

# Grand Gulf 1

## 4Q/2006 Plant Inspection Findings

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### Initiating Events

**Significance:**  Dec 31, 2006

Identified By: NRC

Item Type: FIN Finding

#### **Insufficient Preventive Maintenance of Bus Duct Cooling System Results in Unplanned Power Reduction**

The inspectors reviewed a Green, self-revealing finding for failure to implement preventive maintenance on the bus duct cooling system components prior to system failures, causing a plant transient. The licensee entered this into their corrective action program as Condition Report CR-GGN-2006-3996.

The finding is more than minor since it affects the equipment performance attribute of the initiating events cornerstone and affects the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions. Using the NRC Manual Chapter 0609, "Significance Determination Process," Phase 1 worksheet, the finding has a very low safety significance since it did not contribute to the likelihood of a loss of coolant accident, did not contribute to a loss of mitigation equipment, and did not increase the likelihood of a fire or internal/external flood (Section 4OA3).

Inspection Report# : [2006005](#) (*pdf*)

**Significance:**  Sep 30, 2006

Identified By: NRC

Item Type: FIN Finding

#### **Failure to Document Deficiencies in the Corrective Action Program**

A finding was identified for failure to implement adequate controls to maintain the integrity of the 34.5 kV switchyard animal intrusion fence and for failure to initiate condition reports when the fence was found de-energized or the gate found open. The animal intrusion resulted in a reactor scram and an excessive reactor coolant system cooldown on February 11, 2005. The licensee entered this issue into their corrective action program as Condition Report CR-GGN-2006-3139.

The finding was greater than minor because it affected the initiating events cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions. The finding was determined to be of very low safety significance following completion of a modified Phase 2 significance determination process analysis. Although the NRC identified a performance deficiency related to maintaining the integrity of the animal intrusion fence and for failure to enter events into the corrective action program, the inspectors determined that no violation of regulatory requirements had occurred. In response to this event, the licensee revised operations procedures to require inspection of the switchyard fence conditions and required documenting deficiencies in their corrective action program. This item had cross cutting aspects related to human performance because procedures did not direct nonlicensed operators to monitor the condition of the fence. In addition, this item had crosscutting aspects related to problem identification and resolution because the licensee did not effectively implement corrective actions.

Inspection Report# : [2006004](#) (*pdf*)

**Significance:**  Apr 11, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Failure to Perform an Adequate Risk Assessment**

The inspectors identified two examples of a noncited violation of 10 CFR 50.65, "Maintenance Rule," for failing to include maintenance that could increase the likelihood of an initiating event in the plant risk assessment. On February 2, 2006 and again on March 28, 2006, the licensee's risk assessment did not include maintenance activities that increased the likelihood of a reactor scram. The licensee entered this into their corrective action program as Condition Reports CR-GGN-2006-1041 and CR-GGN-2006-1277.

This finding is more than minor since the maintenance that was performed increased the likelihood of an initiating event. Using Inspection Manual Chapter 0609 Appendix K, "Maintenance Risk Assessment and Risk Management Significance

Determination Process,” the finding is of very low safety significance since in both cases the change in incremental core damage probability and incremental large early release probability were less than 1E-6 and 1E-7, respectively. This finding has human performance crosscutting aspects because the inadequate risk assessments were due to personnel error.

Inspection Report# : [2006002](#) (*pdf*)

**Significance:**  Apr 11, 2006

Identified By: NRC

Item Type: FIN Finding

### **Plant Service Water Leak During Excavation**

The inspectors reviewed a self-revealing finding for a failure to follow procedure that resulted in a significant plant service water header leak. The licensee failed to review adequate documents to identify potential hazards as required by Procedure EN-S-112, “Trenching, Excavation and Ground Penetrating Activities,” Revision 2. The licensee entered this into their corrective action program as Condition Report CR-GGN-2006-0219.

This finding is more than minor since it was associated with the human performance attribute of the initiating events cornerstone and directly affected the cornerstone objective of limiting events that challenge plant stability. Based on the results of a Significance Determination Process Phase 1 evaluation, the finding is of very low safety significance (Green) since it did not contribute to the likelihood of a loss of coolant accident, did not contribute to a loss of mitigation equipment, and did not increase the likelihood of a fire or internal/external flood. The cause of this finding has human performance cross-cutting aspects associated with a failure to follow procedures.

Inspection Report# : [2006002](#) (*pdf*)

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## **Mitigating Systems**

**Significance:**  Dec 31, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to Follow Station Procedures for Conducting Maintenance Activities**

The inspectors reviewed a Green, self-revealing noncited violation of Technical Specification 5.4.1(a) for failure to follow station maintenance procedures while troubleshooting the control rod drive Pump A hand switch green indicating light socket. The licensee entered this into their corrective action program as Condition Report CR-GGN-2006-4474.

The finding is more than minor since it affects the human performance attribute of the mitigating systems cornerstone and affects the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Additionally, improper maintenance practices on control room equipment could lead to a more significant safety concern. Using the NRC Manual Chapter 0609, “Significance Determination Process,” Phase 1 worksheet, inspectors determined that the finding has very low safety significance because it did not result in a loss of safety function. This finding has a crosscutting aspect in the area of human performance associated with work practices in that licensee personnel proceeded to troubleshoot the bulb in the face of uncertainty surrounding the required bulb type and expected system response (Section 1R19).

Inspection Report# : [2006005](#) (*pdf*)

**Significance:**  Sep 30, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to Control Loose Items in Safety Related Areas**

The inspectors identified a Green noncited violation of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures and Drawings,” for a failure to control loose items in safety related structures. Between July 25 and September 13, 2006, the inspectors identified six examples of loose items in the auxiliary building and control building that did not meet the requirements of plant loose item control procedures. The licensee entered this issue in their corrective action program as CR-GGN-2006-3836.

The failure to control loose items in the vicinity of safety related equipment was a performance deficiency. This finding is more than minor because it is associated with the Mitigating Systems cornerstone attribute of protection against external

factors (seismic) and affects the associated cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, this finding was of very low safety significance since it did not result in a loss of operability. The cause of this finding is related to the cross-cutting element of human performance in that licensee work practices did not effectively define and communicate expectations regarding compliance with plant procedures for the control of loose items in safety related structures.

Inspection Report# : [2006004](#) (*pdf*)

**Significance:**  Aug 07, 2006

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

#### **Standby Diesel Generator Cylinder Head Failures**

A self-revealing noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Actions," was identified for the failure of licensee personnel to preclude repetition of a significant condition adverse to quality. Specifically, the licensee failed to take actions to prevent subsequent standby diesel generator engine head failures attributed to corrosion fatigue in 1992, 1996, and 2006. This issue was entered into the licensee's corrective action program as Conditon Report CR-GGN-2006-1955.

The finding was more than minor since it affected the Mitigation System Cornerstone attribute of availability and reliability of mitigating equipment, specifically the standby diesel generators. Using Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheets, the finding is of very low significance since it only involved the loss of one train of diesel generators for less than the technical specification allowed outage time (Section 4.b).

Inspection Report# : [2006010](#) (*pdf*)

**Significance:**  Apr 11, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Untimely Corrective Actions Associated with Condensate Storage Tank Level Instrumentation**

The inspectors identified a Green noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI for the failure to take prompt corrective actions to address a design deficiency involving condensate storage tank level instrumentation. The licensee identified the design deficiency on April 30, 1999, and issued compensatory actions for the operators to manually transfer high pressure core spray and reactor core isolation cooling from the condensate storage tank to the suppression pool in the event of failure of the tank. The licensee corrected the design deficiency on December 8, 2005. The licensee entered this issue in their corrective action program as CR-GGN-2006-1096.

This finding is more than minor because it affected the design control attribute of the mitigating systems cornerstone and affected the cornerstone objective to ensure the availability of systems that respond to initiating events. The finding was of very low safety significance because it was a design deficiency that did not result in a loss of operability. This finding had cross-cutting aspects associated with problem identification and resolution in that station personnel did not implement corrective actions in a timely manner.

Inspection Report# : [2006002](#) (*pdf*)

**Significance:**  Apr 11, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Alternate Shutdown Cooling Mode Not Properly Implemented in Alternate Shutdown Procedure.**

The inspectors identified a Green noncited violation for failure to have an alternative shutdown procedure to restore power following a control room evacuation with loss of offsite power that was independent of the control room. The licensee entered this into their corrective action program as CR-GGN-2005-1854.

This finding is more than minor because it affected the mitigating systems cornerstone objective for the procedure quality and protection from external factors attributes. A Region IV Senior Reactor Analyst made a visit to the site during the week of January 30, 2006. Through discussions with engineers and walkdowns in the plant, the Senior Reactor Analyst determined that there is a credible fire scenario which could simultaneously cause a control room evacuation, a loss of offsite power, and prevent automatic starting and loading of the Division 1 emergency diesel generator. This issue was categorized as a postfire safe shutdown issue associated with response procedure quality. The degradation rating was determined to be Low because operator experience and familiarity with performing the required response actions were

adequate to overcome the procedure deficiency. Therefore, this issue screened as having very low safety significance in Phase 1 of Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process".

Inspection Report# : [2006002](#) (*pdf*)

**Significance:**  Mar 27, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to implement a testing program to demonstrate the ability of standby service water-cooled heat exchangers**

The team identified a finding of very low safety significance involving a noncited violation of 10 CFR Part 50, Appendix B, Criterion XI, Test Control, for the failure to implement a testing program to demonstrate the ability of standby service water-cooled heat exchangers to perform their design basis functions under all conditions.

The finding is greater than minor because, if left uncorrected, it would lead to a more significant issue, namely a heat exchanger would become unable to fulfill its safety function due to excessive fouling accumulating during the time between testing. This finding has cross-cutting aspects because it is more than minor, it represents current performance, and the cause is directly associated with the problem identification and resolution attribute of evaluation of test data

Inspection Report# : [2006008](#) (*pdf*)

**Significance:**  Mar 27, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to translate all design basis information into specifications and procedures**

The team identified a finding of very low safety significance for a noncited violation of 10 CFR Part 50, Appendix B, Criterion III, Design Control, for the failure to translate all design basis information into specifications and procedures were not adequate to assure that instrument uncertainties were correctly accounted for in the development of Technical Specification values or in the surveillance test acceptance criteria.

The team determined this finding to be greater than minor because, similar to an example in MC 0612, Power Reactor Inspection Reports, Appendix E, Examples of Minor Issues, the failure of licensee personnel to demonstrate where, and how, instrument uncertainties were translated into either Technical Specification values or the surveillance test acceptance criteria could result in systems and/or components not being capable of performing its design basis functions. This finding has cross-cutting aspects because it is more than minor, the failure to correct a previously identified adverse condition is an ongoing performance deficiency, and the cause (i.e., not understanding how to address instrument uncertainties) is directly associated with the problem identification and resolution attribute of corrective actions.

Inspection Report# : [2006008](#) (*pdf*)

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## Barrier Integrity

**Significance:**  Sep 30, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

**Inadequate Design Control of Leakage Detection Sensing Lines**

The inspectors identified a Green noncited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the failure to maintain the original design configuration of a leakage detection instrument sensing line in the fuel pool cooling and cleanup system. The licensee entered this issue in their corrective action program as CR-GGN-2006-3569. This finding is more than minor since it affects the design control attribute of the spent fuel pool cooling aspect of the Barrier Integrity cornerstone and affects the cornerstone objective of providing assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, this finding is of very low safety significance since it only affected the

radiological barrier function provided by the spent fuel pool.

Inspection Report# : [2006004](#) (*pdf*)

**Significance:**  Sep 30, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to Monitor Containment Pool Liner Leakage**

The inspectors identified a Green noncited violation of Technical Specification 5.4.1(a) involving the failure of the licensee to take actions required by operator rounds in response to containment pool liner leakage. The licensee entered this issue into their corrective action program as CR-GGN-2006-3500.

The finding was more than minor since the failure of operators to perform operator rounds could lead to a more significant safety concern if left uncorrected. Additionally, the identified liner leakage represented a degrading condition that, if left uncorrected, could continue to degrade and could potentially result in the migration of water to other portions of the containment structure. The inspectors determined this finding affected the Barrier Integrity cornerstone. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, this finding is of very low safety significance since it does not represent an actual open pathway in the physical integrity of the reactor containment or an actual reduction in defense-in-depth for the atmospheric pressure control or hydrogen control functions of the reactor containment. The cause of this finding is related to the crosscutting element of human performance in that licensee work practices did not effectively define and communicate expectations regarding compliance with plant procedures for the conduct of operator rounds.

Inspection Report# : [2006004](#) (*pdf*)

**Significance:**  Jun 30, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

### **Improper Reactor Recirculation Pump Speed Change**

The inspectors identified a Green noncited violation of Technical Specification 5.4.1(a) for the failure to follow the procedure for reactor recirculation pump speed changes. Operators attempted to shift Recirculation Pump A to fast speed without verifying that interlocks were satisfied (annunciators not lit) as required by procedure. As a result, Recirculation Pump A failed to shift to fast speed, creating a flow mismatch between the recirculation loops. The licensee entered this into their corrective action program as Condition Report CR-GGN-2006-2329.

This finding is more than minor since the failure to follow procedures regarding reactor manipulation, if left uncorrected, could lead to a more significant safety concern. The inspectors determined this finding affected the Barrier Integrity cornerstone since matched recirculation loop flows is an assumption used in the accident analysis for a loss-of-coolant accident resulting from a loop break. A flow mismatch could result in core response more severe than assumed in the accident analysis. Using Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheets, the finding is of very low safety significance since it only affects the fuel barrier. This finding has crosscutting aspects associated with human performance since operators failed to follow procedures and verify that all annunciators associated with the recirculation loop pump temperatures were extinguished prior to shifting Recirculation Pump A to fast speed. Operators made incorrect assumptions regarding the meaning of the lit annunciator and the impact that it would have on their ability to shift the pump to fast speed.

Inspection Report# : [2006003](#) (*pdf*)

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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**

[Physical Protection](#) information not publicly available.

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### **Miscellaneous**

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