

Grand Gulf 1

2Q/2010 Plant Inspection Findings

Initiating Events

Significance: G Mar 27, 2010

Identified By: Self-Revealing

Item Type: FIN Finding

Failure to Follow Work Instructions Results in Loss of Buss and a Plant Transient (Section 40A3)

Green. The inspectors reviewed a self-revealing finding for a failure to follow work instructions resulting in a loss of 480V power to a bus and a plant transient. Specifically, contract workers were directed by work instructions to enter into a motor control center via its top cable tray to run cables to a spare breaker. Contrary to this, the contract electrical workers deviated from approved work instructions, causing a phase to ground short that tripped the motor control center and resulted in a plant transient. The licensee entered this issue into the corrective action program as Condition Report CR-GGN-2010-01404. This finding is more than minor because it was associated with the initiating events cornerstone attribute of human performance, 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 shutdown, as well as during power operations. Using the Inspection Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, the inspectors concluded that the transient initiator did not contribute to both the likelihood of a reactor trip and to the likelihood that mitigation equipment or functions would not be available. As a result, the issue was of very low safety significance (Green). The cause of this finding has a crosscutting aspect in the area of human performance associated with work practices because the supervisor of the workers failed to ensure the contract workers followed the approved work instructions as required [H.4(c)]. (Section 40A3.3)

Inspection Report# : [2010002](#) (*pdf*)

Significance: G Mar 27, 2010

Identified By: Self-Revealing

Item Type: FIN Finding

Inadequate Actions in Response to a Steam Leak Result in an Automatic Reactor Scram (Section 40A3)

Green. The inspectors reviewed a self-revealing finding involving the failure of site management to ensure that adequate corrective actions were implemented to resolve the effects of a large steam leak in the turbine building. Specifically, the reactor experienced an automatic scram on low reactor water level due to the 'B' reactor feed pump minimum flow valve failing open and a subsequent trip of the 'A' reactor feed pump. The scram investigation determined that the minimum flow valve failed open due to condensation in a cable routing box. The condensation was caused by a large steam leak on the second stage moisture separator re-heater drain valve. Cable splices in the box were submerged in water and eventually caused those cables to short to ground. The licensee entered this issue into the corrective action program as Condition Report CR-GGN-2010-01503. This finding is more than minor because it was associated with the initiating events cornerstone attribute of equipment performance, 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 shutdown, as well as during power operations. Using the Inspection Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, the inspectors concluded that the transient initiator did not contribute to both the likelihood of a reactor trip and to the likelihood that mitigation equipment or functions would not be available. This is because the reactor feed pump 'B' was able to restore reactor water level post scram. As a result, the issue was of very low safety significance (Green). The cause of this finding has a crosscutting aspect in the area of problem identification and resolution associated with the corrective action program component because the licensee failed to prioritize and thoroughly evaluate the extent of the cause of the water grounding sensitive electronic equipment in the vicinity of the steam leak [P.1(c)]. (Section 40A3.4)

Inspection Report# : [2010002](#) (*pdf*)

Mitigating Systems

Significance:  Mar 27, 2010

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Restore Control Room Air Conditioning Subsystem B to Operable Status Within the Required Time of 30 days (Section 1R07)

Green. The inspectors reviewed a self-revealing non-cited violation of Technical Specification 3.7.4 for failing to restore control room air conditioning subsystem B to operable status within the required time of 30 days. Specifically, between March 28, 2009 and June 25, 2009, the control room air conditioner subsystem B was inoperable due to the compressor capacity controller being set incorrectly. The deficiency initially revealed itself on May 14, 2009, when the air conditioner was unable to keep up with demand. The licensee entered this issue into the corrective action program as Condition Report CR-GGN-2009-3779. This finding is more than minor since it affects because it was associated with the equipment performance attribute of the mitigating systems cornerstone, and it adversely affected the cornerstone objective of ensuring the availability, reliability and capability of safety related equipment. Using Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, the finding was determined to be of very low safety significance (Green) because it was not a design or qualification deficiency confirmed not to result in loss of operability or functionality, it does not represent an actual loss of a system safety function, it does not represent the actual loss of safety function of a single train for greater than its technical specification allowed outage time, it does not represent an actual loss of safety function of one or more non-technical specification of equipment designated as risk-significant per 10 CFR 50.65 for greater than 24 hours and it does not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. The cause of this finding has a crosscutting aspect in the area of human performance associated with decision making in that the operators did not utilize conservative assumptions to determine system operability [H.1(b)]. (Section 1R07.2).

Inspection Report# : [2010002](#) (*pdf*)

Significance:  Dec 03, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Procedure Used to Vent the Reactor Core Isolation Cooling System

Green. The team identified a noncited violation of Technical Specification Surveillance Requirement 3.5.3.1 because the licensee failed to establish an adequate procedure to demonstrate compliance with this surveillance requirement. This surveillance requires the licensee to "Verify the RCIC System piping is filled with water from the pump discharge valve to the injection valve," every 31 days. To implement this requirement, the licensee vents the reactor core isolation cooling (RCIC) pump discharge leg from high point vents. However, the procedure failed to provide adequate qualitative or quantitative acceptance criteria to verify that the piping is maintained filled with water. This problem was previously documented in NRC Inspection Report 05000416/2007005 and entered into the corrective action program; however, the licensee failed to implement effective corrective actions.

The failure of the licensee to effectively implement the surveillance requirement was a performance deficiency. This finding is more than minor because it affects the procedure quality attribute of the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding was determined to be of very low safety significance because it did not represent the loss of a system safety function and did not screen as potentially risk significant due to a seismic, flooding, or severe weather-initiating event. This finding has a crosscutting aspect in the corrective action program component of the problem identification and resolution area because the licensee failed to take appropriate corrective actions to address safety issues and adverse trends in a timely manner, commensurate with their safety significance and complexity [P.1(d)] (Section 4OA2.5a).

Inspection Report# : [2009008](#) (*pdf*)

Significance:  Dec 03, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Identify and Correct Oil-Impregnated Insulation on Pump Turbines

Green. A noncited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," was revealed on October 26, 2009, when potentially oil-impregnated insulation on the reactor core isolation cooling pump turbine began smoking during a monthly surveillance run. The reactor core isolation cooling pump turbine was shut down and the damaged insulation was removed and replaced. The maintenance technician indicated that the insulation was old and showed signs of possible oil impregnation; however, the licensee disposed of the insulation without performing an analysis. Oil-soaked insulation with a burn mark had previously been identified at a different location on the reactor core isolation cooling pump turbine on February 2, 2009. The licensee was unable to identify the source of the oil in either of these cases. Further, following a November 2008 fire in oil-soaked insulation on a reactor feed pump turbine, the licensee identified that the reactor core isolation cooling pump turbines were vulnerable to fire from similar causes due to a similar configuration. Corrective actions from the previous burnt insulation event and operating experience from the feed pump turbine both failed to prevent the October 26, 2009, smoke event.

Burning of insulation on turbine-driven pump turbines and the potential for creating a fire is a significant condition adverse to quality. The failure of the licensee to determine the cause and to prevent recurrence of a significant condition adverse to quality was a performance deficiency. This finding is more than minor because it affects the equipment performance attribute of the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors determined that the performance deficiency to be of very low safety significance (Green) because it did not represent the loss of a system safety function and did not screen as potentially risk significant due to a seismic, flooding or severe weather initiating event. This finding has a cross-cutting aspect in the operating experience component of the problem identification and resolution area because the licensee failed to implement and institutionalize operating experience on turbine insulation fires through changes to station processes, procedures, equipment, and training programs [P.2(b)] (Section 40A2.5b).

Inspection Report# : [2009008](#) (pdf)

Significance:  Sep 23, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Monitor Performance of a Maintenance Rule Scoped System

Green. The inspectors identified a Green noncited violation of 10 CFR Part 50.65(a)(2) involving the failure to adequately monitor the performance of a maintenance rule scoped system. The licensee's maintenance rule program required evaluation of the area radiation monitoring system for classification as a maintenance rule (a)(1) system after three failures within eighteen months. The licensee had identified two functional failures of the residual heat removal heat exchanger 'A' hatch radiation monitor in June and July 2008. The inspectors identified three other instances of functional failures on components that were used in plant emergency operating procedures and emergency preparedness procedures. These failures were not included in the licensee's maintenance rule database. A total of five functional failures occurred in system components before the licensee considered evaluation of area radiation monitoring as a maintenance rule (a)(1) system in September 2009. The licensee entered this condition in the corrective action program as condition reports CR-GGN-2009-04853 and CR-GGN-2009-04857.

The finding was more than minor because it was similar to Inspection Manual Chapter 0612, Appendix E, Example 7.d, in that equipment performance problems were such that effective control of performance or condition through appropriate preventive Maintenance Under (a)(2) could not be demonstrated. In addition, it affected the equipment performance attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. This finding was characterized under the significance determination process as having very low safety significance because the maintenance rule aspect of the finding did not cause an actual loss of safety function of the system nor did it cause a component to be inoperable. There is no crosscutting aspect associated with this performance deficiency since the cause of this issue does not reflect current licensee performance. (Section 1R12)

Inspection Report# : [2009004](#) (pdf)

Significance:  Sep 23, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Maintain Operator Response Times to Fires

Green. The inspectors identified a Green non-cited violation of Technical Specification 5.4.1(a), for failure to ensure that operators can respond in timely manner to safe shutdown panels in the auxiliary building with a fire in the main control room. The inspectors reviewed a condition report associated with response times of operators to a fire in the protected area with Mississippi river at flood stage. The inspectors questioned the adequacy of response times for fire brigade members and the safe shutdown operator in the event of fire in the control room with the designated operators being outside the protected area. The licensee determined a time critical task would not have been completed due to the safe shutdown operator being outside the protected area. The licensee entered this condition in the corrective action program as condition report CR-GGN-2009-01416.

The inspectors determined this finding to be more than minor since it affected the external events attribute of the Mitigating Systems Cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 worksheet, it was determined that the finding screened as potentially risk significant due to external events and required the regional senior reactor analyst to perform a Phase 3 evaluation. The senior reactor analyst determined the likelihood that control room abandonment occurs while the safe shutdown operator is out of the protected area is $9.78E-8$. The change in core damage frequency is lower than this value and small enough that large early release frequency is not required to be considered. Therefore the issue is (Green) of very low safety significance. The cause of this finding has a crosscutting aspect in the area of problem identification and resolution associated with corrective action program in that the licensee failed to perform an appropriate extent of condition when implementing corrective action associated with fire brigade response issue in 2008 [P.1(c)]. (Section 4OA2)

Inspection Report# : [2009004](#) (pdf)

Barrier Integrity

Significance:  Mar 27, 2010

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Operator Failed to Move a Fuel Assembly in Accordance with Station Procedures

Green. The inspectors reviewed a self-revealing non-cited violation of Technical Specification 5.4.1a when a fuel handling platform operator failed to move a fuel assembly in accordance with station procedures. Specifically, a new fuel assembly and the fuel handling platform mast were damaged when the platform was moved away from the fuel preparation machine prior to ensuring that the fuel assembly was clear of the machine. The licensee entered this issue into the corrective action program as Condition Report CR-GGN-2010-01883. This finding is more than minor because the finding was associated with the human performance attribute of the barrier integrity cornerstone and adversely affected the cornerstone's objective to provide reasonable assurance that physical design barriers (i.e. fuel cladding) protect the public from radionuclide releases caused by accidents or events. The failure to follow the fuel handling procedures affected the cornerstone's objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Inspection Manual Chapter 0609, "Significance Determination Process," Attachment 0609.04, "Phase 1-Initial Screening and Characterization of Findings," was used to evaluate the significance of the finding. Attachment 0609.04, Table 4a, was used to evaluate the impact of the finding on fuel clad integrity. Since the finding represented a fuel handling error that did not cause damage to fuel clad integrity, the finding was determined to be of very low safety significance (Green). The finding has a cross cutting aspect in the work practices component of the human performance area because the operator performing the fuel movement and the spotter providing oversight of the fuel movement failed to employ effective self and peer checking techniques such that fuel handling activities were performed safely [H.4.(a)]. (Section 4OA3.5)

Inspection Report# : [2010002](#) (pdf)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

Although the NRC is actively overseeing the Security cornerstone, the Commission has decided that certain findings pertaining to security cornerstone will not be publicly available to ensure that potentially useful information is not provided to a possible adversary. Therefore, the [cover letters](#) to security inspection reports may be viewed.

Miscellaneous

Significance: N/A Dec 03, 2009

Identified By: NRC

Item Type: FIN Finding

Grand Gulf Nuclear Station 2009 Biennial PI&R Inspection Summary

The inspectors concluded that the licensee was, in general, effective in identifying, evaluating, and resolving problems. Grand Gulf personnel were identifying and entering issues into the corrective action program at appropriately low thresholds as evidenced by a large number of condition reports issued; however, the team identified several minor deficiencies during walkdowns that had become masked to the employees due to the general lack of cleanliness in the plant. The team determined that the licensee generally screened issues appropriately for operability and reportability; however, five examples were identified where the licensee failed to perform an adequate operability determination. The team noted that issues were typically identified promptly and prioritized commensurate with their safety significance. Most root and apparent cause analyses appropriately considered extent of condition and previous occurrences. The team concluded that the corrective actions were generally identified and implemented promptly; however, the team noted several instances where corrective actions were not implemented or were cancelled. The team found that the licensee had established and was maintaining an environment at Grand Gulf where employees felt free to raise safety concerns without fear of retaliation.

Inspection Report# : [2009008](#) (*pdf*)

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