

# Grand Gulf 1

## 4Q/2016 Plant Inspection Findings

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### Initiating Events

**Significance:** G Sep 30, 2016

Identified By: NRC

Item Type: FIN Finding

#### **Failure to Use the Operational Decision-Making Issue Process to Communicate Trigger Points for Power and Pressure Oscillations**

The inspectors identified a finding for the licensee's failure to aggressively and fully communicate an operational decision-making instruction implementation action plan, particularly the trigger points and those actions if trigger points are exceeded, to the appropriate operations shift personnel via operations management in accordance with Procedure EN-OP-111, "Operational Decision-Making Issue Process." Specifically, on July 3, 2016, Grand Gulf Nuclear Station operations management created an operational decision-making instruction, but did not communicate to onshift operators the trigger points and actions associated with uncontrolled power oscillations that occurred on June 17, 2016. The licensee implemented immediate corrective actions by communicating the operational decision-making instruction trigger points to all onshift operators, as well as creating an offnormal event procedure. This finding was entered into the licensee's corrective action program as Condition Report CR-GGN-2016-06032.

The failure to follow Procedure EN-OP-111 to aggressively and fully communicate an operational decision-making instruction implementation action plan, particularly the trigger points and those actions if trigger points are exceeded, to the appropriate operations shift personnel via operations management was a performance deficiency. This performance deficiency is more than minor, and therefore a finding, because it is associated with the human performance 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, operations management did not communicate operational decision-making instruction trigger points and actions to ensure appropriate operator response to limit the likelihood of events that upset plant stability, similar to the reactor pressure and power oscillations that occurred on June 17, 2016. 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 not cause a reactor trip.

The inspectors determined that the finding has a change management cross-cutting aspect within the human performance area because licensee management failed to use a systematic process for evaluating and implementing change so that nuclear safety remains the overriding priority. Specifically, the licensee failed to use the operational decision-making instruction process effectively such that the operational decision-making instruction was communicated and could be implemented as intended.

Inspection Report# : [2016003](#) (*pdf*)

**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*)

## Mitigating Systems

**Significance:**  Nov 04, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

### **Failure to Obtain NRC Approval For Changes to the Reactor Protection System**

The team identified a Severity Level IV non-cited violation of 10 CFR 50.59(c)(2), "Changes, Tests, and Experiments," for the licensee's failure to obtain a license amendment prior to implementing a proposed change, test, or experiment that would result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component important to safety previously evaluated in the final safety analysis report. Specifically, from June 24, 2014, until November 3, 2016, the licensee modified its reactor protection system to remove turbine first stage pressure instrumentation to measure reactor power, which resulted in a more than minimal increase of the likelihood of a malfunction. The failure to obtain a license amendment prior to implementing a change that resulted in a more than a minimal increase in the likelihood of occurrence of a malfunction of a system important to safety was a performance deficiency. In response to this issue, the licensee implemented compensatory actions to ensure the reactor protection system trips would be enabled when required, will either prepare a new evaluation under current regulatory guidelines, or submit a license amendment request to the NRC, and documented the condition in its corrective action program as Condition Report CR-GGN-2016-08298.

This performance deficiency was more-than-minor because it was associated with the design control attribute of the Mitigating Systems Cornerstone objective to ensure the availability, reliability, and capability of systems that respond

to initiating events to prevent undesirable consequences. Specifically, the elimination of the turbine first stage pressure instruments increased the likelihood of a malfunction of the reactor protection system. Additionally, the violation was similar to the more than-minor examples in the NRC Enforcement Manual Appendix E, “Minor Violations – Examples”, dated September 9, 2013. 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 non-technical specification equipment; and did not screen as potentially risk significant due to seismic, flooding, or severe weather. Since the violation was determined to be Green in the significance determination process, the traditional enforcement violation was determined to be a Severity Level IV violation, consistent with the example in paragraph 6.1.d(2) of the NRC Enforcement Policy. Traditional enforcement violations are not assessed for cross-cutting aspects.

Inspection Report# : [2016007](#) (pdf)

**Significance:**  Nov 04, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Obtain NRC Approval For Changes to Diesel Generator Trips and Flood Mitigation Strategy**

The team identified two examples of a Severity Level IV non-cited violation of 10 CFR 50.59(c)(2), “Changes, Tests, and Experiments,” for the licensee’s failure to conclude that modifications to the Division 3 diesel generator trip logic circuits and flood mitigation strategy would have required a license amendment. Specifically, from October 7 to November 3, 2016, the licensee removed the automatic high crankcase diesel generator trip and from March 5, 2013, to November 3, 2016, used an unapproved method for mitigating design basis flooding. The licensee’s failure to obtain a license amendment prior to implementing a change that resulted in a more than a minimal increase in the likelihood of occurrence of a malfunction of a system important to safety was a performance deficiency. In response to these issues, the licensee entered the issues into the corrective action program as Condition Reports CR-GGN-2016-08328 and CR-GGN-2016-08329 and will either prepare new evaluations under current regulatory guidelines, or submit a license amendment request to the NRC.

The first example of a performance deficiency for the change to the Division 3 diesel generator trip logic was more-than-minor because it was associated with the design control attribute of the Mitigating Systems Cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the elimination of the diesel generator automatic trips increased the likelihood of a malfunction of systems important to safety. The second example of a performance deficiency for a change to the flood mitigation strategy to rely on the construction of temporary sandbag barriers was more-than-minor because it was associated with the protection against external hazards attribute of the Mitigating Systems Cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Additionally, the violation was similar to the more-than-minor example of a change in requirements in the NRC Enforcement Manual Appendix E, “Minor Violations – Examples”, dated September 9, 2013. 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 non-technical specification equipment; and did not screen as potentially risk significant due to seismic, flooding, or severe weather. Since the violation was determined to be Green in the significance determination process, the traditional enforcement violation was determined to be a Severity Level IV violation, consistent with the example in paragraph 6.1.d(2) of the NRC Enforcement Policy. Traditional enforcement violations are not assessed for cross-cutting aspects.

Inspection Report# : [2016007](#) (pdf)

**Significance:** G Nov 04, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Evaluate Delaying Inspection of Diesel Fuel Oil Storage Tank**

The team identified a Severity Level IV non-cited violation of 10 CFR 50.59(d)(1), “Changes, Tests, and Experiments,” for the licensee’s failure to provide a written evaluation describing the basis for determining that a change to how often the Division 3 diesel fuel oil storage tank is cleaned and inspected did not require a license amendment. The failure to perform an evaluation prior to implementing a change that resulted in a more than a minimal increase in the likelihood of occurrence of a malfunction of a system important to safety as required by 10 CFR 50.59 was a performance deficiency. In response to this issue, the licensee declared the Division 3 diesel generator inoperable until it performed the cleaning and inspections required by Regulatory Guide 1.137. After the inspection was successfully completed without issues, the licensee declared the Division 3 diesel generator to operable. This issue was entered the issue into the corrective action program as Condition Report CR-GGN-2016-08327.

This performance deficiency was more-than-minor because if left uncorrected, the issue would the performance deficiency have the potential to lead to a more significant safety concern. Specifically, the failure to clean and inspect the Division 3 fuel oil storage tank could result in the failure of the Division 3 diesel system. Additionally, the violation was similar to the more-than-minor example of changes to requirements in the NRC Enforcement Manual Appendix E, “Minor Violations – Examples”, dated September 9, 2013. 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 non-technical specification equipment; and did not screen as potentially risk significant due to seismic, flooding, or severe weather. Since the violation was determined to be Green in the significance determination process, the traditional enforcement violation was determined to be a Severity Level IV violation, consistent with the example in paragraph 6.1.d(2) of the NRC Enforcement Policy. Traditional enforcement violations are not assessed for cross-cutting aspects.

Inspection Report# : [2016007](#) (*pdf*)

**Significance:** G Nov 04, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Establish Adequate Procedures for Building Sandbag Barriers**

The team identified a Green, non-cited violation of Technical Specification 5.4.1(a), “Procedures,” for failure to establish adequate procedures for severe weather operations. Specifically, the licensee failed to establish adequate severe weather procedures to ensure the control building, diesel building, and standby service water pump houses would be adequately protected from flooding. The failure to establish adequate procedures for severe weather operations to ensure compliance with Technical Specification 5.4.1(a), “Procedures,” and with the Regulatory Guide 1.33, Appendix A, Section 6.w, “Acts of Nature,” was a performance deficiency. In response to this issue, the licensee calculated the maximum allowable leakage of the sandbag barriers that would adequately protect any structure, system, or components important to safety from flooding. Additionally, the licensee performed a mock-up of the sandbag barriers and determined that the expected leakage through the sandbag barriers during a probable maximum precipitation event would be less than the maximum leakage allowed by the calculation. This finding was entered into the licensee’s corrective action program as Condition Reports CR-GGN-2016-08294 and CR-GGN-1-2016-08912.

This performance deficiency was more-than-minor because it was associated with the protection against 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, the licensee failed to establish adequate procedures to ensure the sandbag barriers offer adequate flood protection during a probable maximum precipitation event that no structures, systems, or components important to safety are affected. 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. The team determined the finding had a cross-cutting aspect of Avoiding Complacency within the area of Human Performance because the licensee failed to recognize and plan for the possibility of mistakes, latent issues, and inherent risk in building the sandbag barriers, even while expecting successful outcomes.

Inspection Report# : [2016007](#) (pdf)

**Significance:**  Sep 30, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Promptly Identify Conditions Adverse to Quality in the RCIC System**

The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for failure to promptly identify a condition adverse to quality. Specifically, operations personnel failed to identify oscillations in the reactor core isolation cooling transmitter logic system during technical specification surveillance control panel walk-downs. This resulted in an automatic isolation of the reactor core isolation cooling system from its steam supply. Approximately six hours after the isolation, maintenance personnel performed a flow transmitter system fill and vent, and the system was returned to an operable condition. This finding was entered into the licensee's corrective action program as Condition Report CR-GGN-2016-03070.

The failure to promptly identify oscillations in the reactor core isolation cooling transmitter logic system was a performance deficiency. This performance deficiency is more than minor, and therefore a finding, because it is associated with the human performance attribute of the Mitigating Systems Cornerstone and adversely affects the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, operations personnel failed to identify oscillations in the reactor core isolation cooling transmitter logic system, which resulted in an isolation and unavailability of the reactor core isolation cooling system. 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 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; did not represent a loss of system and/or function; 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 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.

In addition, the inspectors determined that the finding has a challenge the unknown cross-cutting aspect within the human performance area because the licensee failed to stop when faced with uncertain conditions and evaluate and manage risk before proceeding. Specifically, when performing multiple sets of operator control panel walk-downs, which should have resulted in the identification of oscillations in the reactor core isolation cooling transmitter logic system, the operators failed to recognize and correlate that the small oscillations were an abnormal system condition and could lead to a reactor core isolation cooling system isolation.

Inspection Report# : [2016003](#) (pdf)

**Significance:**  Sep 30, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Promptly Correct Procedures and Work Order Instructions used for Safety-Related Heat Exchanger Testing**

The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, “Corrective Action,” which states, in part, “conditions adverse to quality are promptly identified and corrected.” Specifically, prior to April 2012, the licensee did not correct identified deficiencies affecting work order instructions and acceptance criteria to perform surveillance requirements associated with safety-related fuel pool cooling and cleanup heat exchangers. In response to this issue, the licensee revised the associated procedure to provide appropriate quantitative and qualitative acceptance criteria. This finding was entered into the licensee’s corrective action program as Condition Report CR-GGN-2016-07257.

The failure to promptly correct procedures and work order instructions used to perform program testing of safety-related heat exchangers was a performance deficiency. Specifically, the licensee did not promptly correct identified inadequate work order instructions or acceptance criteria to perform surveillance requirements associated with safety-related fuel pool cooling and cleanup heat exchangers from April 2012 until September 30, 2016. The inspectors determined that it was reasonable for the licensee to be able to foresee and prevent occurrence this deficiency. This performance deficiency is more than minor, and therefore a finding, because it is associated with the procedure quality attribute of the Mitigating Systems Cornerstone 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., fuel damage). Specifically, the inspectors concluded that without appropriate quantitative and qualitative acceptance criteria, the availability, reliability, and capability of the fuel pool cooling and cleanup heat exchangers would not be effectively ensured through the performance of surveillance requirements. The inspectors evaluated this finding using NRC Inspection Manual Chapter 0609, Attachment 0609.04, “Phase 1 – Initial Screening and Characterization of Findings.” The inspectors determined that the finding was of very low safety significance (Green) because the finding was not a design or qualification deficiency, did not represent a loss of a safety function of a system or a single train for greater than its technical specification allowed outage time, and did not screen potentially risk significant due to external events. The finding has a cross-cutting aspect in the area of human performance, documentation, because the licensee did not create and maintain complete, accurate, and up-to-date documentation for the safety-related heat exchanger testing program.

Inspection Report# : [2016003](#) (pdf)

**Significance:**  Sep 30, 2016

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

**Failure to Have an Offnormal Event Procedure for Malfunctions of the Pressure Control System**

The inspectors reviewed a self-revealed, non-cited violation of Technical Specification 5.4.1.a for the failure to establish a procedure for combating malfunctions of the reactor pressure control system. Specifically, on June 17, 2016, operators combated a malfunction in the reactor pressure control system associated with an unexpected turbine stop valve closure without having appropriate procedures. The licensee implemented immediate corrective actions by creating a standing order that gave clear guidance on how to control issues that cause oscillations, and has since created an offnormal event procedure for reactor pressure control system malfunctions. This finding was entered into the licensee’s corrective action program as Condition Report CR-GGN-2016-04834.

The failure to establish a procedure for combating malfunctions of the reactor pressure control system 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 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, operators were combating a malfunction in the reactor pressure control system associated with an unexpected turbine stop valve closure without having a procedure. As a result, the operators were unable to reconcile the pressure control malfunction, did not manually scram the reactor, and ultimately caused an automatic 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 2, “Mitigating Systems Screening Questions,” the inspectors determined that the finding resulted in themismanagement of reactivity by operators and required an evaluation using Inspection Manual Chapter 0609, Appendix M, “Significance Determination Process Using Qualitative Criteria.” A senior reactor analyst performed an evaluation to bound the increase in core damage frequency of the finding. Based on the results of this evaluation, the final significance of the finding was determined to be very low safety significance (Green).

In addition, the inspectors determined that the finding has an identification cross-cutting aspect within the problem identification and resolution area because the licensee failed to identify issues completely, accurately, and in a timely manner in accordance with the program. Specifically, the licensee failed to identify that they were missing an offnormal event procedure for malfunctions of the reactor pressure control system following a 2015 half scram that occurred while conducting the same testing as that which led to this event.

Inspection Report# : [2016003](#) (*pdf*)

**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*)

## Barrier Integrity

**Significance:**  Nov 04, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

### **Inadequate Technical Specification Surveillance Requirements for Reactor Protection System**

The team identified a Green non-cited violation of 10 CFR 50.36, “Technical Specifications,” which requires that “surveillance requirements are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met.” Contrary to this requirement, from June 24, 2014, until November 3, 2016, the licensee failed to include in its technical specification a surveillance requirement to assure that the facility operation will be within safety limits. Specifically, after modifying its reactor protection system to remove turbine first stage pressure instrumentation, the licensee failed to adjust the interval at which it calibrates the average power range monitor channels during surveillance tests to ensure the signals were accurately indicating the true core average power and that reactor protection system trips were enabled when required to assure the facility will be within safety limits. The licensee’s failure to ensure “surveillance requirements relating to calibration to ... assure that ... facility operation will be within safety limits, and that the limiting conditions for operation will be met” was a performance deficiency. In response to this issue, the licensee implemented compensatory actions to ensure the reactor protection system trips would be enabled when required, and documented the condition in its corrective action program as Condition Report CR-GGN-2016-08297.

This performance deficiency was more-than-minor because it was associated with the thermal limit design control attribute of the Barrier Integrity Cornerstone objective to provide reasonable assurance that physical design barriers (fuel cladding, reactor coolant system, and containment) protect the public from radionuclide releases caused by accidents or events. Specifically, the surveillance requirements did not assure calibration of the average power range monitors to ensure an accurate measurement of reactor power such that the reactor protection system trips were enabled at 35.4 percent power. 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 non-technical specification equipment; and did not screen as potentially risk significant due to seismic, flooding, or severe weather. This finding had a cross-cutting aspect in the area of human performance associated with change management because the licensee

failed to use a systematic process for evaluating and implementing changes to the reactor protection system so that nuclear safety remains the overriding priority.

Inspection Report# : [2016007](#) (pdf)

**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)

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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

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