited violation of 10 CFR 26, Subpart I, “Managing Fatigue,” Subsection 207, “Waivers and Exceptions,” when the licensee inappropriately used waivers to allow workers to exceed the minimum day off rule. While reviewing condition reports, the inspectors noted the use of work hour waivers for a large number of staff. The circumstances for the use of waivers were the refueling outage lasting more than 60 days, contract expiration leading to 14 layoffs, and the loss of 4 workers via voluntary resignation. Due to these circumstances, work hours and fatigue of waived individuals would have to be assessed daily. The assessment is required because the work hour limit of these individuals exceeded the minimum day off rule, therefore requiring daily monitoring until the end of the cycle. The waived individuals averaged two days off per six-week period compared to the required three days off. Title 10 CFR 26.207 (a)(2) allows the granting of waivers only to address circumstances that could not have been reasonably controlled. The inspectors determined that the licensee was aware of the circumstances of an extended refueling outage and contract renewal deadline well in advance of the need to grant waivers, and a reasonable amount of time was available for the licensee to develop and execute contingency plans to negate the need to use waivers. Corrective actions included initiating assessments and waivers for exceeding minimum days off requirements for shift personnel for the six-week period ending May 27, 2012, and returning to the normal on-line work schedule in which adequate manpower is available to meet the requirements of the rule. The licensee entered this issue into the corrective action program as Condition Report CR-GGN-2012-7348.

The finding is more than minor because it is associated with the access authorization attribute of the Security Cornerstone, and affected the cornerstone objective to provide assurance that the licensee’s security system and material control and accounting program use a defense in-depth approach and can protect against (1) the design basis threat of radiological sabotage from external and internal threats, and (2) the theft or loss of radiological materials. Using the Inspection Manual Chapter 0609, Appendix E, “Baseline Security Significance Determination Process for Power Reactors,” Figures 5 and 6, the finding was determined to have very low security significance because the calculated point total did not exceed the threshold value for a Green non-cited violation. The cumulative total for this finding was zero points, which was calculated by factoring the one impact area (vital areas) against Tier III Element 08.02.08, security force work hours, of the access authorization attribute, which resulted in a total of zero points within this attribute. The finding was determined to have a cross-cutting aspect in the area of human performance associated with the decision making component in that the licensee failed to use conservative assumptions in developing staff schedules for the duration of refueling outage 18 and for allowing an employment contract to expire

4Q/2012 Inspection Findings - Grand Gulf 1

that led to 14 individuals being laid off without realizing the impact these decisions would have on the licensee's ability to meet the requirements of the rule [H.1(b)] (Section 1R20).

Inspection Report# : [2012003](#) (*pdf*)

Last modified : February 28, 2013