

# Grand Gulf 1

## 1Q/2004 Plant Inspection Findings

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### Initiating Events



**Significance:** Mar 27, 2004

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

**Failure to Implement Tagging Procedure Resulting in Shutdown of Reactor Water Cleanup System (Section 40A2)**

The inspectors reviewed a self-revealing noncited violation of Technical Specification 5.4.1.a for failure of maintenance personnel to comply with a protective tagging procedure while performing work on the reactor water cleanup system. This failure resulted in a leak of reactor coolant requiring an unplanned isolation and shutdown of the reactor water cleanup system.

This finding was greater than minor because it affected the human performance attribute of the Initiating Event Cornerstone and affected the cornerstone objective of limiting events that challenge plant stability. The finding was of very low safety significance because it did not increase the likelihood of a loss of coolant accident initiator, did not increase the likelihood of both a reactor trip and unavailability of mitigation equipment, and did not increase the likelihood of a fire or flooding event as described in the significance determination process Phase 1 screening worksheet.

Inspection Report# : [2004002\(pdf\)](#)



**Significance:** Sep 27, 2003

Identified By: NRC

Item Type: FIN Finding

**Failure to identify and resolve a single failure vulnerability contributed to a loss of feedwater event and reactor scram.**

The inspector identified a self revealing finding because identification and resolution of a single failure vulnerability associated with the condensate system demineralizer isolation valve control circuit was inadequate and contributed to a loss of feedwater event and reactor scram. The licensee documented this finding in their corrective action program as condition report GGNS-CR-2003-300.

The finding is greater than minor because it was viewed as a precursor to a significant event and increased the likelihood of an initiating event such as a reactor scram. The finding is of very low safety significance because, although it caused a loss of feedwater event, it did not contribute to the likelihood of a primary or secondary system loss of coolant accident initiator; did not contribute to a combination of a reactor trip and loss of mitigation equipment functions; and it did not increase the likelihood of a fire or internal/external flood.

Inspection Report# : [2003003\(pdf\)](#)

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### Mitigating Systems



**Significance:** Mar 27, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Store Hydrolazer in Accordance with Design Instructions (Section 1R05)**

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

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

Inspection Report# : [2004002\(pdf\)](#)

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**Significance:** Mar 27, 2004

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

**Failure to Maintain Adequate System Operating Instruction to Prevent Rendering a Required Decay Heat Removal System Inoperable (Section 1R15)**

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

This finding was greater than minor because it affected the configuration control attribute of the Mitigating System Cornerstone and affected the cornerstone objective of equipment availability. The finding was of very low safety significance because it did not represent an actual loss of a decay heat removal safety function, did not represent an actual loss of a single train for greater than its allowed Technical Specification outage time, and was not potentially risk significant due to an external initiating event as described in the significance determination process Phase 1 screening worksheet.

Inspection Report# : [2004002\(pdf\)](#)

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**Significance:** Mar 27, 2004

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

**Inadequate Corrective Action Results in Through-Wall Corrosion of Ultimate Heat Sink Piping (Section 40A2)**

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

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

Inspection Report# : [2004002\(pdf\)](#)

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**Significance:** Jun 28, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Apply Adequate Design Control Measures Lead to Increased Agastat Relay Failure Rate**

The inspectors identified a noncited violation of Criterion III of Appendix B to 10 CFR Part 50 for failure to assure adequate design controls were in place such that Agastat® General Purpose relays would be replaced prior to exceeding their design basis life. As a result, 15 out of 17 failed relays in an 18 month period had exceeded their design basis lives; including 4 relays having one or more contacts that would not perform their safety actuation.

This finding is greater than minor because, if the condition were left uncorrected it would become a more significant safety concern. Specifically, the affected safety-related systems would have a lower reliability and availability since the failure rate of relays used beyond their service life is significantly higher than those relays that are within their service life. A Significance Determination Process, Phase 3 analysis was performed by the Senior Reactor Analyst in Region IV. It considered the impact of the 4 relays that failed to initiate functions. The 4 relays impacted standby service water to the control room air conditioning system and five containment/drywell isolation valves. The analysis was based on a set of core damage sequences that would initiate from normal operations, but only progress given a loss-of-offsite-power or a loss-of-coolant-accident. The core damage sequence would continue only if the loss of control room air conditioning progressed to a point that control room instrumentation began to fail as a result of high temperatures and operators were required to evacuate the control room. Finally, for core damage to occur, operators would have had to fail to properly shutdown the reactor from the alternate shutdown panel. The analysis indicated that, given this core damage sequence, the estimated change in core damage probability was  $7.0 \times 10^{-8}$ , and the change in large early release probability was  $1.4 \times 10^{-8}$ . The conclusion of this analysis characterized the performance deficiency as an issue of very low safety significance. The licensee implemented an aggressive campaign to replace the affected relays.

Inspection Report# : [2003002\(pdf\)](#)

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**Significance:** May 09, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to provide procedural instructions for restoring the instrument air system following a loss of instrument air.**

The team identified a noncited violation of Technical Specification 5.4.1 for failure of Grand Gulf Nuclear Station to provide an adequate

procedure for restoring the instrument air system following a loss of instrument air. The procedure failed to provide instructions on how to provide seal air and control air to the instrument air compressor from a temporary source. This failure resulted in operation of the unit one instrument air compressor in an abnormal configuration which caused damage to its inlet valve and the licensee's inability to restore instrument air header pressure with that compressor. This issue was documented in the licensee's corrective action program as condition report 2003-1347.

This finding was evaluated using the Significance Determination Process and determined to be of very low safety significance. The finding is greater than minor because it affected the mitigating systems cornerstone objective as described in NRC Manual Chapter 0612 involving the ability to ensure the availability, reliability, and capability of systems that respond to initiating events. The finding was of very low safety significance because although the recovery of instrument air was delayed, all mitigating safety system functions remained available.

Inspection Report# : [2003007\(pdf\)](#)

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## **Barrier Integrity**

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## **Emergency Preparedness**

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## **Occupational Radiation Safety**

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## **Public Radiation Safety**

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## **Physical Protection**

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## **Miscellaneous**

Last modified : May 05, 2004