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Grand Gulf 1 – Quarterly Plant Inspection Findings

2Q/2017 – 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*)

Mitigating Systems

Significance:  Apr 21, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

Untimely Corrective Action

The team identified a non-cited violation of License Condition 2.C.(41) for failure to correct a condition adverse to fire protection in a timely manner. Specifically, the licensee failed to complete evaluations of multiple spurious operations (MSO) concerns identified in 2011. The licensee entered this finding into their corrective action program as Condition Report CR GGN 2017-03996.

The failure to correct a condition adverse to fire protection in a timely manner was a performance deficiency. The performance deficiency was more than minor because it was associated with the protection against external events (fire) attribute of the Mitigating Systems cornerstone and it adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, untimely resolution of these MSO actuations placed the facility at risk of being unable to safely shutdown the facility in response to a fire.

The finding was screened in accordance with Inspection Manual Chapter (IMC) 0609, "Significance Determination Process," Attachment 4, "Initial Characterization of Findings," dated June 19, 2012. Because the finding affected the ability to achieve and maintain post-fire safe shutdown, the team reviewed the finding using IMC 0609, Appendix F, Attachment 1, "Fire Protection Significance Determination Process Worksheet," dated September 20, 2013. The finding was screened as a Green finding of very low safety significance in accordance with Task 1.3, "Ability to Achieve Safe Shutdown," Question A. Although the licensee failed to completely evaluate the impact of MSOs that could potentially result in the loss of suppression pool inventory, the team determined that for all fire areas one division of the residual heat removal system and the supporting standby service water system remained available along with suppression pool level indication. The team confirmed that suppression pool makeup for the standby service water system would remain available. For the postulated control room fire that led to control room evacuation, a senior reactor analyst performed a Phase 3 evaluation to determine the risk significance of this finding. The senior reactor analyst determined this finding was of very low safety significance. The finding had a cross-cutting aspect in the Conservative Bias component of the Human Performance area because the licensee failed to use decision making-practices that emphasize prudent choices over those that are simply allowable. Specifically, the licensee reclassified a condition report to be non-adverse allowing resolution to be given a lower priority prior to completing the evaluations required to provide a technical basis for that decision.

Inspection Report# : 2017008 (*pdf*)

Significance:  Apr 21, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

Inadequate Alternative Shutdown Procedure Timing

The team identified a Green non-cited violation of Technical Specification 5.4.1.a for the failure to implement and maintain adequate written procedures covering a fire in the control room. Specifically, the licensee failed to maintain an alternative shutdown procedure that ensured operators could safely shut down the plant under all postulated fire scenarios within the time limits established by the thermal hydraulic analysis. The licensee entered this finding into their corrective action program as Condition Report CR-GGN-2017-04011. As an immediate compensatory measure, the license issued Standing Order 17-0010 to provide operators additional guidance.

The failure to implement and maintain adequate written procedures covering timed operator actions during a fire in the control room was a performance deficiency. The performance deficiency was more than minor because it was associated with the procedure quality attribute of the Mitigating Systems Cornerstone and it adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the alternative shutdown procedure failed to ensure operators could safely shut down the plant under all postulated fire scenarios within the time limits established by the thermal hydraulic analysis. The team evaluated this finding using Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," dated September 20, 2013, because it affected the ability to reach and maintain safe shutdown conditions in case of a fire. A senior reactor analyst performed a Phase 3 evaluation to determine the risk significance of this finding since it involved a postulated control room fire that led to control room evacuation. The senior reactor analyst determined this finding was of very low safety significance.

The finding did not have a cross-cutting aspect since it was not indicative of present performance in that the performance deficiency occurred more than 3 years ago.

Inspection Report# : 2017008 (*pdf*)

Significance:  Apr 21, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Isolate Control Circuits for Safe Shutdown Equipment From the Effects of a Control Room Fire

The team identified a Green non-cited violation of License Condition 2.C.(41) for the failure to implement and maintain in effect all provisions of the approved fire protection program. Specifically, the licensee failed to adequately isolate control circuits for safe shutdown equipment to ensure independence from the effects of a fire in the control room. The licensee entered this finding into their corrective action program as Condition Report CR GGN 2017 04028. As an immediate compensatory measure, the licensee issued Standing Order 17-0010 to provide operators additional guidance.

The failure to adequately isolate control circuits for safe shutdown equipment from the effects of a control room fire was a performance deficiency. The performance deficiency was more than minor because it was associated with the protection against external events (fire) attribute of the Mitigating Systems Cornerstone and it adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the spurious actuation of safety relief valves would adversely affect the safe shutdown equipment relied upon to achieve and maintain safe shutdown conditions. The team evaluated this finding using Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," dated September 20, 2013, because it affected the ability to reach and maintain safe shutdown conditions in case of a fire. A senior reactor analyst performed a Phase 3 evaluation to determine the risk significance of this finding since it involved a postulated control room fire that led to control room evacuation. The senior reactor analyst determined this finding was of very low safety significance.

The finding did not have a cross-cutting aspect since it was not indicative of present performance in that the performance deficiency occurred more than 3 years ago.

Inspection Report# : 2017008 (*pdf*)

Significance:  Apr 21, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

Inadequate Alternative Shutdown Procedure Steps

The team identified a Green non-cited violation of Technical Specification 5.4.1.a for the failure to maintain adequate written procedures covering a fire in the control room. Specifically, the licensee failed to ensure that all steps in Procedure 05-1-02-II-1, "Shutdown from the Remote Shutdown Panel," could be performed as written. Specifically, the licensee's procedure did not provide specific guidance to the control room staff on how to actuate the low pressure core spray pump breaker lockout relay. The licensee initiated Condition Report CR-GGN-2017-03368 to address the deficiency and immediately implemented Standing Order 17-0009, which provides specific guidance to the control room staff on how to actuate the low pressure core spray pump breaker lockout relay.

The failure to provide a procedure that operators understood to implement the requirements of the approved fire protection program for a fire in the control room was a performance deficiency. The performance deficiency was more than minor because it was associated with the procedure quality attribute of the Mitigating Systems Cornerstone and it adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the alternative shutdown procedure failed to ensure operators could safely shut down the plant during a control room fire causing circuit faults. The team evaluated this finding using Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," dated September 20, 2013, because it affected the ability to reach and maintain safe shutdown conditions in case of a fire. A senior reactor analyst performed a Phase 3 evaluation to determine the risk significance of this finding since it involved a postulated control room fire that led to control room evacuation. The Senior Reactor Analyst determined this finding was of very low safety significance.

The finding did not have a cross-cutting aspect since it was not indicative of present performance in that the performance deficiency occurred more than 3 years ago.

Inspection Report# : 2017008 (*pdf*)

Significance:  Dec 31, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Incorporate Design Requirements for Switchgear Room Cooling

The inspector identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," involving the failure to implement appropriate design control measures associated with a safety-related service water flow calculation. Specifically, several unverified and potentially nonconservative inputs were identified associated with Calculation MC-QIP41-97020, Revision 11, "Determination of Minimum Allowable SSW Flows (LOCA Lineup) to Safety Related Heat Exchangers," used to analyze minimum service water flow to the vital switchgear room coolers. The licensee entered this issue into their corrective action program as Condition Report CR-GGN-2016-07597, initiated action to update Calculation MC-QIP41-97020, and initiated actions to analyze the ability of vital switchgear room cooling to meet its specified safety function.

This performance deficiency was more than minor, and therefore a finding, because it was associated with the design control attribute of the Mitigating Systems Cornerstone, and it adversely affected the cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences.

Specifically, the licensee did not assure that the vital switchgear ventilation system was capable of maintaining the rooms' temperature below design requirements under all conditions. The NRC performed an initial screening of the finding in accordance with NRC Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Using Inspection Manual Chapter 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," dated July 1, 2012, this finding had very low safety significance (Green) because it: (1) was not a deficiency affecting the design or qualification of a mitigating system; (2) did not represent a loss of system and/or function; (3) did not represent an actual loss of function of a single train for greater than its technical specification allowed outage time; and (4) did not represent an actual loss of function of one or more nontechnical specification trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program for greater than 24 hours. This finding had a cross-cutting aspect in the documentation aspect of the human performance cross-cutting area because the licensee failed to maintain complete, accurate, and up-to-date documentation of the design temperature limits for safety-related equipment. Specifically, the licensee failed to document and evaluate a change to temperature limits related to switchgear cooling to ensure that its use as a design parameter was consistent with original design specifications of the equipment.

Inspection Report# : 2016004 (*pdf*)

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:  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 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:  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*)

Barrier Integrity

Significance: G 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*)

Emergency Preparedness

Significance: G Mar 31, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Conduct a Drill Required by the Site Emergency Plan in 2014

The inspectors identified a non-cited violation of 10 CFR 50.54(q)(2) associated with the licensee's failure to conduct a drill required by the site emergency plan in 2014. The licensee was required to conduct a drill involving both the site first-aid team and a local hospital. This violation is not an immediate safety concern because drills were conducted involving the site first-aid team and other drills were conducted at local hospitals. This issue has been entered into the licensee's corrective action program as Condition Report CR-GGN-2017-00311.

The performance deficiency was more than minor, and therefore a finding, because it was associated with the emergency response organization performance (drills and exercises) cornerstone attribute and adversely affected the Emergency Preparedness Cornerstone objective of being capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. The finding was evaluated using Inspection Manual Chapter 0609, Appendix B, "Emergency Preparedness Significance Determination Process," dated September 22, 2015. The finding was determined to be of very low safety significance (Green) because it was a failure to comply with NRC requirements, was not associated with the risk-significant planning standards, and was not a degraded planning standard function. The finding had a cross-cutting aspect in the area of human performance associated with training because the licensee did not maintain a workforce knowledgeable about the requirements of the emergency plan.

Inspection Report# : 2017001 (*pdf*)

Occupational Radiation Safety

Significance: G Dec 31, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Use Procedures and Engineering Controls to Maintain Occupational Doses ALARA

The inspectors identified a non-cited violation of 10 CFR 20.1101(b) for the licensee's failure to implement radiation exposure reduction procedures and engineering controls to minimize unplanned and unintended radiation dose to workers and to maintain occupational doses as low as is reasonably achievable (ALARA). Several radiological work permits exceeded initial dose estimates with minimal or no actions taken to evaluate the basis for the dose overrides and to develop mitigating strategies. The primary contributor to the unplanned exposures was elevated dose rates from increased cobalt-60 activity associated with a failure to properly plan and execute spent fuel pool and reactor cavity cleanup operations. In addition, the licensee failed to observe radiological work permit hold points, to initiate ALARA Management Committee meetings, and to perform radiological assessments of radiological work permit dose estimates as procedurally required. As immediate corrective actions, the licensee reviewed the work activity, documented lessons learned, and generated Condition Reports CR-GGN-2016-03151 and CR-GGN-2016-08543 to address these programmatic weaknesses for future outages.

The failure to implement procedures and engineering controls to minimize unplanned and unintended radiation dose and to maintain occupational doses as low as is reasonably achievable was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because it was associated with the Occupational Radiation Safety Cornerstone attribute of program and process (ALARA planning) and adversely affected the cornerstone objective to ensure the adequate protection of worker health and safety from exposure to radiation from radioactive material during routine civilian nuclear reactor operation. Specifically, inadequate ALARA planning and radiological

controls resulted in unplanned, unintended dose for a number of work activities in which the actual collective dose exceeded 5 person-rem and exceeded the planned, intended dose by more than 50 percent. Using Inspection Manual Chapter 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process," the inspectors determined this finding to be of very low safety significance (Green) because the finding involved ALARA planning and controls, and because the licensee's latest 3-year rolling average did not exceed 240 person-rem per unit for boiling water reactors. The finding had a cross-cutting aspect in the area of problem identification and resolution, associated with operating experience, in that, the licensee's organization failed to systematically and effectively collect, evaluate, and implement relevant internal and external operating experience in a timely manner. Specifically, the licensee failed to implement and incorporate relevant internal operating experience from Refueling Outage 18, which was of similar radiological circumstances, to mitigate the effects of cobalt-60 activity in the reactor cavity and unplanned spent fuel pool cleanup outages.

Inspection Report# : 2016004 (*pdf*)

Public Radiation Safety Security

The security cornerstone is an important component of the ROP, which includes various security inspection activities the NRC uses to verify licensee compliance with Commission regulations and thus ensure public health and safety. The Commission determined in the staff requirements memorandum (SRM) for SECY-04-0191, "Withholding Sensitive Unclassified Information Concerning Nuclear Power Reactors from Public Disclosure," dated November 9, 2004, that specific information related to findings and performance indicators associated with the security cornerstone will not be publicly available to ensure that security-related information is not provided to a possible adversary. Security inspection report cover letters will be available on the NRC Web site; however, security-related information on the details of inspection finding(s) will not be displayed.

Miscellaneous

Current data as of : August 03, 2017

Page Last Reviewed/Updated Wednesday, August 10, 2016