

Grand Gulf 1

1Q/2014 Plant Inspection Findings

Initiating Events

Significance:  Sep 30, 2013

Identified By: NRC

Item Type: FIN Finding

Failure to Follow Alarm Response Steps to Restore the TSE Following Maintenance

The inspectors reviewed a Green self-revealing finding for the failure to follow Procedure 04-1-02-1H13-P680-9A, "TSE INFL OFF," Revision 36; in that operations personnel did not verify steps were followed per this alarm response procedure prior to returning the turbine thermal stress evaluator (TSE) to service following maintenance activities. The failure to follow alarm response procedure then resulted in an automatic reactor scram on July 30, 2013. Site personnel determined that the scram was caused by high reactor pressure resulting from the turbine unloading beyond the capability of the bypass valves after restoring the TSE to service following maintenance. On July 26, 2013, the control room received an alarm "TSE-STU CAB FAIL." The licensee failed to determine the correct cause of the alarm due to inadequate troubleshooting. Therefore, when the maintenance was completed and the TSE was returned to service, the turbine started to unload resulting in a reactor scram due to reactor vessel high pressure. The immediate corrective actions included determining the cause of the scram and taking actions to restore equipment prior to plant startup. The licensee documented this issue in their corrective action program as Condition Report CR-GGN-2013-04943.

The failure to follow alarm response steps to restore the TSE following maintenance is a performance deficiency. Specifically, Procedure 04-1-02-1H13-P680-9A, "TSE INFL OFF," Revision 36, step 4.1 requires operational personnel to ensure that the TSE is functioning correctly following maintenance prior to restoring to service. The performance deficiency is more than minor, and therefore a finding, because it is associated with the Initiating Events Cornerstone attribute of human performance and adversely 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 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 a very low safety significance (Green) because it only caused a reactor trip and did not cause a loss of mitigating equipment relied on to transition the plant from the onset of a trip to a stable shutdown condition. The inspectors determined that the apparent cause of the finding was that the licensee did not troubleshoot to validate the cause for alarm "TSE STU Cab Failure" in accordance with station troubleshooting procedures. Therefore, the finding has a cross-cutting aspect in the area of human performance associated with the work practices component because the licensee did not use the troubleshooting process effectively [H.4(b)].

Inspection Report# : [2013004](#) (*pdf*)

Mitigating Systems

Significance:  Mar 31, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Ensure Scaffold Activity Would not Interfere with Fire Brigade Response

The inspectors identified a non-cited violation of License Condition 2.C(41), "Fire Protection Program," for the failure to adhere to procedural requirements to ensure that scaffold installed in the plant would not prevent or restrict the fire brigade from accessing a certain route used for response to a fire in the area. On February 4, 2014, the licensee installed a scaffold in the containment building for an inspection. The licensee's procedure required a walkdown of proposed scaffold to determine if the scaffold would prevent or restrict fire brigade access. The initial reviewer identified that the ladder to access the scaffold would restrict fire brigade access, thus the ladder was not installed until it was required. On March 1, 2014, the ladder was installed for the four hour inspection. Once completed, the licensee failed to remove the scaffold ladder to restore normal access to the area. On March 4, 2014, the inspectors identified that the scaffold ladder was still installed. The inspectors brought their concern to the licensee, who determined that the scaffold would adversely affect the response of fire brigade members to that area of containment. As an immediate corrective action, the licensee removed the scaffold ladder to allow adequate access for the fire brigade members. The licensee documented this issue in Condition Report CR-GGN-2014-02363.

The failure to ensure fire brigade members had adequate access passed a scaffold installed in the containment building was a performance deficiency. The performance deficiency was more than minor and therefore a finding because it adversely impacted the protection against external factors attribute of the Mitigating System Cornerstone in that the fire brigade's inability to gain access to certain areas in containment could result in preventing prompt extinguishing of fires. Using NRC Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," June 19, 2012, the inspectors determined that the issue affected the Mitigating Systems Cornerstone and that the finding pertained to a degraded condition while the plant was shutdown for refueling outage RF19. As a result, the inspectors were directed to Inspection Manual Chapter 0609, Appendix G, "Shutdown Operations Significance Determination Process," dated February 28, 2005. The inspectors determined that Appendix G did not address fire brigade issues and solicited input from the senior reactor analyst. The senior reactor analyst performed a detailed risk evaluation and determined that Inspection Manual 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," June 19, 2012, Exhibit 2, "Mitigating System Screening Questions," adequately bounded the performance deficiency. The inspectors determined that the finding involved the response time of the fire brigade to a fire, and the finding was of very low safety consequence (Green) because the fire brigade's response time was mitigated by other defense-in-depth elements such as area combustible limits were not exceeded, installed fire detection systems were functional, and alternate means of safe shutdown were not impacted. Specifically, there were no combustibles in the area beyond limits, all fire detectors for the area were functional, and the plant was in a shutdown condition with the cavity flooded at the time. The apparent cause of this finding was the work groups involved did not communicate the significance of the impact the scaffold ladder had on fire brigade access to the area and the importance of having the ladder removed upon completion of the work. Therefore, the finding has a cross-cutting aspect in the human performance area associated with team work, in that the individuals and workgroups failed to communicate and coordinate their activities within and across organizational boundaries to ensure nuclear safety was maintained.

Inspection Report# : [2014002](#) (*pdf*)

Significance: G Sep 30, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Follow Procedure Results in Inadequate Operability Determination

The inspectors identified a Green 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, the inspectors identified that the licensee failed to establish an adequate basis for operability when a degraded or nonconforming condition had been identified. On August 30, 2013, Condition Report CR-GGN-2013-05604 was initiated to document a step change in the standby service water (SSW) siphon line K factor, which is a measure of flow through the siphon line. The K factor could have increased due to air

entrapment in the siphon line that resulted from using air to mix the basin water following chemical treatments. The inspectors challenged the validity of the evaluation because the second step change in K factor, from 48 to 64, represented new information that had not been evaluated in the previous condition report. As an immediate corrective action, the licensee re-performed the operability determination and provided an adequate basis of operability by evaluating the system with the additional K factor data. Furthermore, the licensee verified the siphon line did not have any obstructions by observing the SSW basin levels equalize as water flowed through the siphon line. The licensee entered this issue into the corrective action process under Condition Report CR-GGN-2013-05687.

The failure to perform an operability determination in accordance with procedure was a performance deficiency. The 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 impacted the cornerstone objective of ensuring the reliability, availability and capability of systems that respond to initiating events to prevent undesirable consequences. 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 all applicable screening questions in Manual Chapter 0609, Appendix A, Exhibit 2, were answered "no." The inspectors determined that the apparent cause of this finding was that the licensee had identified and used previously completed operability evaluations without verifying that the previously completed evaluations were fully applicable to the identified conditions. Therefore, 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)].

Inspection Report# : [2013004](#) (*pdf*)

Significance:  Sep 30, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Review Temporary Modifications by Operations Personnel During Turnover

The inspectors identified a Green 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 02-S-01-4, "Shift Relief and Turnover," Revision 42. Specifically, the licensee failed to ensure proper turnover of the status of temporary modifications installed in the plant was being conducted by operations staff during turnover. The inspectors determined that the operations staff was required by Attachment III of that procedure to review the TMs log prior to taking the shift. The inspectors interviewed the operations staff and asked if the TMs were reviewed prior to taking shift that day. The staff member stated he had not and when asked about Attachment III of the turnover procedure, he was not familiar with that attachment of the procedure. The inspectors interviewed additional operations staff members about the review of temporary modification status during turnover, and they also indicated they had not reviewed temporary modification during turnover. As a corrective action, the licensee added copies of Attachment III of the shift turnover procedure to the operations staff turnover book to ensure TMs were reviewed during shift turnover. The licensee entered this issue into the corrective action process under Condition Reports CR-GGN-2013-04481 and CR-GGN-2013-05955.

The failure to review temporary modifications by operations personnel during turnover in accordance with station procedures was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because if left uncorrected, it had the potential to lead to more significant safety concerns. Specifically, operators not reviewing the status of TMs installed in the plant during turnover could result in a loss of configuration control of plant equipment that could result in an improper response by operators to plant events. Using NRC Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," the inspectors determined that the issue affected the Mitigating Systems Cornerstone. Using NRC Inspection Manual Chapter 0609, Attachment 4, Table 3, the

inspectors were directed to NRC Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." The inspectors determined that the issue had a very low safety significance (Green) because it was not a deficiency affecting the design or qualification of a mitigating system, structure, or component, does not represent a loss of system or function, does not represent a loss of function for greater than its technical specification allowed outage time, and does not represent a loss of function as defined by the licensee's Maintenance Rule program for greater than 24 hours. The inspectors determined the apparent cause of this finding was that licensee personnel were not using Attachment III of the operations turnover procedure. Therefore, the finding has a cross-cutting aspect in human performance area associated with work practices in that the licensee management did not provide proper oversight to ensure a proper turnover was being conducted by operations personnel [H.4.(c)].

Inspection Report# : [2013004](#) (*pdf*)

Significance: G Sep 30, 2013

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Maintain design Control of the Power Supplies for the Emergency Switchgear and Battery Room Fire Dampers

The inspectors reviewed a self-revealing Green non-cited violation of Facility Operating License Condition 2.C (41), "Fire Protection Program," involving the failure to maintain design control of the power supplies for the emergency switchgear and battery room fire dampers. During a surveillance of the division 2 carbon dioxide Fire Damper Actuation System, ten division 1 switchgear and battery room cooler fire dampers were inadvertently closed. Electricians investigated and found that a common ground existed between the division 1 and 2 emergency switchgear and battery room damper control panels. The common ground was determined to originate from a factory installed ground strap connecting the negative terminal to the ground/neutral on the emergency switchgear and battery room damper control power supplies. The licensee reviewed plant drawings and determined that the ground strap on the power supplies should have been removed prior to installation due to this being designed as a non-grounded system. As an immediate corrective action, the licensee removed the factory installed ground straps and restored the system to operable status. The licensee entered this issue into the corrective action process under Condition Report CR-GGN-2013-03827.

The failure to verify a new power supply was a like-for-like replacement of the original power supply to ensure the replacement power supply did not alter the design of the damper control system was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because it was associated with the configuration control attribute of the Mitigating Systems Cornerstone and adversely impacted the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using NRC Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," the inspectors determined that the issue affected the Mitigating Systems Cornerstone. Using NRC Inspection Manual Chapter 0609, Attachment 4, Table 3, the inspectors were directed to NRC Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process." The inspectors determined that the finding had an adverse effect on the fixed fire suppression systems. The inspectors assigned a low degradation rating due to the fact that the automatic fire suppression system's performance and reliability was minimally impacted by the inspection finding. Since the finding was assigned a low degradation rating, it screened as being of very low safety significance (Green). The apparent cause of this finding was the procurement engineering evaluation did not verify the replacement power supplies met the design requirements to be compatible with the unique design of the emergency switchgear and battery room damper control system. Therefore, the finding had a cross-cutting aspect in the area of human performance, work practices component because the licensee failed to properly perform a procurement evaluation in accordance with station procedures [H.4(b)].

Inspection Report# : [2013004](#) (*pdf*)

Significance:  Jun 28, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Properly Implement a Compensatory Fire Watch per Station Fire Protection Procedures

The inspectors identified a non-cited violation of Facility Operating License Condition 2.C(41) for the failure to properly implement a compensatory fire watch per the station fire protection program. Following an inadvertent release of carbon dioxide from the Cardox automatic fire suppression system into a division 2 safety related switchgear room located in the auxiliary building, the operators isolated the auxiliary building from the Cardox system to prevent any future inadvertent releases. The inspectors accompanied the fire watch patrol, which was required due to the isolation of the Cardox system to the auxiliary building, and they noted that during the patrol, none of the 10 rooms requiring a fire watch were checked. The inspectors brought this concern to the shift manager who confirmed that each room was required to be checked per the established fire watch criteria and that the fire watch patrol misunderstood the requirement. The licensee took immediate corrective action to direct the fire watch to check all the rooms to restore compliance with the fire watch requirements. The licensee entered this issue into the corrective action program as Condition Report CR-GGN-2013-04058.

The failure to perform a fire watch in accordance with the fire protection program is a performance deficiency. The performance deficiency is more than minor and therefore a finding because it is associated with the protection against the external factors 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. Specifically, failing to perform the fire watch correctly adversely impacted the plant's capability to detect and suppress a fire in a timely manner.

- 3 -

Using NRC Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," the inspectors determined that the issue affected the Mitigating Systems Cornerstone. Using NRC Inspection Manual Chapter 0609, Attachment 4, Table 3, the inspectors were directed to NRC Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process." The inspectors determined that the finding had an adverse affect on the fixed fire protection systems element of fire watches posted as a compensatory measure for outages or degradations. The inspectors assigned a high degradation rating due to the automatic fire suppression system being tagged out of service. Because the system was degraded without compensatory actions for less than three days, the inspectors used a duration factor of 0.01. The inspectors used 2E-2 for a generic fire frequency area for a switchgear room. The resulting change in core damage frequency was 2E-4, which was greater than the high degradation Phase 1 Quantitative Screening Criteria of 1E-6. Therefore, a senior reactor analyst performed a detailed risk evaluation. The analyst performed a bounding analysis of the performance deficiency (See Table 1R05-1). For each of the 10 affected fire areas, the analyst determined the probability of a fire occurring by multiplying the fire ignition frequency from the licensee's fire hazards analysis by the 9.2 hours that the performance deficiency impacted the plant. Because each fire area had a functional fire detection system throughout the exposure period, the analyst determined the non-detection probability by multiplying the fire probability by the generic failure probability for a detection system. The analyst made the bounding assumption that all fires postulated to initiate that were not detected would proceed to core damage. The sum of all the non-detection probabilities was 9.1×10^{-7} (See Table 1R05-1). Therefore, the bounding analysis indicates that this finding is of very low safety significance (Green).

The inspectors determined the apparent cause of this finding was that the security officers performing the fire watch patrols did not understand the requirement to visually check the affected rooms. Therefore, the finding has a cross-cutting aspect in the human performance area associated with the work practices component because the licensee did not communicate human error prevention techniques such as pre-job briefings and proper documentation of activities commensurate with the risk of the assigned task [H.4(a)].

Inspection Report# : [2013003](#) (*pdf*)

Significance:  Jun 28, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Correct a Nonconforming Condition with the Standby Diesel Generator Inlet Plenum Turning Vanes

The inspectors identified a 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 nonconformances, are promptly identified and corrected." Specifically, from November 3, 1988, until March 6, 2010, actions to correct known design deficiencies on the left and right bank's intercooler inlet plenums of both the division 1 and 2 standby diesel generators were not fully implemented. The design deficiency, identified by the vendor, could result in intercooler tube failure and jacket water leakage. The finding was entered into the licensee's corrective action program as Condition Report CR-GGN-2013-02631.

The failure to correct a nonconforming condition in the division 1 and 2 standby diesel generators' inlet plenums is a performance deficiency. The performance deficiency is more than minor and therefore a finding because it adversely affected the Mitigating Systems Cornerstone attribute of equipment performance and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage), and if left uncorrected, the performance deficiency had the potential to lead to a more significant safety concern. Specifically, the licensee's failure to implement corrective actions to resolve a known design deficiency of the intercooler inlet plenums could have resulted in either the division 1 or 2 standby diesel generator failing to perform its safety function. Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," the finding was determined to be of very low safety significance (Green), because the finding was a design deficiency affecting a mitigating systems structure, system, or component that did not lose operability or functionality. The finding did not have a cross-cutting aspect because the most significant contributor to the performance deficiency did not reflect current licensee performance. Inspection Report# : [2013003](#) (*pdf*)

Significance:  Jun 28, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Correct a Nonconforming Condition in the Train B Starting Circuit

The inspectors identified a 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 nonconformances, are promptly identified and corrected." Specifically, from November 20, 1998, until November 7, 2012, actions to correct a known nonconforming condition involving the low pressure interlock of the train B starting circuit on both the division 1 and 2 standby diesel generators had not been implemented. If the train A starting circuit were to fail and starting air pressure were to fall below 120 psig, the diesel generator would have all automatic shutdown permissives active, which are supposed to be bypassed during a loss-of-coolant-accident signal. This was considered a single point vulnerability for the train B starting circuit. The finding was entered into the licensee's corrective action program as Condition Report CR-GGN-2013-02524.

The failure to correct a nonconforming condition in the division 1 and 2 standby diesel generator's train B starting circuits is a performance deficiency. The performance deficiency is more than minor and therefore a finding because it affected the Mitigating Systems Cornerstone attribute of equipment performance and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage), and if left uncorrected, the performance deficiency had the potential to lead to a more significant safety concern. Specifically, the licensee's failure to implement corrective actions to resolve a known nonconforming condition of the low pressure interlock of the train B starting circuit could have resulted in either the division 1 or 2 standby diesel generator failing to perform its safety function. Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," the finding was determined to be of very low safety significance (Green), because the finding was a design deficiency affecting a mitigating systems structure, system, or component that did not lose operability or functionality. The finding did not

have a cross-cutting aspect because the most significant contributor to the performance deficiency did not reflect current licensee performance.

Inspection Report# : [2013003](#) (*pdf*)

Significance:  Jun 28, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Verify the Residual Heat Removal B System was Full of Water Within its Specified Frequency

Green. The inspectors identified a non-cited violation of Technical Specification Surveillance Requirement SR 3.5.1.1 for the failure to verify the residual heat removal B system was full of water within its specified frequency. The inspectors reviewed a low pressure core injection subsystem B monthly functional test that was performed on April 10, 2013, per Procedure 06-OP-1E12-M-0002, "LPCI/RHR Subsystem B Monthly Functional Test," Revision 113. The inspectors identified that the licensee failed to perform ultra sonic testing on the pipe prior to and after venting of the pipe directly upstream of the residual heat removal heat exchanger B outboard vent valve (1E12F074B). By not performing the ultra sonic testing, the licensee did not verify the residual heat removal system was full of water as required by Surveillance Requirement 3.5.1.1. Immediate corrective actions included performing the ultra sonic tests, which verified the system was full of water and satisfied the surveillance requirement. The licensee entered this issue into their corrective action program as Condition Report CR-GGN-2013-02847.

The failure to verify the residual heat removal B system was full of water as required by Technical Specification Surveillance Requirement SR 3.5.1.1 is a performance deficiency. The performance deficiency is more than minor and therefore a finding because it is associated with the equipment performance attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone's objective of ensuring the availability, reliability and capability of systems that respond to prevent undesirable consequences. Specifically, the failure to perform the required ultra sonic testing resulted in Technical Specification Surveillance Requirement SR 3.5.1.1 not being met. Therefore, the licensee could not ensure the system would perform properly by injecting its full capacity into the reactor coolant system upon demand. 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 had a very low safety significance (Green) because it was not a deficiency affecting the design or qualification of a mitigating system, structure, or component, does not represent a loss of system or function, does not represent a loss of function for greater than its technical specification allowed outage time, and does not represent a loss of function as defined by the licensee's Maintenance Rule program for greater than

24 hours. Through interviews with operations personnel, the inspectors determined the apparent cause of the finding was that management failed to ensure the ultra sonic test was performed. Therefore, the finding had a cross-cutting aspect in the human performance area associated with the work practices component because the licensee failed to ensure supervisory and management oversight of work activities [H.4(c)] (Section 1R22.b).

Inspection Report# : [2013003](#) (*pdf*)

Barrier Integrity

Significance:  Dec 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Comply with Technical Specification 3.4.11

The inspectors identified a non-cited violation of Technical Specification 3.4.11 for the failure to comply with the

Reactor Coolant System (RCS) Pressure and Temperature Limits Report (PTLR) during plant cold startups. Specifically, the PTLR had a lower limit of zero psig, and the licensee operated the reactor pressure vessel (RPV) below zero psig during the plant start-up that commenced on November 2, 2013. A review of plant data showed that the RPV pressure was maintained below zero psig for approximately 2 hours. The licensee performed an engineering evaluation and determined that the maximum compressive stress experienced by the RPV did not exceed the maximum yield strength of RPV. Immediate corrective action included revising Procedure 03-1-01-1, "Cold Shutdown to Generator Carrying Minimum Load," to ensure the RPV is pressurized prior to opening the main steam isolation valves (MSIVs) and providing training on the procedural changes to all the operating crews. The licensee entered this issue into the corrective action process under Condition Report CR-GGN-2013-07021.

The failure to comply with the RCS Pressure and Temperature Limits Report specified in Technical Specification 3.4.11 was a performance deficiency. The performance deficiency was determined to be more than minor, and therefore a finding, because it was associated with the human performance attribute of the Barrier Integrity Cornerstone and had the potential to adversely affect the associated cornerstone objective of providing reasonable assurance that a physical design barrier (reactor coolant system) protects the public from radionuclide release caused by accidents or events. Specifically, without NRC review and approval of revised pressure and temperature limits that include operating the RPV below zero psig, the inspectors did not have reasonable assurance the RPV would not be adversely affected. Using NRC Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," June 19, 2012, the inspectors determined that the issue affected the Barrier Integrity Cornerstone. Using NRC Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process for Findings At-Power," June 19, 2012, Exhibit 3, the inspectors determined that since this finding involved the reactor coolant system boundary, a detailed risk evaluation was required. The Senior Reactor Analyst reviewed the finding and determined that a detailed risk evaluation was not required. The licensee performed an engineering evaluation and concluded that there was no impact to the reactor vessel. As a result, the Senior Reactor Analyst concluded that there was no change in risk due to the performance deficiency. The inspectors determined that since the procedural steps to perform Attachments VIII and X concurrently had been in place since 1994, this was a latent issue; therefore no cross-cutting aspect was assigned.

Inspection Report# : [2013005](#) (*pdf*)

Significance:  Dec 31, 2013

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Provide Adequate Procedures Results in Loss of Safety Function

The inspectors reviewed a self-revealing, non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," for the failure to provide an adequate procedure for a safety related activity. On December 17, 2013, while performing Surveillance Procedure 06-IC-1E31-Q-1016-02, "RCIC Steam Supply Pressure Low Functional Test," Revision 111, the reactor core isolation cooling (RCIC) system became inoperable due to the procedure being incorrectly revised. Furthermore, the procedure error resulted in the containment isolation capability for RCIC being lost for approximately 1 hour. As an immediate corrective action, the licensee restored the breakers regaining isolation capability, and reopened the RCIC inboard isolation valve, thus restoring RCIC to operable status. The licensee entered this issue into the corrective action process under Condition Reports CR-GGN-2013-07720, CR-GGN-2013-07733, and CR-GGN-2013-07374.

The failure to have an adequate procedure for the reactor core isolation cooling steam supply pressure low functional test is a performance deficiency. The performance deficiency was more than minor and therefore a finding because it was associated with the procedure quality 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. This performance deficiency was also associated with the procedural quality attribute of the Barrier Integrity Cornerstone and adversely affected the cornerstones objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Using NRC Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," June 19, 2012, the

inspectors determined the issue affected the Barrier Integrity Cornerstone. The inspectors used Inspection Manual Chapter 0609, Appendix H, "Containment Integrity Significance Determination Process," May 6, 2004, and determined the finding was a type B finding at full power. Using Table 6.1, "Phase 1 Screening-Type B Findings at Power," the inspectors concluded that since this issue involved containment isolation valves in a BWR Mark III containment, a Phase 2 analysis was necessary. Using Table 6.2, "Phase 2 Risk Significance – Type B Findings at Full Power," the inspectors concluded that the risk significance was very low (Green) because the exposure time was less than 3 days. Furthermore, the inspectors determined that this issue affected the Mitigating System Cornerstone. Using NRC Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process for Findings At-Power", June 19, 2012, Exhibit 2, the inspectors determined that since the finding represented a loss of system and/or function, a detailed risk evaluation was required. The inspectors utilized the Grand Gulf Standardized Plant Analysis Risk model to determine the change in core damage frequency (CDF) due to the loss of safety function. The inspectors assigned the RCIC system a failure probability of 1.00 for a conservative duration of 1 hour. The resulting change in CDF was 1.9E-9/year, thus the finding was of very low safety significance (Green). The Senior Risk Analyst reviewed the inspectors' evaluation and verified the conclusions to be correct. The apparent cause of this finding was that the licensee failed to effectively utilize human error prevention techniques. Therefore, the finding had a cross-cutting aspect in the area of human performance, work practices because the licensee did not perform adequate self and peer checking while performing an activity affecting quality [H.4(a)]

Inspection Report# : [2013005](#) (pdf)

Significance: G Sep 30, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Obtain NRC Approval for a Change in Method of Evaluation for Determining Reactor Vessel Fluence

SL-IV. The team identified a Severity Level IV non-cited violation of 10 CFR 50.59, "Changes, Tests, and Experiments," involving the licensee's failure to obtain a license amendment pursuant to 10 CFR 50.90 prior to implementing a new method of evaluation for determining reactor vessel neutron fluence. On November 4, 2003, the NRC issued Amendment Number 160 to the Facility Operating License of the Grand Gulf Nuclear Station. The amendment revised the Updated Final Safety Analysis Report (UFSAR) to change the Reactor Vessel Material Surveillance Program to reflect participation in the Boiling Water Reactor Vessel and Internals Project (BWRVIP) Integrated Surveillance Program (ISP). Additionally, the amendment revised the UFSAR to state that neutron fluence calculations performed after 2002 will be in accordance a methodology that has been approved by the NRC staff and is consistent with the attributes identified in NRC Regulatory Guide 1.190, "Calculation and Dosimetry Methods for Determining Pressure Vessel Neutron Fluence." The licensee developed a new neutron fluence calculation method which was based on a neutron fluence calculation method that had been previously approved by the NRC for another facility, which was documented in "Nine Mile Point Nuclear Station, Unit No. 1 – Issuance of Amendment RE: Pressure-Temperature Limit Curves and Tables," dated October 27, 2003. The NRC identified that the calculation, which was developed for GGNS, used the CASMO-4/SIMULATE code package to calculate the neutron source, whereas the prior calculation performed for Nine Mile Point Nuclear Station (NMP) used the ORIGEN code to calculate the neutron source. The inspectors determined that, although these codes are intended for the same purpose, they are distinct codes and the NRC approved only the use of one neutron source code (i.e., ORIGEN) in the neutron fluence calculation method of evaluation at Nine Mile Point. This finding was entered into the licensee's corrective action program as Condition Report CR-GGN-2013-04743.

The licensee's failure to determine that a change to their method of evaluation for calculating reactor vessel neutron fluence was a departure from a method of evaluation approved by the NRC and required NRC review and approval prior to implementation 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 Inspection Manual Chapter 0609, "Significance Determination Process," are used in determining the significance of 10 CFR 50.59 violations. Using the Inspection Manual Chapter 0612, Appendix B, "Issue Screening," the team determined the finding adversely affected the Barrier Integrity Cornerstone. Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," the team determined the finding required a detailed risk evaluation because the finding involved the reactor coolant system boundary. A Senior Reactor Analyst performed the evaluation and determined the finding had very low safety significance (i.e., Green) because the NRC performed calculations and did not determine that the licensee's Pressure-Temperature limits had or would have expired or been invalid; therefore, the change in risk was negligible. 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 cross-cutting aspect because cross-cutting aspects are not assigned to traditional enforcement violations.

Inspection Report# : [2013004](#) (*pdf*)

Significance: N/A Jun 28, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Revise Figures and Tables in the Updated Final Safety Analysis Report

SLIV. The inspectors identified a non-cited violation of 10 CFR 50.71(e)(4), which requires the Final Safety Analysis Report be updated, at intervals not exceeding 24 months, and states in part, "the revisions must reflect all changes made in the facility or procedures described in the FSAR." Specifically, the inspectors identified three examples of changes to figures or tables that had not been included in the licensee's Updated Final Safety Analysis Report submittal in November, 2012:

(1) Figure 9.2-027, Sheet 2, Revision 16 "Plant Service Water Radial Well System Unit 1"

(2) Figure 10.4-011, "Condensate System" (Drawing M-1053B, Revision 28), and

(3) Table 9.1-12, "Maximum Fuel Pool Heat Load" did not include values associated with the extended power uprate.

This finding has been entered into the licensee's corrective action program as Condition Reports CR-GGN-2013-00426, CR-GGN-2013-02661, and

CR-GGN-2013-02471.

The failure of the licensee to include all changes made to the facility or procedures in their November 2012 update to the original revision of the Final Safety Analysis Report is a performance deficiency. The issue is a performance deficiency because it was a failure to meet a requirement, 10 CFR 50.71(e)(4), and it was within the licensee's ability to correct this problem. Using Inspection Manual Chapter 0612, Appendix B, the performance deficiency was assessed through both the Reactor Oversight Process and traditional enforcement because the finding had the potential for impacting the NRC's ability to perform its regulatory function. By screening through the Reactor Oversight Process, the finding resulted in a minor performance deficiency. Following the traditional enforcement path, the inspectors used the NRC Enforcement Policy, dated January 28, 2013, to evaluate the significance of this violation. Consistent with the NRC Enforcement Policy and in accordance with Section 6.1.d.3, this finding was determined to be a Severity Level IV non-cited violation because the licensee failed to update the Final Safety Analysis Report as required by 10 CFR 50.71(e)(4). However, the lack of up-to-date information had not resulted in any unacceptable change to the facility or procedures. This finding had no cross-cutting aspect.

Inspection Report# : [2013003](#) (*pdf*)

Emergency Preparedness

Occupational Radiation Safety

Significance:  Mar 31, 2014

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Control a Locked High Radiation Area Due to Unsecured Highly Radioactive Materials Stored in the Pool

The inspectors reviewed a self-revealing, non-cited violation of Technical Specification 5.7.3, resulting from the licensee's failure to control a high radiation area with radiation levels greater than 1000 millirem per hour. As immediate corrective actions, the licensee stopped the work activity, placed a senior radiation protection technician in control of the area, surveyed all affected areas, and properly posted and controlled the area. The licensee also checked qualifications of the involved individuals and conducted a root cause evaluation for the event. This event was documented in the licensee's corrective action program as Condition Reports CR-GGN-2014-02219, CR-GGN-2014-02221, and CR-GGN-2014-02224.

The failure to control a high radiation area with radiation levels greater than 1000 millirem per hour was a performance deficiency and a violation of Technical Specification 5.7.3. The performance deficiency was more than minor because it was associated with the Occupational Radiation Safety Cornerstone attribute of program and process (exposure control) and adversely affected the cornerstone objective of ensuring adequate protection of worker health and safety from exposure to radiation because it removed a barrier intended to prevent the worker from receiving unexpected dose. Using Inspection Manual Chapter 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process," dated August 19, 2008, the inspectors determined the violation has very low safety significance because: (1) it was not an as low as is reasonably achievable (ALARA) finding, (2) there was no overexposure, (3) there was no substantial potential for an overexposure, and (4) the ability to assess dose was not compromised. This violation has a cross-cutting aspect in the human performance area, associated with procedure adherence, because the licensee failed to follow process, procedures, and work instructions when they did not inventory and ensure control of the dry tube plunger end as it was stored in the horizontal fuel transfer system pool within containment.

Inspection Report# : [2014002](#) (*pdf*)

Significance:  Dec 31, 2013

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Entry Into A High Radiation Area Without A Required Radiation Monitoring Device

The inspectors reviewed a self-revealing, non-cited violation of Technical Specification 5.7.1, resulting from an individual entering a high radiation area without the required radiation monitoring device. This issue was entered into the licensee's corrective action program as Condition Report CR-GGN-2012-04112. As a corrective action, the radiation protection manager coached the individual on the need for proper dosimetry devices in high radiation areas. The entry into a high radiation area without all required radiation monitoring devices was a performance deficiency and was a violation of Technical Specification 5.7.1. The performance deficiency was more than minor because it was associated with the Occupational Radiation Safety Cornerstone attribute of program and process (exposure control) and adversely affected the cornerstone objective of ensuring adequate protection of worker health and safety from exposure to radiation because it removed a barrier intended to prevent the worker from receiving unexpected dose. Using Inspection Manual Chapter 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process," dated August 19, 2008, the inspectors determined the violation had very low safety significance because: (1) it was not an as low as is reasonably achievable (ALARA) finding, (2) there was no overexposure, (3) there was no substantial potential for an overexposure, and (4) the ability to assess dose was not compromised. This violation had a cross-cutting aspect in the human performance area, associated with the work practices component, because the worker and crew members did not use human error prevention techniques, such as self and peer checking [H.4(a)].

Inspection Report# : [2013005](#) (pdf)

Significance:  Dec 31, 2013

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure To Survey Resulting in Personnel Entry To A High Radiation Area

The inspectors reviewed a self-revealing, non-cited violation of 10 CFR 20.1501(a) for failure to survey, which resulted in a worker entering an unposted high radiation area. This issue was entered into the licensee's corrective action program as Condition Reports CR-GGN-2012-08436 and CR-GGN-2012-09225. As corrective actions, the licensee coached radiation protection personnel on exhibiting a questioning attitude, walked down all affected areas; verified correct postings were used, and surveyed for any other unanticipated dose rate alarms.

The failure to survey and determine radiation levels was a performance deficiency. The significance of the performance deficiency was more than minor because it was associated with the Occupational Radiation Safety Cornerstone attribute of program and process (exposure control) and adversely affected the cornerstone objective of ensuring adequate protection of worker health and safety from exposure to radiation because the failure exposed a pipefitter to higher than anticipated radiation dose rates. The inspectors used Manual Chapter 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process," dated August 19, 2008, to determine the significance of the violation. The violation had very low safety significance because: (1) it was not an as low as is reasonably achievable (ALARA) finding, (2) there was no overexposure, (3) there was no substantial potential for an overexposure, and (4) the ability to assess dose was not compromised. This violation had a cross-cutting aspect in the human performance area, associated with the work control component, because licensee personnel failed to appropriately plan a work activity by not incorporating risk insights, job site conditions, including environmental conditions, which may impact human system interface and radiological safety, and the need for planned contingencies or compensatory actions, such as surveying and up-posting affected areas after a power ascension [H.3(a)].

Inspection Report# : [2013005](#) (pdf)

Public Radiation Safety

Significance:  Sep 30, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Implement the Offsite Dose Calculation Manual

Inspectors identified three examples of a non-cited violation of Technical Specification 5.5, "Programs and Manuals," for failure to maintain and implement requirements of the offsite dose calculation manual (ODCM). Specifically, the licensee failed to: (1) adequately document and justify ODCM changes, (2) approve licensee initiated changes to the ODCM, and (3) implement the radiological effluent controls for liquid releases. The violation was entered into the licensee's corrective action program as Condition Report CR-GGN-2013-05039, and the licensee is evaluating the issue to determine the proper corrective action.

Failure to implement the requirements of the offsite dose calculation manual is a performance deficiency. This performance deficiency is more than minor because it affected the Public Radiation Safety Cornerstone attribute of program and process because the failure to adequately justify and approve offsite dose calculation manual changes resulted in 49 liquid effluent releases, contrary to the licensee's Offsite Dose Calculation Manual, Revision 37, requirements. Using Inspection Manual Chapter 0609, Appendix D, "Public Radiation Safety Significance Determination Process," dated February 12, 2008, the inspectors determined this to be a violation of very low safety significance (Green). The violation was in the effluent release program but was not a substantial failure to implement

the effluent program, and the dose to the public did not exceed the 10 CFR Part 50 Appendix I criterion or 10 CFR 20.1301(e) limits. The violation had a cross-cutting aspect in the human performance area associated with the resources component because the licensee failed to ensure the individuals preparing and reviewing offsite dose calculation manual changes had sufficient knowledge of the effluent release control system, its components, and its function to adequately evaluate the impact of the change [H.2(b)].

Inspection Report# : [2013004](#) (*pdf*)

Significance:  Sep 30, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Include Some Solid Radwaste Released in the 2012 Regulatory Guide 1.21 Annual Effluent Report

Inspectors identified a non-cited violation of Technical Specification 5.6.3 because the licensee failed to include in the 2012 Annual Radiological Effluent Release Report some solid radioactive waste released to an offsite waste processor.

The failure to include in the 2012 Annual Radiological Effluent Release Report all solid radioactive waste released to an offsite waste processor was a performance deficiency, contrary to Technical Specification 5.6.3. The violation was determined to be more than minor because it was associated with the Public Radiation Safety Cornerstone attribute of program and process and adversely affected the cornerstone objective to ensure adequate protection of public health and safety from exposure to radioactive materials released into the public domain as a result of routine civilian nuclear reactor operation, in that some licensed radioactive material, which left the Grand Gulf Nuclear Station, was unaccounted for. Using Inspection Manual Chapter 0609, Appendix D, "Public Radiation Safety Significance Determination Process," dated February 12, 2008, the inspectors determined the violation to be of very low safety significance because, although it was a radioactive material control issue, it was not a transportation issue, and it did not result in public dose greater than 0.005 rem. The violation had 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 necessary to assure human performance [H.3(b)].

Inspection Report# : [2013004](#) (*pdf*)

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.

Miscellaneous

Significance: N/A Dec 05, 2013

Identified By: NRC

Item Type: FIN Finding

Grand Gulf 2013 Biennial Problem Identification and Resolution Inspection Summary

The team reviewed a sample of system health reports, self assessments, trending reports and metrics, and various other documents related to the corrective action program. Licensee identified problems were entered into the corrective action program at a low threshold. Problems were generally prioritized and evaluated commensurate with the safety significance of the problems and corrective actions were generally implemented in a timely manner. Corrective actions were generally implemented in a timely manner commensurate with their importance to safety and addressed the identified causes of problems.

The licensee appropriately evaluated industry operating experience for relevance to the facility and had entered applicable items in the corrective action program. The licensee used industry operating experience when performing root cause and apparent cause evaluations. The licensee performed effective quality assurance audits and self assessments, as demonstrated by self identification of poor corrective action program performance and identification of ineffective corrective actions.

Inspection Report# : [2013007](#) (*pdf*)

Significance: N/A May 25, 2012

Identified By: NRC

Item Type: VIO Violation

Violation for Grand Gulf (2012 Findings)

Regulatory requirement: 10 CFR 54.13(a) states, in part, that information provided to the Commission by an applicant for a renewed license must be complete and accurate in all material respects.

Apparent violation: Contrary to the above, Entergy Operations, Inc (EOI) provided information to the NRC, for a renewed license at the Grand Gulf Nuclear Station (GGNS), in responses to several requests for additional information (RAIs) that was not complete and accurate in all material respects. The inaccurate information in the RAI responses was material to the NRC because the NRC relies on the information in RAI responses to determine whether the licensee has demonstrated that aging effects will be adequately managed as required by 10 CFR 54.21(a)(3).

Inspection Report# : [2013201](#) (*pdf*)

Inspection Report# : [2013202](#) (*pdf*)

Last modified : May 30, 2014