

# Grand Gulf 1

## 2Q/2016 Plant Inspection Findings

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### Initiating Events

**Significance:** G Jun 30, 2016

Identified By: NRC

Item Type: FIN Finding

#### **Failure to Provide Detailed Work Instructions Resulted In A Reactor Scram**

The inspectors reviewed a Green, self-revealed finding of Procedure EN-WM-105, "Planning," Revision 16, for the failure to ensure Work Order 397549 provided detailed instructions for performing troubleshooting on the 'B' phase of the main transformer. Specifically, Work Order 397549 did not contain detailed instructions for performing troubleshooting on the 'B' phase of the main transformer, which resulted in an incorrect current transformer ratio and subsequent reactor scram. The licensee's corrective actions were to incorporate more detailed instructions to the work order, repair the improper wiring, and restore the main transformer prior to transitioning from Mode 3 to Mode 1. Inspectors did not identify a violation of regulatory requirements associated with this finding. This finding was entered into the licensee's corrective action program as Condition Report CR-GGN-1-2016-02950.

The failure to ensure Work Order 397549 provided detailed instructions for performing troubleshooting on the 'B' phase of the main transformer in accordance with Procedure

EN-WM-105 was a performance deficiency. This performance deficiency is more than minor, and therefore a finding, because it is associated with the procedure quality attribute of the Initiating Events Cornerstone and adversely affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, on March 29, 2016, the licensee failed to ensure Work Order 397549 provided detailed instructions for performing troubleshooting on the 'B' phase of the main transformer, which resulted in an incorrect current transformer wiring ratio and subsequent reactor scram. Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," and Inspection Manual Chapter 0609, Appendix A, Exhibit 1, "Initiating Events Screening Questions," the inspectors determined that the finding was of very low safety significance (Green) because the finding did result in a reactor trip, but did not result in the loss of mitigating equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition. This finding has a cross-cutting aspect in the area of human performance associated with field presence, in that, senior managers failed to ensure supervisory and management oversight of work activities, including contractors and supplemental personnel. Specifically, while performing Work Order 397549, the licensee did not have contractor oversight established, and the contract workers performed troubleshooting without detailed instructions to ensure work was performed properly (Section 4OA3).

Inspection Report# : [2016002](#) (*pdf*)

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### Mitigating Systems

**Significance:** G Jan 31, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

**ER 05000416/2015301; 10/26/2015 – 01/19/2016; Grand Gulf Nuclear Station; Initial Operator Licensing Examination Report**

Title 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” states, in part, “Instructions, procedures, or drawings shall include appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished.” Contrary to this,

- The licensee’s Off-Normal Procedure ONEP 05-1-02-I-1, “Reactor Scram,” Revision 125, does not provide all necessary guidance on how to scram the reactor. Once the immediate action of placing the mode switch in the shutdown position is completed, all additional guidance for shutting down the reactor using alternate methods is contained in EP-2A. However, the first backup method of using the scram pushbuttons is missing from both of these procedures. This procedure deficiency was entered into the licensee’s corrective action program as Condition Report CR-GGN-2015-07209.
- The licensee is missing several off-normal procedures that are required by Technical Specifications based on commitments to NRC Regulatory Guide 1.33, Revision 2. Specifically, there are no off-normal procedures for 1) a total or partial loss of DC power, 2) electrical grounds, and 3) partial or total loss of all annunciators. The licensee is committed to revision 2 of this regulatory guide in its Technical Specifications. These procedure deficiencies were entered into the licensee’s corrective action program as Condition Report CR-GGN-2015- 07209.
- The licensee’s Emergency Procedure 05-1-02-II-1, Attachment III, “Shutdown from the Remote Shutdown Panel,” Revision 47, does not include all of the required steps to complete the attachment. Step 3.2.5a of this procedure requires an operator to obtain one key while two keys are actually required to complete the task. One key is required to open the protective box covering the switch and a different key is required to operate the switch. This procedure discrepancy led to delays and confusion during examination administration by applicants and during examination validation by licensed operators. This procedure deficiency was entered into the licensee’s corrective action program as Condition Report CR-GGN-2015- 07209.
- The licensee’s Emergency Procedure 05-S-1-EP-1, Attachment 6, “Defeating Reactor Feed Pumps RPV Level 9 Trips,” Revision 32, contains labeling discrepancies in that the relay nomenclature in the procedure does not match the nomenclature in the main control room cabinet 1H13-P612 Bay ‘B’. This caused confusion among both the applicants and licensed operators. The confusion delayed the completion of the task administered during the examination. This procedure deficiency was entered into the licensee’s corrective action program as Condition Report CR-GGN-2015-07209.
- The licensee’s System Operating Instruction 04-1-01-P41-1, “Standby Service Water System,” Revision 140, Section 4.2, contains labeling discrepancies in that the control board labeling for several switches do not match the nomenclature listed in the procedure for the associated switches. Specifically, steps 4.2.2A(4)(a), 4.2.2A(4)(b), and 4.2.2A(6) each have a discrepancy. This procedure deficiency was entered into the licensee’s corrective action program as Condition Report CR-GGN-2015-07209.
- The licensee’s Alarm Response Instruction 04-02-1H13-P870-2A-E1, Revision 134, for the residual heat removal (RHR) alarm “RHR A PMP RM FLOODED” contains non conservative guidance to close the suction valve (valve 1E12-F004A) for RHR pump ‘A’ without regard to ensuring that the pump is secured first. This creates a condition where the safety-related residual heat removal pump is tripped on interlock only in order to prevent damage. The expectation provided to the NRC by the operations staff is that the operators should first trip the residual heat removal pump and then shut the suction valve. This procedure deficiency was entered into the licensee’s corrective action program as Condition Report CR-GGN-2015-07209.
- The licensee was unable to locate any written guidance for placing a safety-related diesel generator in maintenance mode to prevent automatic start and subsequent overheat of the machine when cooling water is unavailable. According to the Updated Final Safety Analysis Report, Section 9.5, Revision LDC 05077, the diesel generator jacket cooling water system provides sufficient heat sink to permit the standby diesel engines to start and operate for 2 minutes without cooling water available. Procedures that were reviewed included SOI 04-1-01-P75-1, SOI 04-1-01-

Y47, and ONEP 05-1-02-I-4. An additional NRC concern for this sequence is that there is no time critical action associated with securing these diesel generators when cooling water (standby service water) is not available. The licensee needs to review the risk management program and ensure that this is not assumed in the risk management profile or if it is assumed, then operators are trained and can implement the shutdown in the appropriate time to prevent equipment damage. This procedure deficiency was entered into the licensee's corrective action program as Condition Report CR-GGN-2015-07209.

- The licensee's Equipment Performance Instruction 04-1-03D21-1, "Monthly Area Radiation Monitors Functional Test," Revision 37, has confusing guidance which led several applicants in not being able to complete the task administered during the NRC initial license examination. Specifically the procedure has a limit and precaution stating that not all ARM module function switches spring return to OPERATE after being taken to ALARM. Some must be manually returned to OPERATE after being taken to ALARM while the specific steps in the procedure have the operator place and hold function switch in alarm and then release. No guidance is given within the step to return the switch to operate and this creates a situation where the observation of indication returning to normal does not occur. A precaution in the front matter in the procedure stating that the equipment may not function as the procedure is written is not sufficient to meet the quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished. This procedure deficiency was entered into the licensee's corrective action program as Condition Report CR-GGN-2015-07209.

The failure of these eight procedures to have the appropriate qualitative and/or quantitative criteria to complete these activities was a performance deficiency. The finding was more than minor because it is associated with the procedure quality attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective of ensuring availability, reliability, and capability of systems needed to respond to initiating events to prevent undesired consequences. Specifically, inadequate procedures could adversely affect the operating crew's ability to take appropriate actions to ensure reactor safety is being maintained. Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated June 19, 2012, the team determined that the finding was of very low safety significance (Green) because the finding: (1) was not a deficiency affecting the design and qualification of a mitigating structure, system, or component, and did not result in a loss of operability or functionality; (2) did not represent a loss of system and/or function; (3) did not represent an actual loss of function of at least a single train for longer than its technical specification allowed outage time, or two separate safety systems out-of-service for longer than their technical specification allowed outage time; and (4) did not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significance in accordance with the licensee's maintenance rule program for greater than 24 hours. The finding has a cross-cutting aspect in the area of human performance associated with procedure adherence because individuals did not follow the processes to change or correct procedures that contained incorrect, missing, or non-conservative guidance [H.8].

Inspection Report# : [2015301](#) (pdf)

**Significance:**  Dec 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

### **Failure to Have Appropriate Instructions for Preventative Maintenance on the Division I Diesel Generator Simulated Run**

The inspectors reviewed a self-revealing non-cited violation of Technical Specification 5.4.1.a, for the failure to establish adequate instructions to perform a simulated surveillance on the division I diesel generator. Specifically, the simulated surveillance run instructions verified the trip high vibration (E-23H) valve was open, but it did not close the (E-23H) valve following the run to ensure the high vibration trip was bypassed. As a result, the division I diesel generator spuriously tripped on high vibrations during the November 21, 2015, run and was rendered inoperable and unavailable. On November 22, 2015, the licensee closed the trip high vibration (E-23H) valve and successfully ran the division I diesel generator to return it to operable status. The licensee entered this issue into their corrective action

program as Condition Report CR-GGN-2015-6831.

The failure to establish adequate preventative maintenance instructions to perform a division I diesel generator simulated run and return the valve lineup to the required position was a performance deficiency. This 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 objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, following the division I diesel generator simulated run, the preventative maintenance instruction did not require the licensee to close the trip high vibration (E-23H) valve, and therefore the high vibration trip capability remained for a duration of approximately 16 hours. As a result, during the November 21, 2015 run, the diesel generator spuriously tripped on an invalid high vibration signal and was rendered inoperable and unavailable. Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," and Inspection Manual Chapter 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," the inspectors determined that the finding is of very low safety significance (Green) because it: (1) was not a deficiency affecting the design or qualification of a mitigating structure, system, or component, and did not result in a loss of functionality; (2) did not represent a loss of system and/or function; (3) did not represent an actual loss of function of at least a single train for longer than its technical specification allowed outage time, or two separate safety systems out-of-service for longer than their technical specification allowed outage time; and (4) did not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety significant in accordance with the licensee's maintenance rule program.

The inspectors determined that the finding has a design margin cross-cutting aspect within the human performance area because the licensee failed to ensure margins are carefully guarded and changed only through a systematic and rigorous process. Specifically, the licensee failed to fully implement their design change process such that all effected station documents and procedures were identified and revised after removing the high vibration trip for the division I and division II diesel generators.

Inspection Report# : [2015004](#) (*pdf*)

**Significance:**  Dec 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

#### **Failure to Timely Enter Technical Specification Surveillance Requirement 3.0.1**

The inspectors identified a non-cited violation of Technical Specification Surveillance Requirement 3.0.1, for the failure to follow requirements when a surveillance was not performed within the specified frequency and declare the Limiting Condition for Operation not met or follow the provisions in Surveillance Requirement 3.0.3. Specifically, the licensee did not follow Technical Specification Surveillance Requirement 3.0.1, when they discovered that Surveillance Requirement 3.8.1.9 was not performed within its specified frequency and either declare Technical Specification Limiting Condition for Operation 3.8.1 not met, or perform the required actions to determine whether compliance with the requirement to declare the Limiting Condition for Operation not met may be delayed. The licensee failed to enter Technical Specification Surveillance Requirement 3.0.1, until September 29, 2015, after discussions with the NRC. On September 29, 2015, the licensee adequately performed the actions required in Technical Surveillance Requirement 3.0.3. The licensee entered this issue into their corrective action program as Condition Report CR-GGN-2015-5602.

The failure to timely enter and perform the actions as required per Technical Specification Surveillance Requirement 3.0.1 was a performance deficiency. This 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 objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to perform technical specification surveillance requirements, and associated actions, did not ensure that the diesel generator could appropriately respond

to initiating events. Using Inspection Manual Chapter 0609, Appendix A, “The Significance Determination Process (SDP) for Findings At-Power,” and Inspection Manual Chapter 0609, Appendix A, Exhibit 2, “Mitigating Systems Screening Questions,” the inspectors determined that the finding is of very low safety significance (Green) because it: (1) was not a deficiency affecting the design or qualification of a mitigating structure, system, or component, and did not result in a loss of functionality; (2) did not represent a loss of system and/or function; (3) did not represent an actual loss of function of at least a single train for longer than its technical specification allowed outage time, or two separate safety systems out-of-service for longer than their technical specification allowed outage time; and (4) did not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety significant in accordance with the licensee’s maintenance rule program.

The inspectors determined that the finding has a conservative bias cross-cutting aspect within the human performance area because the licensee failed to use decision making-practices that emphasize prudent choices over those that are simply allowable. Specifically, operations personnel failed to enter Technical Specification Surveillance Requirement 3.0.1 because the operability determination alone justified operability without doing a detailed risk evaluation.

Inspection Report# : [2015004](#) (*pdf*)

**Significance:**  Dec 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Establish Adequate Maintenance Instructions to Perform Work Activities on the Division III Diesel Generator Overspeed Trip Limit Switch**

The inspectors reviewed a self-revealing non-cited violation of Technical Specification 5.4.1.a, for the failure to establish adequate maintenance instructions to perform work activities on the division III diesel generator overspeed trip limit switch. Specifically, work orders did not contain adequate instructions to check the overspeed trip switches’ alignment in accordance with vendor recommendations. As a result, the division III diesel generator was rendered inoperable and unavailable. On July 15, 2015, the licensee appropriately set the limit switch to overspeed actuating arm engagement, and returned the diesel generator to operable. The licensee entered this issue into their corrective action program as Condition Report CR-GGN-2015-3985.

The failure to establish adequate work instructions to verify the overspeed switch was properly set and adjusted was a performance deficiency. This 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 objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, work orders to check the overspeed trip switches’ alignment did not contain adequate instructions to successfully perform the maintenance. The division III diesel generator was declared inoperable when the diesel spuriously tripped during the monthly surveillance run on July 13, 2015. The inspectors performed the initial significance determination for the division III emergency diesel generator failure. The inspectors used the NRC Inspection Manual 0609, Appendix A, Exhibit 2, “Mitigating Systems Screening Questions.” The finding required a detailed risk evaluation because it involved a performance deficiency that represented a loss of the high pressure core spray system following a postulated loss of offsite power because of the failure of the division III diesel generator. The Region IV senior reactor analyst performed a detailed risk evaluation in accordance with NRC Inspection Manual 0609, Appendix A, Section 6.0, “Detailed Risk Evaluation.” The detailed risk evaluation result is a finding of very low safety significance (Green). The calculated change in core damage frequency of  $5.0 \times 10^{-7}$  was dominated by an unrecovered station blackout beyond battery depletion. The analyst determined that the bounding risk of a large, early release of radiation was  $9.6 \times 10^{-8}$ . For the details of the analysis, see Attachment 3.

Work orders were developed to address operating experience provided from the diesel generator vendor to the industry in December 2011. The inspectors determined that the cause of the deficiency occurred in 2011, and therefore, determined the finding did not have a cross-cutting aspect since it is not indicative of current licensee performance.

Inspection Report# : [2015004](#) (pdf)

**Significance:**  Oct 09, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

#### **Failure to Promptly Initiate Condition Reports**

The team identified five examples of a non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, “Corrective Action,” for the failure to promptly identify and correct conditions adverse to quality. Specifically, on October 8, 2015, the team identified five conditions adverse to quality where the licensee failed to initiate a condition report in a prompt/timely manner. The five conditions adverse to quality were associated with: (1) the short circuit analysis for the 480V motor control center breakers; (2) emergency diesel generators minimum and maximum frequency; (3) emergency diesel generators fuel consumption rate; (4) Division 3 Emergency Diesel Generator load shedding test; and (5) 120V AC power system calculations. The licensee entered this issue into their corrective action program as Condition Report CR-GGN-2015-05550.

The failure to promptly identify conditions adverse to quality and enter them into the corrective action program by initiating a condition report in a prompt/timely manner as required by Section 5.2[3] of EN-LI-102, “Corrective Action Program,” Revision 24, is a performance deficiency. This performance deficiency is more than minor, and therefore a finding, because the five examples are associated with the design control 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. Using Inspection Manual Chapter 0609, Appendix A, “The Significance Determination Process (SDP) for Findings At-Power,” and Inspection Manual Chapter 0609, Appendix A, Exhibit 2, “Mitigating Systems Screening Questions,” the team determined that the finding is of very low safety significance (Green) because it: (1) was not a deficiency affecting the design or qualification of a mitigating structure, system, or component, and did not result in a loss of operability or functionality; (2) did not represent a loss of system and/or function; (3) did not represent an actual loss of function of at least a single train for longer than its technical specification allowed outage time, or two separate safety systems out-of-service for longer than their technical specification allowed outage time; and (4) did not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee’s maintenance rule program. The team determined that this finding has a cross-cutting aspect associated with training, in that the organization did not provide training or ensure knowledge transfer to maintain a knowledgeable, technically competent workforce and instill nuclear safety values. Specifically, when the NRC identified the five conditions adverse to quality to licensee personnel, the licensee personnel did not recognize these conditions required prompt/timely initiation of a condition report.

Inspection Report# : [2015008](#) (pdf)

**Significance:**  Oct 09, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

#### **Failure to Enter a Condition Adverse to Quality into the Corrective Action Program**

The team identified a non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, “Corrective Action,” for the failure to identify and correct a condition adverse to quality by entering it into the corrective action program for resolution. Specifically, the licensee failed to identify and correct the potential for safety-related Standby Service Water fans to rotate backwards under certain design conditions, which could affect their ability to perform their safety function when needed. The licensee entered this condition into the corrective action program as CR-GGN-2015-05509.

The failure to enter a condition adverse to quality into the corrective action program as required by station procedure EN-LI-102, "Corrective Action Program," Revision 24, is a performance deficiency. This performance deficiency is more than minor, and therefore a finding, because it is associated with the design control attribute of the Mitigating Systems cornerstone and adversely affects the cornerstone objective to ensure the reliability and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, not evaluating an identified nonconformance resulted in the failure to ensure the capability of safety-related Structures, Systems, and Components to respond reliably during anticipated events. Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," and Inspection Manual Chapter 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," dated July 1, 2012, the team determined that the finding is of very low safety significance (Green) because it: (1) was not a deficiency affecting the design or qualification of a mitigating structure, system, or component, and did not result in a loss of operability or functionality; (2) did not represent a loss of system and/or function; (3) did not represent an actual loss of function of at least a single train for longer than its technical specification allowed outage time, or two separate safety systems out-of-service for longer than their technical specification allowed outage time; and (4) did not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety significant in accordance with the licensee's maintenance rule program. The team determined that this finding has a cross-cutting aspect associated with problem identification, specifically, individuals failed to ensure that the issue was reported and documented in the corrective action program at a low threshold.

Inspection Report# : [2015008](#) (pdf)

**Significance:**  Oct 01, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Ensure Safety-Related Alternating Current and Direct Current Equipment Operability and Functionality at Maximum Allowable Voltage Levels**

Green. The team identified two examples of a Green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," which states, in part, "design control measures shall provide for verifying or checking the adequacy of design, such as by the performance of design reviews, by the use of alternate or simplified calculational methods, or by the performance of a suitable testing program." Specifically, prior to September 3, 2015, the licensee failed to verify or check the adequacy of: (1) Safety-related motors and control power circuits fed from Division III 480 V ac emergency safety feature bus 17B01, which were not designed or analyzed to operate using higher voltage ranges that are supplied to the safety-related buses; and (2) safety-related equipment connected to the 125 V dc system were not verified for satisfactory operation at elevated equalizing voltage of 140 V dc. In response to this issue, the licensee performed an operability determination which determined that the condition would reduce the life of the equipment but not cause spurious malfunctions. This finding was entered into the licensee's corrective action program as Condition Reports CR GGN 2015 4413 and CR GGN 2015 5130.

The team determined that the licensee's failure to assure that allowable high voltage conditions are within alternating and direct current equipment ratings was a performance deficiency. This performance deficiency was more than minor, and therefore a finding, because it was associated with 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. Specifically, the operation of the equipment outside of its equipment ratings adversely affects the reliability of safety-related equipment. In accordance with Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated June 19, 2012, Exhibit 2, "Mitigating Systems Screening Questions," the finding was determined to have very low safety significance (Green) because it was a design or qualification deficiency that did not represent a loss of operability or functionality; did not represent an actual loss of safety function of the system or train; did not result in the loss of one or more trains of non-technical specification equipment; and did not screen as potentially risk significant due to seismic, flooding, or severe weather. This finding did not have a crosscutting aspect because the most significant contributor did not reflect current licensee performance. (Section 1R21.2.1.b.1)

Inspection Report# : [2015007](#) (pdf)

**Significance:**  Oct 01, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Ensure that Electrical Interrupting Devices are Rated for Available Fault Current Levels**

Green. The team identified a Green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” which states, in part, “design control measures shall provide for verifying or checking the adequacy of design, such as by the performance of design reviews, by the use of alternate or simplified calculational methods, or by the performance of a suitable testing program.” Specifically, from January 20, 2010, to August 26, 2015, the licensee issued Calculation EC-Q1111-90028, “AC Power Systems,” Revision 6, but failed to verify that the calculated fault current levels were within the ratings of the installed Division III circuit breakers. In response to this issue, the licensee performed an operability evaluation to support an operable but degraded/nonconforming condition, recommending an action to perform a detailed fault current study, and reviewing fault current levels at maximum switchyard voltage of 105 percent to verify that they do not create additional concerns. This finding was entered into the licensee’s corrective action program as Condition Reports CR-GGN-2015-4607, CR-GGN-2015-4934, and CR-GGN-2015-5112.

The team determined that failure to ensure that electrical interrupting devices are rated for available fault current levels was a performance deficiency. This performance deficiency was more than minor, and therefore a finding, because it was associated with 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. Specifically, the licensee’s failure to verify the design adequacy of the interrupting equipment would operate with a fault resulted in a reasonable doubt with the operability of Division III motor control center 17B01. In accordance with Inspection Manual Chapter 0609, Appendix A, “The Significance Determination Process (SDP) for Findings At-Power,” dated June 19, 2012, Exhibit 2, “Mitigating Systems Screening Questions,” the finding was determined to have very low safety significance (Green) because it was a design or qualification deficiency that did not represent a loss of operability or functionality; did not represent an actual loss of safety function of the system or train; did not result in the loss of one or more trains of non-technical specification equipment; and did not screen as potentially risk significant due to seismic, flooding, or severe weather. This finding had a human performance crosscutting aspect associated with design margins, because the licensee failed to operate and maintain equipment within design margins [H.6]. (Section 1R21.2.2.b.1)

Inspection Report# : [2015007](#) (pdf)

**Significance:**  Oct 01, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Identify and Address Impacts of Revised Calculation Output Data**

Green. The team identified a Green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” which states, in part, “Activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings.” Specifically, on January 22, 2010, the licensee issued calculation EC-Q1111-90028, “AC Power Systems,” Revision 6, but failed to meet the procedural requirement that other documents impacted by the change be identified and updated. In response to this issue, the licensee reviewed the affected calculations to determine if the design bases was met and created a corrective action to update calculations. This finding was entered into the licensee’s corrective action program as Condition Reports CR-GGN-2015-4647 and CR-GGN-2015-4859.

The team determined that the licensee's failure to identify and address the impacts of the revised calculation on other documents in accordance with EN-DC-126 was a performance deficiency. This performance deficiency was more than minor, and therefore a finding, because if left uncorrected, the performance deficiency would have the potential to lead to a more significant safety concern. Specifically, routinely failing to revise the obsolete input data in electrical calculations and other design documents was a significant programmatic deficiency which can result in incorrect conclusions regarding the ability of the equipment to meet its design bases. In accordance with Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated June 19, 2012, Exhibit 2, "Mitigating Systems Screening Questions," the finding was determined to have very low safety significance (Green) because it was a design or qualification deficiency that did not represent a loss of operability or functionality; did not represent an actual loss of safety function of the system or train; did not result in the loss of one or more trains of non-technical specification equipment; and did not screen as potentially risk significant due to seismic, flooding, or severe weather. This finding had a human performance crosscutting aspect associated with procedure adherence, because individuals failed to follow procedures, processes, and work instructions [H.8]. (Section 1R21.2.3.b.1)

Inspection Report# : [2015007](#) (pdf)

**Significance:**  Oct 01, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Perform Surveillance Requirement 3.8.1.9**

Green. The team identified a Green, non-cited violation of Technical Specification 3.8.1, AC Sources-Operating, LCO 3.8.1, which requires that three diesel generators be operable. Specifically, since July 1985, the licensee failed to perform Surveillance Requirement 3.8.1.9, because surveillance testing performed did not verify that each diesel generator could reject the single largest post-accident load and maintain engine speed within the required criteria. In response to this issue, the licensee performed an immediate operability determination to confirm that test results from full load reject indicated that, if performed correctly, the results of the Surveillance Requirement 3.8.1.9 test would be acceptable. This finding was entered into the licensee's corrective action program as Condition Reports CR GGN-2015-4611 and CR-GGN-2015-4627.

The team determined that the failure to perform Technical Specification Surveillance Requirement 3.8.1.9 was a performance deficiency. This 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 to ensure the availability, reliability, and capability of systems to respond to initiating events to prevent undesirable consequences. Specifically, the surveillance procedure error resulted in the acceptance of test results that did not satisfy Technical Specification Surveillance Requirement 3.8.1.9; therefore the test did not demonstrate diesel generator operability. In accordance with Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated June 19, 2012, Exhibit 2, "Mitigating Systems Screening Questions," the finding was determined to have very low safety significance (Green) because it was a design or qualification deficiency that did not represent a loss of functionality; did not represent an actual loss of safety function of the system or train; did not result in the loss of one or more trains of non-technical specification equipment; and did not screen as potentially risk significant due to seismic, flooding, or severe weather. This finding did not have a crosscutting aspect because the most significant contributor did not reflect current licensee performance. (Section 1R21.2.4.b.1)

Inspection Report# : [2015007](#) (pdf)

**Significance:**  Oct 01, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Obtain a License Amendment for Use of Probabilistic Methods to Evaluate Tornado Missile Hazards**  
Severity Level IV/Green. The team identified a Green, Severity Level IV non-cited violation of 10 CFR 50.59, “Changes, Tests, and Experiments,” paragraph c(2), (1995 version) which requires that a licensee who desires to make a change in the facility described in the final safety analysis report, which involve an unreviewed safety question shall submit an application for amendment of the license pursuant to 10 CFR 50.90. Specifically, on August 31, 1995, the licensee’s incorporation of the use of probabilistic methods for evaluation of tornado missiles into the Grand Gulf Final Safety Analysis Report Section 3.5.2.5 involved an unreviewed safety question because it increased the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the safety analysis report. In response to the issue, the licensee prepared a license amendment request to obtain approval to use probabilistic methods for tornado missile evaluations. This finding was entered into the corrective action program as Condition Reports CR GGN 2015 04615 and CR-GGN-2015-4760.

The team determined that the failure to obtain a license amendment prior to implementing a proposed change to the tornado missile protection design requirements was a performance deficiency. This performance deficiency was determined to be more than minor, and therefore a finding, because there was a reasonable likelihood the change would require NRC review and approval. This finding was evaluated using traditional enforcement, because the violation may impact the ability for the NRC to perform its regulatory oversight function. In accordance with the NRC Enforcement Policy, the significance determination process was used to inform the significance of the failure to obtain a license amendment prior to implementing a proposed change to the main control room design requirements. Using Inspection Manual Chapter 0609, Appendix A, “The Significance Determination Process (SDP) for Findings At-Power,” the inspectors determined the finding involves the total loss of a safety function, identified by the licensee through a probabilistic risk analysis, individual plant examination for external events, or similar analysis, that contributes to external event initiated core damage accident sequences. Therefore, detailed risk evaluation was necessary. The senior reactor analyst reviewed the Grand Gulf Individual Plant Examination for External Events because it was the best available information on missile damage to exposed safety-related equipment. The senior reactor analyst determined that the finding had very low safety significance (Green) because the probability of damage occurring to the exposed safety-related equipment was  $7.7E-9$ /year, which is below the threshold for additional probabilistic risk evaluation. Since the violation was associated with a Green reactor oversight finding, the traditional enforcement violation was determined to be a Severity Level IV violation, consistent with paragraph 6.1.d(2) of the NRC Enforcement Policy. This finding did not have a crosscutting aspect because the most significant contributor did not reflect current licensee performance. (Section 1R21.2.19.b.1)

Inspection Report# : [2015007](#) (pdf)

**Significance:**  Oct 01, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Ensure Equipment Operability and Functionality of Allowable Alternating Current Frequency Range**

Green. The team identified a Green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” which states, in part, “design control measures shall provide for verifying or checking the adequacy of design, such as by the performance of design reviews, by the use of alternate or simplified calculational methods, or by the performance of a suitable testing program.” Specifically, prior to August 14, 2015, the licensee failed to verify that the safety related alternating current equipment will operate satisfactorily at the extremes of the allowable alternating current frequency ranges as specified in the updated final safety analysis report and technical specifications. This finding was entered into the licensee’s corrective action program as Condition Report CR-GGN-2015-4672.

The team determined that the failure to verify safety-related alternating current equipment for operation at the extremes of the allowed frequency range was a performance deficiency. This performance deficiency was more than minor, and therefore a finding, because it was associated with the equipment performance attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of safety systems that respond to initiating events to prevent undesirable consequences. Specifically, lack of verification that the alternating current equipment would function at the extremes of the allowable frequency range can result in incorrect conclusions regarding the ability of the equipment to meet its design bases. In accordance with Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated June 19, 2012, Exhibit 2, "Mitigating Systems Screening Questions," the finding was determined to have very low safety significance (Green) because it was a design or qualification deficiency that did not represent a loss of operability or functionality; did not represent an actual loss of safety function of the system or train; did not result in the loss of one or more trains of non-technical specification equipment; and did not screen as potentially risk significant due to seismic, flooding, or severe weather. This finding had a problem identification and resolution crosscutting aspect associated with self-assessments, because the organization failed to conduct self-critical and objective assessment of its programs and policies [P.6]. (Section 1R21.3.2.b.1)

Inspection Report# : [2015007](#) (pdf)

**Significance:**  Oct 01, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Implement Equipment Control Procedures for Loose Items in Containment**

Green. The team identified a Green, non-cited violation of Technical Specification 5.4, "Procedures," 5.4.1, which states, "Written procedures shall be established, implemented, and maintained covering the following activities: (a) The applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978." Specifically, prior to August 10, 2015, the licensee failed to follow Procedures 01-S-07-43, "Control of Loose Items, Temporary Electrical Power, and Access to Equipment," GGNS CS-17 "Standard for Prevention of Potentially Hazardous Seismic II/I Situations due to Loose Items" and EN-MA-118, "Foreign Material Exclusion," when multiple loose items were left in containment since the previous refueling outage. In response to this issue, the licensee immediately removed all loose items in containment that was not permitted by an associated engineering evaluation. This finding was entered into the corrective action program as Condition Report CR-GGN-2015-4568.

The team determined that failure to implement procedures for prevention of loose items in the containment structure was a performance deficiency. This performance deficiency was more than minor, and therefore a finding, because if left uncorrected, the performance deficiency would have the potential to lead to a more significant safety concern. Specifically, the failure to control materials and temporary equipment was a significant programmatic deficiency which would have the potential to cause unacceptable or degraded conditions if left undetected (MC 0612, App E). In accordance with Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated June 19, 2012, Exhibit 2, "Mitigating Systems Screening Questions," the issue screened as having very low safety significance (Green) because it was a design or qualification deficiency that did not represent a loss of operability or functionality; did not represent an actual loss of safety function of the system or train; did not result in the loss of one or more trains of nontechnical specification equipment; and did not screen as potentially risk significant due to seismic, flooding, or severe weather. This finding had a human performance crosscutting aspect associated with avoid complacency, in that the licensee failed to recognize and plan for the possibility of latent issues, even while expecting successful outcomes [H.12]. (Section 1R21.4.b.1)

Inspection Report# : [2015007](#) (pdf)

**Significance:**  Sep 30, 2015

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

### **Failure to Have Appropriate Instructions for Preventative Maintenance on the Division II Diesel Generator Fuel Rack Control Lever**

The inspectors reviewed a self-revealing, non-cited violation of Technical Specification 5.4.1.a, for the failure to establish appropriate maintenance instructions to perform maintenance activities on the fuel rack control lever of the division II diesel generator. Specifically, the preventative maintenance instruction did not inspect for foreign material between the fuel rack control lever and the adjacent clamp, which caused the fuel rack control lever to be stuck in the open position. As a result, the division II diesel generator was rendered inoperable and unavailable. On June 28, 2015, the licensee cleaned and lubricated the fuel rack control lever and performed the preventative maintenance instruction to return the division II diesel generator to operable status. The licensee entered this issue into their corrective action program as Condition Report CR-GGN-2015-3741.

This 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 objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," and Inspection Manual Chapter 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," the inspectors determined that the finding is of very low safety significance (Green) because it: (1) was not a deficiency affecting the design or qualification of a mitigating structure, system, or component, and did not result in a loss of functionality; (2) did not represent a loss of system and/or function; (3) did not represent an actual loss of function of at least a single train for longer than its technical specification allowed outage time, or two separate safety systems out-of-service for longer than their technical specification allowed outage time; and (4) did not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety significant in accordance with the licensee's maintenance rule program.

The mechanical standard was last updated in 2006, and the preventative maintenance instruction was last updated in 2012 for editorial purposes only. The inspectors determined that the cause of the deficiency occurred in 2006, and therefore, determined the finding did not have a cross-cutting aspect since it is not indicative of current licensee performance.

Inspection Report# : [2015003](#) (pdf)

## **Barrier Integrity**

**Significance:**  Jun 30, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

### **Failure to Maintain Secondary Containment Operable during Roof Inspections**

The inspectors identified a Green, non-cited violation of Technical Specification Surveillance Requirement 3.0.1, for the failure to meet Surveillance Requirement 3.6.4.1.1 and declare Limiting Condition for Operation 3.6.4.1 not met. Specifically, the licensee did not maintain the enclosure building hatch penetration in the closed position as required by Surveillance Requirement 3.6.4.1.1, which resulted in secondary containment being inoperable. The licensee restored compliance by closing the hatch following the surveillance, and put corrective actions in place to control the enclosure building hatch penetration in a closed position except for entry and exit for the inspection. This finding was entered into the licensee's corrective action program as Condition Report CR-GGN-1-2016-03707.

The failure to declare that Limiting Condition for Operation 3.6.4.1 was not met when the enclosure building hatch was maintained in the open position was a performance deficiency. This performance deficiency is more than minor,

and therefore a finding, because it is associated with the configuration control attribute of the Barrier Integrity Cornerstone and adversely affected the cornerstone objective to provide reasonable assurance that physical design barriers (secondary containment) protect the public from radionuclide releases caused by accidents or events. Specifically, on April 7, 2016, the licensee did not maintain the enclosure building hatch penetration in the closed position as required by SR 3.6.4.1.1, which resulted in secondary containment being inoperable. Using Inspection Manual Chapter 0609, Appendix A, “The Significance Determination Process (SDP) for Findings At-Power,” and Inspection Manual Chapter 0609, Appendix A, Exhibit 3, “Barrier Integrity Screening Questions,” the inspectors determined that the finding was of very low safety significance (Green) because the finding only represented a degradation of the radiological barrier function provided for the control room, or auxiliary building, or spent fuel pool, or standby gas treatment (SBGT) system (BWR). This finding has a cross-cutting aspect in the area of human performance associated with documentation, in that, the organization failed to create and maintain complete, accurate and up-to-date documentation. Specifically, Work Order 52671695 for implementing the roof inspection was not complete and accurate with regards to the impact on operability of secondary containment when leaving the enclosure building hatch penetration open during inspection activities (Section 1R15).

Inspection Report# : [2016002](#) (*pdf*)

**Significance:**  Oct 09, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

#### **Failure to Declare Secondary Containment Inoperable Based on Failed Surveillance Testing**

The team identified a non-cited violation of Technical Specification 3.6.4.1 Condition A, for the failure to declare secondary containment inoperable. Specifically, on August 1, 2015, the licensee failed to declare secondary containment inoperable after it failed to achieve the necessary vacuum to pass Surveillance Requirement 3.6.4.1.4. The licensee entered this issue into their corrective action program as Condition Report CR GGN 2015 05826.

The failure to declare secondary containment inoperable due to failed surveillance test and enter the appropriate action statements as required by the licensee’s technical specifications is a performance deficiency. This deficiency is more than minor, and therefore a finding, because it is associated with the Structures, Systems, Components, and Barrier Performance attribute of the Barrier Integrity cornerstone. Specifically, the failure to declare secondary containment inoperable and take actions as required in Technical Specification Limiting Condition for Operation 3.6.4.1, Condition A, within four hours, adversely affected the cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Using Inspection Manual Chapter 0609, Appendix A, “The Significance Determination Process (SDP) for Findings At-Power,” and Inspection Manual Chapter 0609, Appendix A, Exhibit 3, “Barrier Integrity Screening Questions,” dated July 1, 2012, the team determined that the finding is of very low safety significance (Green) because it only represented a degradation of the radiological barrier function provided for the auxiliary building secondary containment. The team determined that this finding has a cross-cutting aspect associated with avoid complacency, in that individuals did not recognize and plan for the possibility of mistakes, latent issues, and inherent risk, even while expecting successful outcomes. Although the surveillance test was documented as Technical Specification Acceptance Criteria Unacceptable because it did not meet the criteria defined in test procedure 06-OP-1T48-R-0002, “Standby Gas Treatment A Logic and Vacuum Test,” Revision 115, the licensee did not identify it as a failed surveillance test that affected secondary containment operability

Inspection Report# : [2015008](#) (*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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## Security

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

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## Miscellaneous

Last modified : August 29, 2016