

## Fort Calhoun

### 3Q/2015 Plant Inspection Findings

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## Initiating Events

**Significance:** G Jun 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

#### **Failure to Include a Class 1 Component in the Reactor Vessel Pressure Boundary Integrity Test**

The inspectors identified a non-cited violation of 10 CFR 50.55a(g)(4), involving the failure to adequately perform periodic reactor coolant system (RCS) integrity inspections as required by ASME Code Section XI. Specifically, Procedure OP ST RC 3007, "Periodic Reactor Coolant System Integrity Test," required testing of all ASME Class 1 pressure boundary components of the reactor vessel pressure boundary but failed to include reactor vessel head vent line RC-2501R. As a result, the requirements of ASME Code, Section XI were not met. This issue was entered into the licensee's corrective action program as Condition Report 2015-05858.

The inspectors concluded that the failure to include all Class 1 systems within the reactor vessel pressure boundary in the periodic RCS integrity inspection was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because it adversely affected the procedure quality attribute of the Initiating Events Cornerstone and 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. In accordance with Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," Exhibit 1, "Initiating Events Screening Questions," the issue screened as having very low safety significance (Green) because the finding did not result in exceeding the RCS leak rate for a small loss of coolant accident, and did not affect other systems used to mitigate a loss of coolant accident resulting in a total loss of their function. The inspectors determined that the finding had a conservative bias cross-cutting aspect in the area of human performance because the licensee failed to use decision making-practices that emphasized prudent choices over those that are simply allowable.

Inspection Report# : [2015002](#) (*pdf*)

**Significance:** G Jun 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

#### **Failure to Establish Adequate Work Instructions to Clean and Inspect the Reactor Vessel Head**

The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the failure to establish adequate work instructions to clean and inspect the reactor vessel head. Specifically, the work instructions for the required visual examination of the reactor vessel head failed to specify what constituted a relevant condition as defined by ASME Code Case N 729 1, "Alternative Examination Requirements for PWR Reactor Vessel Upper Head with Nozzles Having Pressure Retaining Partial Penetration Welds." As a result, the licensee failed to identify several relevant conditions that required additional inspections to adequately assure that the structural integrity of the reactor vessel head was not compromised. This issue was entered into the licensee's corrective action program as Condition Report 2015-05995.

The failure to establish adequate work instructions to clean and inspect the reactor vessel head was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because it adversely affected the procedure quality attribute of the Initiating Events Cornerstone and 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. In accordance with Inspection Manual Chapter 0609, Appendix A, “The Significance Determination Process (SDP) for Findings At-Power,” Exhibit 1, “Initiating Events Screening Questions,” the issue screened as having very low safety significance (Green) because the finding did not result in exceeding the RCS leak rate for a small loss-of-coolant accident, and did not affect other systems used to mitigate a loss-of-coolant accident resulting in a total loss of their function. The inspectors determined that the finding had a teamwork cross-cutting aspect in the area of human performance because individuals and work groups failed to communicate and coordinate their activities within and across organizational boundaries to ensure nuclear safety is maintained.

Inspection Report# : [2015002](#) (pdf)

**Significance:**  Jun 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Incorporate Vendor Manual Recommendations for Conducting Preventative Maintenance on the Reactor Vessel Head Vent Valve**

The inspectors identified a non-cited violation of Technical Specification 5.8.1.a associated with the failure to establish a preventative maintenance schedule for the reactor vessel head vent manual isolation valve, RC-100. Specifically, engineering personnel failed to consider vendor recommended maintenance activities/schedules, and determined that the valve could be run to failure. As a result, when the valve packing failed during operation, boric acid leaked onto the reactor vessel head. The licensee replaced the valve internals during refueling outage RFO 27 under Work Order 551054. This issue was entered into the licensee’s corrective action program as Condition Report 2015-05432.

The failure of engineering personnel to establish a preventative maintenance schedule for the reactor vessel head vent manual isolation valve was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because it adversely affected the equipment performance attribute of the Initiating Events Cornerstone and 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. In accordance with Inspection Manual Chapter 0609, Appendix A, “The Significance Determination Process (SDP) for Findings At-Power,” Exhibit 1, “Initiating Events Screening Questions,” the issue screened as having very low safety significance (Green) because the finding did not result in exceeding the RCS leak rate for a small loss-of-coolant accident, and did not affect other systems used to mitigate a loss-of-coolant accident resulting in a total loss of their function. No cross-cutting aspect was assigned because the inspectors determined that the finding was not indicative of current performance.

Inspection Report# : [2015002](#) (pdf)

**Significance:**  Jun 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Identify and Correct Loose Incore Instrument Nozzle Connection**

The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, “Corrective Action,” for the failure to identify and correct a condition adverse to quality. Specifically, maintenance personnel failed to document a loose connection on incore instrument port 44 in the corrective action program. As a result, the connection was not tightened and boric acid leaked onto the reactor vessel head during operation. This issue was entered into the licensee’s corrective action program as Condition Report 2015-05864.

The failure of maintenance personnel to document a loose connection on incore instrument port 44 in the corrective action program was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because it adversely affected the equipment performance attribute of the Initiating Events Cornerstone and 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. In accordance with Inspection Manual Chapter 0609,

Appendix A, “The Significance Determination Process (SDP) for Findings At-Power,” Exhibit 1, “Initiating Events Screening Questions,” the issue screened as having very low safety significance (Green) because the finding did not result in exceeding the RCS leak rate for a small loss-of-coolant accident, and did not affect other systems used to mitigate a loss-of-coolant accident resulting in a total loss of their function. The inspectors determined that the finding had a field presence cross-cutting aspect in the area of human performance because the licensee did not ensure supervisory and management oversight of work activities, including contractors and supplemental personnel.  
Inspection Report# : [2015002](#) (*pdf*)

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## Mitigating Systems

**Significance:**  Sep 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

### **Failure to Maintain Safety Injection Tank Boron Concentration within Technical Specification Limits**

A Green, self-revealing, non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI “Corrective Action” was identified because the licensee failed to identify and evaluate an adverse trend related to boron concentration in Safety Injection Tank (SIT) SI-6A and to take corrective actions to prevent boron concentration from going below the minimum concentration required by Technical Specifications. The licensee’s immediate corrective actions included documenting this condition in their corrective action program in Condition Report (CR) 2015-10181, declared SI-6A inoperable, and raised SI-6A boron concentration.

The finding is more than minor because it adversely affected the equipment performance attribute of the mitigating systems cornerstone, in that this finding resulted in the SIT becoming inoperable when boron concentration fell below TS limits for approximately 8.5 days prior to August 20, 2015. Analysis conducted by a Senior Reactor Analyst determined the finding to be of very low safety significance (Green), primarily because the SIT function is needed only for mitigation of a postulated large-break loss of coolant accident, and the initiating-event frequency for such accidents is  $2.5 \times 10^{-6}$ /year. The finding has a cross-cutting aspect in the area of Problem Identification and Resolution and the Evaluation aspect, because the licensee did not thoroughly evaluate the issue and ensure that resolutions addressed causes and extent of conditions commensurate with their safety significance.

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

**Significance:**  Sep 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

### **Failure to Maintain Fire Watch and Fire Watch Logs**

Inspectors identified a Green, Severity Level IV, non-cited violation of 10 CFR 50.9(a), “Completeness and Accuracy of Information,” for the licensee’s failure to maintain the required fire watch logs complete and accurate in all material respects. The licensee entered this into their corrective action program as Condition Reports (CR) 2014-06416 and 2014-06680.

This finding is more than minor because it adversely affected the human performance attribute of the Mitigating Systems cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. This finding has very low safety significance (Green) because it did not impact the ability to achieve safe shutdown. This finding’s severity level is based on an example in the Enforcement Policy, Section 6.1.d.2, which states, in part, that Severity Level IV violations involve violations of 10 CFR 50.59 [which] result in conditions evaluated as having very low safety significance (i.e., Green) by the Significance Determination Process. That example applies because a violation of 10 CFR 50.9 is similar to a violation

of 10 CFR 50.59, and because this finding has very low safety significance. This finding has a cross-cutting aspect in the resources component of human performance cross-cutting area because the licensee's process did not allow enough time for the fire watch personnel to obtain their radiation work permit at the start of their shift before they performed their rounds.

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

**Significance:** G Aug 14, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Ensure the Suitability of Replacement Materials during the Design Review Process**

The inspectors reviewed a Green, self-revealing, non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to evaluate the suitability of materials utilized during the design review process. Specifically, the licensee failed to identify during the design review process that replacement valve internal seal materials for the steam generator auxiliary feed containment isolation valves would not be suitable for high temperature conditions that the valves would experience in service, and as a result, caused both trains of the safety-related auxiliary feedwater system to become inoperable during hot standby conditions. The licensee entered this issue into their corrective action program as Condition Report CR-2015-07564 and replaced the valve internals with material that had been previously installed in valves HCV-1107A and HCV-1108A before the modification.

The inspectors determined that the licensee's failure to evaluate the suitability of the materials used during the design review process for the steam generator auxiliary feed containment isolation valves was a performance deficiency. The performance deficiency is more than minor, and therefore a finding, because it is associated with the equipment performance attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e. core damage). Specifically, the licensee's failure to properly evaluate the suitability of CTFE for use in the steam generator auxiliary feed containment isolation valves led to the failure of HCV-1107A and HCV-1108A and rendered both safety-related trains of auxiliary feedwater inoperable. Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process for Findings At-Power", dated June 19, 2012, Exhibit 2, "Mitigating Systems Screening Questions", the inspectors determined that the finding required a detailed risk evaluation since the finding represented a loss of system and/or function. A Region IV senior reactor analyst performed the detailed risk evaluation in accordance with 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  $2.3 \times 10^{-7}$  was dominated by a loss of offsite power; common cause failure of the auxiliary feedwater discharge air-operated valves; failure of diesel-driven auxiliary feedwater pump FW-54; failure of the feed and bleed operation; and failure of operators to manually override a steam generator isolation signal and establish a flowpath for the main feedwater system. The analyst determined that the finding did not involve a significant impact to external

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 initiators because of the short exposure time, or a significant increase in the risk of a large, early release of radiation. The finding has an operating experience cross-cutting aspect in the problem identification and resolution cross-cutting area since the organization did not systematically and effectively collect, evaluate, and implement relevant internal and external operating experience in a timely manner. Specifically, readily available internal operating experience on the high temperature conditions that valves HCV-1107A and HCV-1108A

experienced during normal operations was not utilized during the design change process.

Inspection Report# : [2015011](#) (*pdf*)

**Significance:** G Aug 14, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Establish a Technical Basis for Operability of the Auxiliary Feedwater System**

The inspectors identified a Green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the licensee's failure to follow the operability determination procedure. Specifically, the licensee failed to establish a valid technical basis for operability of auxiliary feed containment isolation valves HCV-1107A and HCV-1108A. Following the valves' failure on June 5, the licensee replaced the failed valve elastomers with new PTFE seals and nitrile O-rings. The licensee then performed an operability evaluation that considered the effect of high temperatures from a main steam line break on the valve elastomers. The inspectors found that the evaluation was not sufficient because it did not determine that the new O-rings would function under all potential temperature conditions and did not consider the function of the other valve components. The licensee entered these issues in their corrective action program as Condition Report CR-2015-08362 and revised their operability evaluation.

The licensee's failure to follow the operability determination procedure was a performance deficiency. The performance deficiency is more than minor, and therefore a finding, because it is associated with the equipment performance attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e. core damage). Specifically, the licensee failed to sufficiently address the capability of the steam generator auxiliary feed containment isolation valves HCV-1107A and HCV-1108A to perform their safety function, requiring significant further analysis to demonstrate operability. Using Inspection Manual Chapter 0609, Attachment 04, "Initial Characterization of Findings," and Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," the finding was determined to be of very low safety significance (Green) because although the finding was a deficiency affecting design or qualification, but the mitigating structure, system or component maintained its operability. The finding has a consistent process cross-cutting aspect in the human performance cross-cutting area since the organization did not use a consistent, systematic approach to make decisions and incorporate risk insights appropriately. Specifically, the licensee failed to re-evaluate the operability decision when new information on the conditions and susceptibility affecting valves HCV-1107A and HCV-1108A during normal operations was available.

Inspection Report# : [2015011](#) (*pdf*)

**Significance:** G Aug 14, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Correct a Non-Conforming Condition Associated with Auxiliary Feedwater Valves**

The inspectors identified a Green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to correct a condition adverse to quality. Specifically, the licensee failed to take corrective actions after identifying that the steam generator auxiliary feed containment isolation valves were not rated for the maximum temperature they would experience in service. The inspectors determined that on February 2, 2015, an NRC inspector questioned the licensee whether valves HCV-1107A

and HCV-1108A were adequately designed for containment temperatures. The licensee determined that the design specification for the valves was 180°F, and the containment temperature following a main steam line break was evaluated to be 374°F. The fact that the

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valve was not designed for the most limiting conditions was a non-conforming condition of a safety related component, and was a condition adverse to quality. However, the licensee did not initiate a condition report to resolve and correct the condition. Additionally, the inspectors determined that in 2002, the licensee initiated Condition Report CR-2002-02124 after identifying elevated temperatures in the auxiliary feedwater piping. This condition report documented that the design specification for the two valves was 180°F and had been exceeded in service. Although the condition report description recommended modifying the design of the valves, the licensee did not take actions to correct the condition. In both of these instances, the licensee recognized that the valve design temperature was not adequate for its application, but did not take action to resolve the discrepancy. The inspectors determined that although the inadequate design was a non-conforming condition, the valves were not inoperable until the licensee installed inappropriate elastomer material during the 2015 refueling outage as a result of inadequate design control. The licensee entered the failure to identify and correct the non-conforming design in their corrective action program as Condition Report CR-2015-08523.

The licensee's failure to take corrective action for a non-conforming condition was a performance deficiency. The 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 affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e. core damage). Specifically, the licensee failed to take corrective actions to ensure an adequate design for the steam generator auxiliary feed containment isolation valves HCV-1107A and HCV-1108A. Using Inspection Manual Chapter 0609, Attachment 04, "Initial Characterization of Findings," and Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," the finding was determined to be of very low safety significance (Green) because although the finding was a deficiency affecting the design or qualification of a mitigating system, structure, or component, the system, structure, or component maintained its operability. The finding has a basis for decisions cross-cutting aspect in the human performance cross-cutting area since leaders and individuals did not verify their understanding or question the basis of decisions. Specifically, the licensee failed to understand the potential significance of the non-conforming design of the valves and the basis for not taking corrective actions.

Inspection Report# : [2015011](#) (*pdf*)

**Significance:**  Jun 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

#### **Failure to Follow Instructions and Procedures Related to Snubber Activities**

The inspectors identified a non-cited violation of very low safety significance of 10 CFR 50, Appendix B, Criterion V "Instructions, Procedures, and Drawings," because activities affecting quality were not accomplished in accordance with instructions and procedures established by the licensee. Specifically, the licensee failed to document a degraded condition associated with a safety related seismic snubber affecting the auxiliary feedwater system, did not notify operations of the degraded condition, and did not assess the risk of the inoperable snubber in accordance with licensee instructions and procedures. The licensee entered this violation into their corrective action program. Immediate actions taken to address this violation included a review of all other snubber inspections that were rejected to ensure that other degraded conditions were reported to the control room, a review of all planned snubber maintenance with

respect to online risk, and the issuance of interim guidance to all Shift Managers on the subject of snubber operability and risk.

The inspectors determined that the licensee's failure to follow instructions and procedures associated with safety related snubbers was a performance deficiency. The finding is more than minor because if left uncorrected, the performance deficiency could have led to a more significant safety concern. Specifically, the failure to follow instructions and procedures associated with safety related snubbers could result in unacceptable risk configurations that are not analyzed under technical specifications and could challenge the reliability of safety related equipment during a seismic event. Using NRC Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power", Exhibit 2 "Mitigating System Screening Questions" Part B, dated July 1, 2012, the inspectors determined the finding to be of very low safety significance (Green) since the finding did not result in the loss of equipment specifically designed to mitigate a seismic initiating event. The finding has a cross-cutting aspect in the area of Human Performance, the Work Management aspect, since the licensee did not implement a work process that ensured the identification and management of risk commensurate to the work.

Inspection Report# : [2015002](#) (*pdf*)

**Significance:**  Mar 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Implement Risk Management Actions for Planned Maintenance Activities**

Green. The inspectors identified an NCV of very low safety significance of 10 CFR 50.65 paragraph (a)(4) "Requirements for Monitoring the Effectiveness of Maintenance of Nuclear Power Plants," because the licensee did not effectively manage the increase in risk that resulted from maintenance activities. Specifically, the licensee failed to implement key risk management actions outlined in site risk assessment and management guidance for diesel driven auxiliary feedwater (AFW) pump maintenance that resulted in a "Yellow" risk configuration. This violation was entered into the licensee's corrective action program and actions taken for this violation included verifying that all remaining online work prior to the scheduled refueling outage was properly screened and assessed in accordance with site risk management procedures. In addition, the licensee conducted training on risk management guidance that had been recently implemented during corporate alignment for personnel involved with scheduling and operations.

The inspectors determined that the licensee's failure to implement key risk management actions outlined in site risk assessment and management guidance for diesel driven AFW pump maintenance was a performance deficiency within the licensee's ability to foresee and correct and should have been prevented. The finding is more than minor because it is associated with the Equipment Performance attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the availability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to perform maintenance on a continuous work schedule as required by site procedures resulted in a longer unavailability time of the equipment and an extended "Yellow" risk condition. Using NRC IMC 0609, Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process", dated May 19, 2005, Flowchart 2, "Assessment of [Risk Management Actions]", the inspectors determined the incremental core damage probability (ICDP) associated with the maintenance activity to be approximately 1E-7, and therefore was determined to have a very low safety significance (Green), since the calculated ICDP was less than 1E-6. Because the licensee did not use a systematic process to ensure that nuclear safety remained the overriding priority while they implemented a corporate alignment, the finding has a cross-cutting aspect in the area of Human Performance, Change Management (H.3).

Inspection Report# : [2015001](#) (*pdf*)

**Significance:**  Mar 13, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

### **Failure to Perform an Adequate Battery Sizing and Load Profile Calculation**

Green. The team identified a Green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” which states, in part, “Measures shall be established to assure that applicable regulatory requirements and the design basis...are correctly translated into specification, drawings, procedures, and instructions.” Specifically, prior to March 13, 2015, the licensee failed to ensure that battery sizing and load profile calculations included proper design data for inrush currents, a random load, and possible worst case load currents. In response to these issues, the licensee updated the design values to account for the missed loads to ensure the batteries maintained adequate available margin. This finding was entered into the licensee’s corrective action program as Condition Report CR 2014-14857.

The team determined that the failure to adequately perform a battery sizing and load profile calculation, to ensure proper battery size and margin was maintained, was a performance deficiency. This finding was more than minor because it was 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. Specifically, the licensee failed to account for inrush currents, random loads, and worst case load currents during load profile and battery sizing calculations. 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. The team determined that this finding did not have a crosscutting aspect because the most significant contributor did not reflect current licensee performance. Inspection Report# : [2015007](#) (*pdf*)

**Significance:**  Mar 13, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

### **Failure to Establish Correct Acceptance Criteria Values for Battery Intercell Resistance Measurements**

Green. The team identified a Green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” which states, in part, “Measures shall be established to assure that applicable regulatory requirements and the design basis...are correctly translated into specification, drawings, procedures, and instructions.” Specifically, since 2009, the licensee failed to update battery maintenance procedures with the current maximum intercell resistance values. In response to this issue, the licensee performed a visual inspection of the battery intercell connections, performed a review of the latest intercell resistance measurements to identify any values that exceeded the correct acceptance criteria value, and performed an immediate operability determination. This finding was entered into the licensee’s corrective action program as Condition Report CR 2015 02129.

The team determined that the failure to establish the correct acceptance criteria values for battery intercell resistance measurements was a performance deficiency. This finding was more than minor 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 that respond to initiating events to prevent undesirable consequences. Specifically, the licensee had incorrect acceptance criteria for maximum intercell connection resistance measurements, and failed to identify an intercell connection that should have been disassembled, cleaned, reassembled, and remeasured. 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 crosscutting aspect in the area of human performance associated with documentation because the licensee failed to maintain complete, accurate and up-to-date documentation.

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

**Significance:** G Mar 13, 2015

Identified By: NRC

Item Type: FIN Finding

**Failure to Account for Elevated Battery Room Temperature Effects on Battery Service Life**

Green. The team identified a Green finding for the licensee's failure to verify or check the adequacy of design of the 125 Vdc batteries from environmental effects. Specifically, the licensee failed to account for the effects of elevated battery room temperature on expected battery service life, in accordance with EPRI Standard TR-100248, "Stationary Battery Guide: Design Application, and Maintenance," Revision 2. In response to this issue, the licensee performed an immediate operability determination to evaluate the effects of the elevated battery room temperatures and to determine when to modify the testing frequency based on the shorter life of the batteries. This finding was entered into the licensee's corrective action program as Condition Report CR 2015 02390.

The team determined that the failure to account for elevated battery room temperature effects on battery service life was a performance deficiency. This finding was more than minor because it was 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 events to prevent undesirable consequences. Specifically, if left uncorrected, it could lead to a more significant safety concern in that the batteries could fail to maintain sufficient capacity and go undetected when testing at the normal 5 year interval. 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 crosscutting aspect in the area of problem identification and resolution associated with operating experience because the licensee failed to evaluate and implement the EPRI standard based on industry experience when measuring room temperature readings above the optimal battery room temperature.

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

**Significance:** G Mar 13, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Inadequate Justification for Power Supplies Installed Beyond Vendor Recommended Life**

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 March 12, 2015, the licensee failed to verify or check the adequacy of the reactor protective system power supplies: 1) service life as a function of expected life minus shelf life; 2) vendor requirements for in-storage and post-storage maintenance; and 3) including or addressing laboratory failure analysis conclusions that a required component was, although functional, at its "end of life" after 18 years. In response to this issue, the licensee performed an immediate operability determination, verified the power supply's ripple checks were within tolerance, performed an engineering evaluation to support an operable but non-conforming condition, and generated rework activities to replace/refurbish the installed power supplies. This finding was entered into the licensee's corrective action program as Condition Reports CR 2015-02809 and CR 2015 02811.

The team determined that the failure to perform an adequate justification for having reactor protective system power supplies installed beyond vendor recommend life was a performance deficiency. This finding was more than minor because it was 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. Specifically, the licensee failed to perform an adequate justification for continued operation for reactor protective system power supplies that were beyond vendor recommended life. 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. The team determined that this finding did not have a crosscutting aspect because the most significant contributor did not reflect current licensee performance.

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

**Significance:**  Mar 13, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Perform an Adequate Evaluation for the Auxiliary Building Crane**

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 March 13, 2015, the licensee failed to perform an adequate design review to upgrade the auxiliary building single failure proof crane capacity, by failing to comply with ASME NOG-1-2004, "Rules for Construction of Overhead and Gantry Cranes (Top Running Bridge, Multiple Girder)." In response to this issue, the licensee performed an operability determination and concluded that the crane was operable but non-conforming, and limited the use of the main hook to the original 75 ton value until the long term actions can be completed to restore the crane to fully operable. This finding was entered into the licensee's corrective action program as Condition Report CR 2015-02718.

The team determined that the failure to perform an adequate design review to upgrade the auxiliary building single failure proof crane capacity was a performance deficiency. This finding was more than minor because it was 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 events to prevent undesirable consequences. Specifically, the licensee failed to comply with ASME NOG 1 2004 requirements to ensure the auxiliary building crane remained elastic when subjected to design loads for safe load handling of heavy loads. 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 to Exhibit 4, "External Events Screening Questions," because it was a function specifically design to mitigate a seismic event. Per Exhibit 4 the issue screened to a more detailed risk evaluation because if the seismic function were assumed to be completely failed and a load were dropped it would impact the spent fuel pool cooling or the safety injection refueling water storage tank functions. Therefore, the Region IV senior reactor analyst performed a more detailed risk evaluation. Given that the frequency of the initiating event is less than  $1 \times 10^{-6}$ , the analyst determined that the finding was of very low safety significance (Green). The team determined that this finding did not have a crosscutting aspect because the most significant contributor did not reflect current licensee performance.

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

**Significance:**  Mar 13, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

### **Failure to Perform an Adequate Auxiliary Feedwater Pump Runout Design Calculation**

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 March 13, 2015, the licensee did not verify the adequacy of the design calculation or a suitable testing program to ensure the required net positive suction head was available for the turbine-driven auxiliary feedwater pump. In response to this issue, the licensee performed an operability determination; revised several calculational errors, including removing conservatisms which resulted in a gain of net positive suction head; and contacted the original equipment manufacturer who provided a testing summary that determined the turbine-driven pump could operate for a period of time below the required net positive suction head. This provided the licensee with the basis for an operable but non-conforming condition. This finding was entered into the licensee's corrective action program as Condition Report CR 2015-02414.

The team determined that the failure to verify the adequacy of the auxiliary feedwater system design through calculational analysis and a suitable test program was a performance deficiency. This finding was more than minor because it was associated with the design control attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the reliability, availability and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the licensee failed to have adequate measures in place to ensure an acceptable design analysis and a suitable test program to verify the design inputs and ensure the capability of the auxiliary feedwater system to perform its safety function. 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 crosscutting aspect in the area of human performance associated with conservative bias because individuals failed to use decision making practices that emphasize prudent choices over those that are simply allowed.

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

**Significance:**  Mar 13, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

### **Failure to Perform an Adequate Evaluation for the Intake Crane Trolley and Bridge Rail**

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 March 13, 2015, the licensee failed to perform an adequate design review to ensure the intake crane trolley and bridge rail were constructed to seismic class II over I standards. The licensee failed to ensure the intake crane trolley rail, trolley rail clip, trolley clip connection, crane rail, crane rail clip and crane clip connection were evaluated for loads due to the safe shutdown earthquake loading concurrent with a lifted load. In response to this issue, the licensee performed an operability determination and concluded that the crane was operable but non-conforming based on a load test that was performed at 1.25 times the rated capacity. This finding was entered into the licensee's corrective action program as Condition Report CR 2015-02353.

The team determined that the failure to perform an adequate design review to ensure the intake crane trolley and bridge rail were constructed to seismic class II over I standards was a performance deficiency. This finding was more

than minor because it was 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 events to prevent undesirable consequences. Specifically, the licensee failed to comply with seismic class II over I requirements to ensure the intake crane structural integrity when subjected to safe shutdown earthquake loads concurrent with a lifted load; for safe load handling of heavy loads near the safety-related raw water system. 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 to Exhibit 4, "External Events Screening Questions," because it was a function specifically design to mitigate a seismic event. Per Exhibit 4 the issue screened to a more detailed risk evaluation because if the seismic function were assumed to be completely failed and a load were dropped it would impact the safety function of the raw water system. Therefore, the Region IV senior reactor analyst performed a more detailed risk evaluation. Given that the frequency of the initiating event is less than  $1 \times 10^{-6}$ , the analyst determined that the finding was of very low safety significance (Green). This finding had a crosscutting aspect in the area of human performance associated with documentation because the licensee failed to maintain complete, accurate and up-to-date documentation.

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

**Significance:**  Mar 13, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

#### **Failure to Obtain Prior NRC Approval for a Change in Seismic Analysis Damping**

Severity Level IV/Green. The team identified two examples of a Severity Level IV, Green, non-cited violation, of 10 CFR 50.59, "Changes, Tests and Experiments," for the licensee's failure to obtain a license amendment prior to implementing a change if the change would result in a departure from a method of evaluation described in the updated safety analysis report. Specifically, on February 23, 2015, and March 10, 2015, the licensee changed the facility to incorporate increased seismic damping for use in the intake crane and intake superstructure seismic analysis and seismic design; and in the raw water piping seismic analysis, respectively. In response to this issue, the licensee declared the intake structure as operable but non-conforming pending resolution of a license amendment request to permit the use of the increased damping value; and declared the raw water system as operable but non-conforming pending completion of the corrective actions to determine what actions are necessary to restore compliance to the licensing basis. This finding was entered into the licensee's corrective action program as Condition Reports CR 2015-02224 and CR 2015-02842.

The team determined that the failure to identify that the proposed change to incorporate increased seismic damping for use in the intake crane and intake superstructure seismic analysis and seismic design; and in the raw water piping seismic analysis, was a performance deficiency. This finding was also evaluated using traditional enforcement because it had the potential for impacting the NRC's ability to perform its regulatory function. This finding was more than minor because it was associated with the design control attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the reliability, availability and capability of systems that respond to initiating events to prevent undesirable consequences; and there was a reasonable likelihood that the change would have required NRC review and approval prior to implementation. Specifically, the licensee failed to determine that the proposed updated safety analysis report change, and associated design calculations, did involve a change to a structure, systems, or components such that it did adversely affect an updated safety analysis report described design function; less conservative seismic damping values, which required an evaluation to be performed. 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 is associated with a Green reactor oversight process violation, 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. This finding had a crosscutting aspect in the area of human performance associated with design margins because individuals failed to ensure margins were carefully guarded and changed only through a systematic and rigorous process.  
Inspection Report# : [2015007](#) (pdf)

**Significance:**  Mar 13, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Adequately Account for Raw Water Pump Discharge Check Valve Back Leakage**

Green. The team identified a Green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” which states, in part, that “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 March 13, 2015, the licensee did not properly verify the adequacy of the raw water system flow rate to its safety related components through calculational methods or through a suitable testing program. The licensee failed to include the raw water pumps discharge check valves allowable back leakage acceptance criteria into the design calculation. In response to this issue, the licensee performed an operability determination and verified that with the current back leakage flow rates all downstream safety related loads would be properly cooled. This finding was entered into the licensee’s corrective action program as Condition Reports CR 2015-01801, and CR 2015-01835.

The team determined that the failure to verify the adequacy of the raw water system design through calculational methods or through a suitable test program was a performance deficiency. This finding was more than minor because it was associated with the design control attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective to ensure the reliability, availability and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the licensee failed to have adequate measures in place to ensure that a suitable test program verified design inputs which ensured the design attributes of the raw water system. 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. The team determined that this finding did not have a crosscutting aspect because the most significant contributor did not reflect current licensee performance.

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

**Significance:**  Mar 13, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Properly Implement Procedures for Verifying Operator Time Critical Actions**

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 procedures of a type appropriate to the circumstances and shall be accomplished in accordance with these procedures.” Specifically, prior to February 25, 2015, the licensee failed to follow Procedure FCSG-56, “Time Critical Operation Standard,” to ensure all time critical operator actions were validated and verified. In response to this issue, the licensee determined that the continual training of job performance measures that test competency in completing many of the time critical actions provides a basis that all times are achievable. This finding was entered into the licensee’s corrective action program as Condition Report CR 2015-02443.

The team determined that the inadequate implementation of Procedure FCSG-56 for validation and verification of

operator time critical actions was a performance deficiency. This finding was more than minor because it was associated with the human 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 did not adequately implement Procedure FCSG-56 to ensure that all operator time critical actions listed in Attachment 1 were properly validated and verified; therefore the licensee could not demonstrate that all operator time critical actions could be executed in accordance with the design basis. 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 crosscutting aspect in the area of human performance associated with consistent process because individuals failed to demonstrate an understanding of the decision making process and use it consistently.

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

**Significance:**  Mar 05, 2015

Identified By: NRC

Item Type: FIN Finding

**Failure to Conduct and Evaluate Simulator Testing In Accordance with ANSI/ANS-3.5-2009**

The inspectors identified a Green finding with four examples for failing to conduct and evaluate simulator performance testing in accordance with the standards of ANSI/ANS-3.5-2009. Specifically, the licensee failed to do the following:

- Set initial reactor power at 15 percent in accordance with plant design for all performances between 1990 and 2014 of Transient (6), "Main Turbine Trip from Maximum Power Level That Does Not Result in Immediate Reactor Trip"
- Set the instantaneous main turbine load reduction to 10 percent as supported by design basis data in the 2014 performance of Transient (11), "Maximum Design Load Rejection"
- Evaluate the results of the 100 percent power Steady-State Performance Test using the correct acceptance criteria in accordance with the standard, Appendix B, Section B.1.1
- Evaluate all transient test results versus acceptance criteria 4.1.4(1) in accordance with the standard, Appendix B, Section B.1.2

After NRC identification of the transient test issues, licensee evaluation revealed that the initial conditions for Transients (5) and (10) were in error as well. The licensee initiated corrective action documented in condition reports 2014-14190, 2014-14208; and 2015-02547.

The licensee's failure to conduct and evaluate performance testing in accordance with the ANSI/ANS-3.5-2009 standard as endorsed by Regulatory Guide 1.149, Revision 4, was the performance deficiency. Per licensee Procedure TQ-AA-306, "Simulator Management," the licensee uses ANSI/ANS-3.5-2009 as the standard for their simulator testing. The performance deficiency is more than minor because if left uncorrected, the performance deficiency could have become more significant in that not completing the required simulator testing correctly can lead to not detecting and correcting errors in the simulator so it actually models the plant correctly. This can both leave the potential for negative training of licensed operators and call into question the ability to conduct valid licensing examinations with the simulator. Using Manual Chapter 0609, "Significance Determination Process," Attachment 4, Tables 1 and 2 worksheets, and the corresponding Appendix I, "Licensed Operator Requalification Significance Determination Process (SDP)," Flowchart Block No.14, the finding was determined to have very low safety significance (Green)

because it dealt with deficiencies associated with simulator testing, modification, and maintenance and there was no evidence that the plant-referenced simulator does not demonstrate the expected plant response or have uncorrected modeling and hardware deficiencies.

This finding has a cross-cutting aspect in the change management area of human performance, associated with leaders using a systematic process for evaluating and implementing change so that nuclear safety remains their overriding priority. There were efforts on-site to change to the 2009 version of the standard as early as 2011, but the efforts were rescinded by plant management in December 2011 for unknown reasons. When they officially switched from the 1985 to the 2009 version of the standard (on March 1, 2013), there is no evidence an effective change management plan was implemented. Efforts to transition between the testing and maintenance requirement differences were complicated by lack of allocating necessary resources to support this effort. There was minimal simulator staffing during the extended plant outage (April 2011 to December 2013), and no effective plan to deal with knowledge management to compensate for simulator employee turnover. Internal audits in May 2014 and October 2014 found numerous issues with their simulator testing and configuration management program, many of which could have been averted or addressed earlier with an effective transition plan in place.

Inspection Report# : [2015001](#) (*pdf*)

**Significance:**  Jan 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Follow Procedure during an Operability Determination**

The team identified a Green non-cited violation of 10 CFR 50, Appendix B, Criterion V, for the failure to perform an operability determination in accordance with documented procedures. Specifically, the licensee failed to complete an operability determination related to Condition Report 2014-13202 in accordance with Procedure OP-FC-108-115, “Operability Determinations,” Revision 1. Consequently, after discovering dry boric acid accumulation at a welded joint on the high pressure safety injection pump discharge casing vent valve piping, the licensee exited the operability determination procedure prematurely, without performing an engineering evaluation for potentially degraded safety-related piping.

The failure to perform operability determinations in accordance with documented procedures is a performance deficiency. This performance deficiency is more than minor, and therefore a finding, because it affected the human performance attribute of the Mitigating Systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events. Using Inspection Manual Chapter 0609, Appendix A, Exhibit 2, “Mitigating Systems Screening Questions,” the team determined that the finding was of very low safety significance (Green) because all questions in Exhibit 2 could be answered in the negative. The team determined that the most significant contributor to the finding was that the licensee failed to stop when faced with the uncertain condition of the boric acid accumulation on the pump vent valve piping and resolve the issue prior to continuing (H.11).

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

**Significance:**  Jan 30, 2015

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

**Failure to Promptly Identify and Correct a Condition Adverse to Quality**

The team reviewed a self-revealing Green non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, “Corrective Action,” for the licensee’s failure to promptly identify a condition adverse to quality. On October 27, 2014, a condition report was written to investigate dry boric acid on the high pressure safety injection Pump SI-2B vent valve piping. The initial investigation concluded that no degraded or nonconforming condition existed. On October 29,

2014, the Boric Acid Corrosion Control Program engineer conducted a review of the dry boric acid residue. The engineer identified the boric acid appeared to originate from a weld and needed to be cleaned and repaired; however, the engineer failed to initiate a condition report documenting this condition adverse to quality.

The failure to promptly identify and correct a condition adverse to quality in accordance with 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," was a performance deficiency. Specifically, the licensee failed to write a condition report when there was evidence of a boric acid leak on the high pressure safety injection pump casing. This performance deficiency was of more-than-minor safety significance because it was associated with the equipment performance 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. Using Inspection Manual Chapter 0609 Appendix A, Exhibit 2, the finding was of very low safety significance (Green) because all questions in Exhibit 2 could be answered in the negative. The finding had a cross-cutting aspect in the procedure adherence component of the human performance cross-cutting area because the individual failed to write a condition report as required by procedure after identifying a condition adverse to quality (H.8).

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

**Significance:**  Dec 31, 2014

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Establish Appropriate Preventive Maintenance and Failure to Identify Raw Water SSC Maintenance Rule Performance Criteria Exceeded and thereby establish Monitoring Requirements for the SSC**

The inspectors identified an NCV of very low safety significance of 10 CFR 50.65 paragraph (a)(2) "Requirements for Monitoring the Effectiveness of Maintenance of Nuclear Power Plants," because the licensee did not demonstrate that performance of an SSC was being effectively controlled through appropriate preventive maintenance and did not monitor the performance of the SSC against licensee-established goals to provide reasonable assurance that the SSC was capable of fulfilling its intended function. Specifically, the licensee failed to demonstrate that the performance of HCV-2875A was being effectively controlled through appropriate preventive maintenance and failed to monitor HCV-2875A performance against licensee established goals when performance criteria were exceeded. Corrective actions taken for this violation included revising the Maintenance Rule performance criteria assessment for this SSC, classifying the SSC as 10 CFR 50.65 (a)(1), and specifying goals, corrective actions and monitoring for the system. The inspectors determined that the licensee's failure to demonstrate SSC performance through appropriate preventive maintenance and the failure to identify that system performance criteria had been exceeded and, as a result, the failure to perform an evaluation of the system for 50.65 (a)(1) goals, corrective actions, and monitoring, was a performance deficiency within the licensee's ability to foresee and correct and should have been prevented. Traditional enforcement did not apply as the issue did not have actual or potential safety consequences, had no willful aspects, and did not impact the NRC's ability to perform its regulatory function. A review of NRC Inspection Manual Chapter (IMC) 0612, Appendix E, "Minor Examples," revealed that no minor examples are applicable to this finding. The finding is more than minor because it is associated with the Equipment Performance attribute of the Mitigating Systems cornerstone and adversely affected the Cornerstone objective to ensure the reliability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to demonstrate HCV-2875A performance through appropriate preventive maintenance had a direct impact on HCV-2875A performance and the reliability of the raw water system. In addition, the failure to identify that HCV-2875A performance criteria had been exceeded and thereby the failure to perform an evaluation for 50.65 (a)(1) goals and to specify corrective actions and implement monitoring when the functional failure was first identified, resulted in a delayed assessment of this SSC and additional failures occurred in the intervening timeframe which adversely affected the reliability of the raw water system.

The inspectors performed an initial screening of the finding in accordance with NRC IMC 0609, Appendix A, "the

Significance Determination Process (SDP) for Findings at Power.” Using IMC 0609, Appendix A, Exhibit 2, “Mitigating Systems Screening Questions,” dated July 1, 2012, this finding is of 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 at least a single train or two separate safety systems out-of-service for greater than its TS allowed outage time; and (4) does 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 for greater than 24 hours. This finding has a cross-cutting aspect in the area of Problem Identification and Resolution and the Evaluation aspect because the licensee failed appropriately evaluate the preventive maintenance for HCV-2875A to demonstrate SSC performance and failed to correctly evaluate a functional failure against system performance criteria to ensure system goals, corrective actions, and monitoring were identified.

Inspection Report# : [2014005](#) (*pdf*)

**W**  
**Significance:** Oct 16, 2014

Identified By: NRC

Item Type: VIO Violation

### **Failure to Correctly Translate Design Requirements into Installed Plant Configuration**

The team identified a violation of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” associated with the licensee’s failure to assure that applicable regulatory requirements and the design bases, as defined in 10 CFR 50.2 and as specified in the license application, for those structure, systems and components to which this appendix applies, were correctly translated into specifications, drawings, procedures, and instructions. Specifically, from initial construction through October 2013, the licensee failed to fully incorporate applicable design requirements for components needed to ensure the capability to shut down the reactor and maintain it in a safe shutdown condition following a high energy line break. The licensee addressed this deficiency by reconstituting the design analysis associated with the high energy line break and environmental qualification programs, receiving a change to the facilities licensing basis, and implementing plant modifications. This issue was entered into the licensee’s corrective action program as Condition Report CR 2013-2857.

The failure to ensure that design requirements were correctly translated into installed plant equipment was a performance deficiency. This performance deficiency was more than minor, and therefore a finding, because it is associated with the equipment performance attribute of the Mitigating Systems Cornerstone and affected the associated objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the licensee’s failure to translate the design requirements into installed plant equipment resulted in a condition where structures, systems, and components necessary to mitigate the effects of a high energy line break may not have functioned as required. The team evaluated the finding using Inspection Manual Chapter (IMC) 0609, Appendix A, “The Significance Determination Process (SDP) for Findings At-Power,” dated June 19, 2012, and determined that this finding required a detailed risk evaluation because it was a deficiency affecting the design and qualification of a mitigating structure, system, or component that resulted in a loss of operability or functionality and represented a loss of system and/or function.

The Region IV senior reactor analyst performed a detailed risk evaluation in accordance with Appendix A, Section 6.0, “Detailed Risk Evaluation.” The detailed risk evaluation concluded the finding was best characterized as having low to moderate safety significance (White). The minimum calculated change in core damage frequency of  $4.1 \times 10^{-6}$  was dominated by a reactor coolant pump seal cooler loss of coolant accident followed by the failure of four containment isolation valves that were not properly qualified for a harsh environment. The upper bound was shown quantitatively and/or qualitatively to be less than  $1.0 \times 10^{-5}$ . The analyst determined that the finding did not affect the external events initiator risk and would not involve a significant increase in the risk of a large early release of radiation.

The team determined that this finding does not have a cross-cutting aspect because the most significant contributor of this finding would have occurred more than three years ago, and therefore, does not reflect current licensee performance.

Inspection Report# : [2013018](#) (pdf)

**Significance:**  Oct 16, 2014

Identified By: NRC

Item Type: NCV Non-Cited Violation

#### **Use of Non-conservative Values in Design Analyses**

The team identified two examples of a non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” associated with non-conservative errors identified in station calculations. Specifically, the licensee failed to use the yield strength for the most limiting type steel installed in the facility when evaluating changes to the chemical and volume control system, and failed to ensure that the acceptance criteria used for seismic anchors and supports verified that they were within the design requirements. The licensee performed an operability determination for the affected areas that established a reasonable expectation for operability pending final resolution of the problems. This issue was entered into the licensee’s corrective action program as Condition Report CR 2013-2857.

The use of non-conservative values in station design analyses is a performance deficiency. This performance deficiency was more than minor, and therefore a finding, because it is associated with the design control attribute of the Mitigating Systems Cornerstone and affected the associated objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the licensee’s use of non-conservative yield strength to analyze the pipe break loads during a high energy line break resulted in a condition where structures, systems, and components necessary to mitigate the effects of a high energy pipe break may not have functioned as required. Additionally, the failure to use appropriate acceptance criteria resulted in a condition where structures, systems and components may not have functioned as designed during a seismic event. Using Inspection Manual Chapter 0609, Appendix A, “The Significance Determination Process (SDP) for Findings At-Power,” Exhibit 2, “Mitigating Systems Screening Questions,” dated July 1, 2012, the inspectors 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 allowed outage time, or two separate safety systems out-of-service for longer than their technical specification allowed outage time; and (4) does not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant for greater than 24 hours in accordance with the licensee’s maintenance rule program. The finding has a cross-cutting aspect in the area of human performance associated with the resources component because the licensee failed to maintain long term plant safety by maintenance of design margins. Specifically, Calculation FC 07885 failed to use the most limiting yield strength when determining potential pipe break loads which resulted in a reduction of design margin.

Inspection Report# : [2013018](#) (pdf)

**Significance:**  Oct 16, 2014

Identified By: NRC

Item Type: NCV Non-Cited Violation

#### **Failure to Furnish Evidence of Activities Affecting Quality**

The team identified three examples of a non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVII, “Quality Assurance Records,” associated with the licensee’s failure to furnish evidence of an activity affecting quality. Specifically, the licensee failed to maintain records demonstrating that: the temperature limits for structural concrete in the Auxiliary building would not be exceeded during a high energy line break event, that the predicted flood level in Room 81 during a high energy line break event would not affect required equipment, and that electrical splices inside of the containment were installed in accordance with the plant and the vendor installation instructions. The licensee performed an operability determination for the deficiencies that established a reasonable expectation for operability pending final resolution of the problems. The licensee entered these deficiencies into their corrective action program for resolution as Condition Reports CR 2013-22556, and CR 2013-12359.

The licensee's failure to furnish evidence of completing analyses or maintaining records for the flood level in Room 81 during a high energy line break event, the structural concrete temperatures in the Auxiliary building, and electrical splice installations, is a performance deficiency. This performance deficiency was determined to be more than minor, and therefore a finding, because it was associated with the design control attribute of the Mitigating Systems Cornerstone, and affected the associated cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using Inspection Manual Chapter 0609, Appendix A, "Initial Screening and Characterization of Findings," dated July 1, 2012, the inspectors 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) does not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant for greater than 24 hours in accordance with the licensee's maintenance rule program. The team determined that this finding does not have a cross-cutting aspect because the most significant contributor of this finding would have occurred more than three years ago, and therefore, does not reflect current licensee performance.

Inspection Report# : [2013018](#) (*pdf*)

**Significance:**  Oct 16, 2014

Identified By: NRC

Item Type: NCV Non-Cited Violation

#### **Failure to Promptly Identify and Correct Inadequate Internal Flooding Analysis**

The team identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Actions," associated with the licensee's failure to adequately evaluate and take prompt corrective actions to address an identified condition adverse to quality related to the internal flooding analysis for Room 81 of the Auxiliary building. Specifically, the team could not locate the analyses for water level in Room 81 following a high energy line break in the room. This deficiency had previously been identified by the licensee and entered into its corrective action program, however, it was improperly closed without completing the analysis. The licensee performed operability assessments for the affected areas that established a reasonable expectation for operability pending final resolution of the problems. The licensee entered this deficiency into their corrective action program for resolution as Condition Report CR 2013-11831.

The licensee's failure to adequately evaluate and take prompt corrective actions to address an identified condition adverse to quality related to the internal flooding analysis for Room 81 was a performance deficiency. The 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 affected the associated objective to ensure availability, reliability, and capability of systems that responds to initiating events to prevent undesirable consequences. Specifically, the licensee failed to take prompt corrective actions to address an identified condition adverse to quality related to the internal flooding analysis for Room 81 of the Auxiliary building. Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," Exhibit 2, "Mitigating Systems Screening Questions," dated July 1, 2012, inspectors 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 allowed outage time, or two separate safety systems out-of-service for longer than their technical specification allowed outage time; and (4) does not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant for greater than 24 hours in accordance with the licensee's maintenance rule program. The finding has a cross-cutting aspect in the area of problem identification and resolution associated with the corrective action program component because the licensee failed to thoroughly evaluate problems such that the resolutions address the causes.

Inspection Report# : [2013018](#) (*pdf*)

**Significance:** G Oct 16, 2014

Identified By: NRC

Item Type: NCV Non-Cited Violation

#### **Use of Non-Conservative Inputs in Thermal Lag Analyses**

The team identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” involving the failure to use conservative inputs. Specifically, the licensee failed to verify that all inputs used in the thermal lag analysis for the environmental qualification program were representative of the most limiting condition. The licensee performed an operability determination for the affected areas that established a reasonable expectation for operability pending resolution of the problems. The licensee entered this deficiency into their corrective action program for resolution as Condition Report CR 2013-14504, and CR 2013-14168.

The failure to verify that all inputs used in the thermal lag analysis for the environmental qualification program were representative of the most limiting condition was a performance deficiency. The 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 affected the associated objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the performance deficiency called into question the availability and reliability of components required to mitigate the effects of a high energy line break. Using Inspection Manual Chapter 0609, Appendix A, “The Significance Determination Process (SDP) for Findings At-Power,” Exhibit 2, “Mitigating Systems Screening Questions,” dated July 1, 2012, inspectors 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 allowed outage time, or two separate safety systems out-of-service for longer than their technical specification allowed outage time; and (4) does not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant for greater than 24 hours in accordance with the licensee’s maintenance rule program. The team determined this finding has a cross-cutting aspect in the area of human performance associated with the decision-making component involving the failure to use conservative assumptions in decision-making and adopt a requirement to demonstrate that the proposed action is safe in order to proceed rather than a requirement to demonstrate it is unsafe in order to disapprove the action.

Inspection Report# : [2013018](#) (*pdf*)

**Significance:** G Oct 16, 2014

Identified By: NRC

Item Type: NCV Non-Cited Violation

#### **Failure to Recognize Adverse Design Changes**

The team identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” associated with the licensee’s failure to maintain design control of the auxiliary feedwater system. Specifically, the licensee implemented a modification to the facility that placed vent holes in the steam supply line guard piping for the steam driven auxiliary feedwater pump which were located below the evaluated flood height in Room 81 and potentially rendered the pump inoperable. The licensee implemented a facility modification to protect the vent holes from water intrusion. The licensee entered this deficiency into their corrective action program for resolution as Condition Reports CR 2013-18308 and CR 2013-18605.

The failure to ensure that design requirements were correctly translated into installed plant equipment was a performance deficiency. The 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 affected the associated objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the licensee’s failure to translate the design requirements into installed plant equipment resulted in a condition where the steam driven auxiliary feedwater pump may not have been able to perform its specified safety function. The team evaluated the finding using Inspection Manual Chapter (IMC) 0609, Appendix A, “The Significance Determination Process (SDP) for Findings at Power,” dated June 19, 2012, and

determined that this finding required a detailed risk evaluation because the turbine driven auxiliary feedwater pump was inoperable for longer than the technical specification allowed outage time. A regional senior reactor analyst performed a detailed risk evaluation and determined this finding to be of very low safety significance (Green) because the bounding change to the core damage frequency was approximately  $1.2E-9$ /year. The dominant core damage sequences included feedwater and main steam line breaks with the consequential failure of the turbine driven auxiliary feedwater pump combined with other random failures of Train A and B equipment trains. Equipment that helped mitigate the risk included the diesel driven and motor-driven auxiliary feedwater pumps, which remained functional for the vast majority of sequences. This finding has a cross-cutting aspect in the area of human performance associated with the decision-making component because the licensee failed to use conservative assumptions in decision-making and adopt a requirement to demonstrate that the proposed action is safe in order to proceed rather than a requirement to demonstrate it is unsafe in order to disapprove the action.

Inspection Report# : [2013018](#) (*pdf*)

**Significance:**  Oct 16, 2014

Identified By: NRC

Item Type: NCV Non-Cited Violation

#### **Failure to Maintain Design Control of the Auxiliary Feedwater System**

The team identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," associated with the licensee's failure to maintain design control of the auxiliary feedwater system. Specifically, the licensee implemented a modification to the facility that involved the installation of flood barriers surrounding the guard pipes and portions of the steam driven auxiliary feedwater pump steam supply lines that are below the evaluated flood height in Room 81. This modification would have acted like a catch basin and potentially caused the steam driven auxiliary feedwater pump (FW-10) to be inoperable during a high energy line break event. The licensee implemented a facility modification to protect the steam supply piping and vent holes from water intrusion. The licensee entered this deficiency into their corrective action program for resolution as Condition Report CR 2013-22770.

The failure to maintain design control of the auxiliary feedwater system was a performance deficiency. The 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 affected the associated objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the flood barrier installed only protected the FW-10 steam supply from flood waters rising from the floor; however, this water is postulated from a high energy line break, which would both spill onto the floor and spray into Room 81 without regard for direction. This resulted in a condition where the steam driven auxiliary feedwater pump may not have been able to perform its specified safety function. The team evaluated the finding using Inspection Manual Chapter (IMC) 0609, Appendix A, "The Significance Determination Process (SDP) for Findings at Power," dated June 19, 2012, and determined that this finding required a detailed risk evaluation because the turbine driven auxiliary feedwater pump was inoperable for longer than the technical specification allowed outage time. A regional senior reactor analyst performed a detailed risk evaluation and determined that the finding was of very low safety significance (Green) because the bounding change to the core damage frequency was approximately  $1.2E-9$ /year. The dominant core damage sequences included feedwater and main steam line breaks with the consequential failure of the turbine driven auxiliary feedwater pump combined with other random failures of Train A and B equipment trains. Equipment that helped mitigate the risk included the diesel driven and motor-driven auxiliary feedwater pumps, which remained functional for the vast majority of sequences. The finding was determined to have a cross-cutting aspect in the area of problem identification and resolution associated with the corrective action component because the licensee did not take appropriate corrective actions to address safety issues, in that, an additional modification was required to protect the FW-10 steam supply from the effects of a high energy line crack or break.

Inspection Report# : [2013018](#) (*pdf*)

**Significance:**  Sep 12, 2014

Identified By: NRC

Item Type: VIO Violation

### **Failure to Ensure Safe Operations at Design Basis Low River Level**

A cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," was identified involving the failure to ensure that the safety-related raw water pumps are available for safe plant operations down to the design basis low river level. Specifically, station analysis and abnormal operating procedures would not allow operation of the raw water pumps to the design basis low river water level. The licensee entered this issue into its corrective action program as Condition Report 2014-09159 which included actions to reevaluate the capability of the raw water pumps to operate at low river levels.

This finding was more than minor, and therefore a finding, because it was associated with the design control attribute of the Mitigating Systems Cornerstone and affected the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The NRC performed an initial screening of the finding in accordance with NRC Manual Chapter IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Using IMC 0609, Appendix A, Exhibit 2, Mitigating Systems Screening Questions," dated July 1, 2012, the finding was 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. This finding has a cross-cutting aspect in the area of human performance in that the licensee did not ensure that personnel, equipment, procedures and other resources are available and adequate to support nuclear safety. Specifically, the licensee deferred funding for a vendor analysis of the capabilities of the raw water pumps at the design low river level.

Inspection Report# : [2014009](#) (*pdf*)

**Significance:**  Sep 12, 2014

Identified By: NRC

Item Type: VIO Violation

### **Failure to Account for Worst Case Diesel Frequency in Fuel Oil Consumption Calculations**

A cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," was identified involving the failure to account for design basis conditions in station calculations. Specifically, the licensee failed to account for worst-case electrical frequency when analyzing diesel fuel oil consumption and storage requirements. The licensee entered this issue into its corrective action program as Condition Report 2014-09157 and initiated action to update station calculations.

This performance deficiency was more than minor, and therefore a finding, because it affected the design control attribute of the Mitigating Systems Cornerstone objective to ensure the availability, reliability, and capability of components that respond to initiating events. The NRC performed an initial screening of the finding in accordance with NRC Manual Chapter IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Using IMC 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," dated July 1, 2012, the finding is of very low safety significance (Green) because: (1) the finding was not a deficiency affecting the design or qualification of a mitigating system; (2) the finding did not represent a loss of system and/or function; (3) the finding did not represent an actual loss of function of a single train for greater than its technical specification allowed outage time; and (4) the finding does 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 for greater than 24 hours. This finding has a cross-cutting aspect in the area of problem identification and resolution in that the licensee failed to thoroughly evaluate issues to ensure that resolutions address causes and extent of conditions

commensurate with their safety significance.  
Inspection Report# : [2014009](#) (*pdf*)

**Significance:** N/A Mar 01, 2013

Identified By: NRC

Item Type: VIO Violation

**Continued Failure to Classify Intake Structure Sluice Gates as Safety Class 3**

The inspectors identified a cited violation of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” for licensee’s failure to classify the six intake structure exterior sluice gates and their motor operators as Safety Class 3 as defined in the Updated Safety Analysis Report, Appendix N. This violation was first presented in Inspection Report 05000285/2012002 and the licensee has remained in non-compliance.

The inspectors determined that the continued failure to classify the intake structure exterior sluice gates and their motor operators as Safety Class 3 was a performance deficiency. This finding was more than minor because it adversely impacted the protection against external events attribute of the Mitigating Systems Cornerstone objective of ensuring the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. The significance of this finding is bounded by the significance of a related Yellow finding regarding the ability to mitigate an external flooding event (Inspection Report 05000285/2010008). This finding has a cross-cutting aspect in the area of problem identification and resolution, corrective action program, for failure to thoroughly evaluate problems such that the resolutions address causes and extent of conditions. This also includes conducting effectiveness reviews of corrective actions to ensure that the problems are resolved [P.1(c)]

Inspection Report# : [2013011](#) (*pdf*)

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## Barrier Integrity

**Significance:**  Jun 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Perform a Valid 40-Month Inservice Test**

The inspectors identified a non-cited violation of 10 CFR 50.55a(g)(4) for the failure to perform a valid 40-month inservice test of the spent fuel pool cooling system. Specifically, the licensee failed to identify an existing through-wall leak on discharge header vent valve AC-898 that invalidated the test. The licensee replaced vent valve AC-898 and repaired the affected weld in April 2015. This issue was entered into the licensee’s corrective action program as Condition Report 2015-05038.

The failure to perform a valid 40-month inservice test of the spent fuel pool cooling system was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because it adversely affected the design control attribute of the Barrier Integrity Cornerstone and affected the cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. In accordance with Inspection Manual Chapter 0609, Appendix A, “The Significance Determination Process (SDP) for Findings At Power,” Exhibit 3, “Barrier Integrity Screening Questions,” the issue screened as having very low safety significance (Green) because the finding did not adversely affect decay heat removal capabilities from the spent fuel pool causing the pool temperature to exceed the maximum analyzed temperature limit specified in the site specific licensing basis, did not result from fuel handling errors, dropped fuel assembly, dropped storage cask, or crane operations over the SFP that caused mechanical damage to fuel clad and a detectable release of radionuclides, did not result in a loss of spent fuel pool water inventory decreasing below the minimum analyzed level limit specified in the site specific licensing basis, and did not affect the SFP neutron absorber, fuel bundle misplacement or soluble boron concentration. The inspectors determined that the finding had a conservative bias cross-cutting aspect in the

area of human performance because individuals failed to use decision making-practices that emphasized prudent choices over those that are simply allowable. Although the licensee had previously identified the leak in valve AC-898 and determined that the leak had compromised the structural integrity of the system, the licensee failed to fix the leak. Inspection Report# : [2015002](#) (*pdf*)

**Significance:**  Jun 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Promptly Identify and Correct a Condition Adverse to Quality Involving a Spent Fuel Pool Cooling Vent Valve Leak**

The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, “Corrective Actions,” for the failure to promptly identify and correct a condition adverse to quality. Specifically, the licensee failed to take corrective action to replace spent fuel pool cooling system discharge header vent valve AC-898 after a leak was identified. A work order for the condition was opened in 2009 but was never implemented. Subsequently, a pressure boundary leak was identified in 2013 and misidentified in 2014 but was never addressed. The licensee replaced vent valve AC-898 and repaired the affected weld in April 2015. This issue was entered into the licensee’s corrective action program as Condition Report 2015-05038.

The failure to promptly identify and correct a condition adverse to quality was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because it adversely affected the design control attribute of the Barrier Integrity Cornerstone and affected the cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. In accordance with Inspection Manual Chapter 0609, Appendix A, “The Significance Determination Process (SDP) for Findings At Power,” Exhibit 3, “Barrier Integrity Screening Questions,” the issue screened as having very low safety significance (Green) because the finding did not adversely affect decay heat removal capabilities from the spent fuel pool causing the pool temperature to exceed the maximum analyzed temperature limit specified in the site-specific licensing basis, did not result from fuel handling errors, dropped fuel assembly, dropped storage cask, or crane operations over the SFP that caused mechanical damage to fuel clad and a detectible release of radionuclides, did not result in a loss of spent fuel pool water inventory decreasing below the minimum analyzed level limit specified in the site-specific licensing basis, and did not affect the SFP neutron absorber, fuel bundle misplacement or soluble boron concentration. The inspectors determined that the finding had a basis for decision cross-cutting aspect in the area of human performance because leaders failed to ensure that the bases for operational and organizational decisions were communicated during multiple instances where the leak in valve AC-898 could have been repaired.

Inspection Report# : [2015002](#) (*pdf*)

**Significance:**  Jun 30, 2015

Identified By: NRC

Item Type: FIN Finding

**Failure to Perform Functionality Assessments for the Spent Fuel Pool Cooling System**

The inspectors identified a finding associated with the failure of operations personnel to follow procedures used to perform functionality assessments. Specifically, operations personnel failed to provide sufficient technical justification for the reasonable assurance of functionality of the spent fuel pool cooling system when boric acid leaks were identified on discharge header vent valve AC-898. Vent valve AC-898 was replaced and the issue was entered into the licensee’s corrective action program as Condition Report 2015 05856.

The failure of operations personnel to follow station procedures to perform functionality assessments was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because it adversely affected the design control attribute of the Barrier Integrity Cornerstone and affected the cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. In accordance with Inspection Manual Chapter 0609, Appendix A, “The Significance

Determination Process (SDP) for Findings At-Power,” Exhibit 3, “Barrier Integrity Screening Questions,” the issue screened as having very low safety significance (Green) because the finding did not adversely affect decay heat removal capabilities from the spent fuel pool causing the pool temperature to exceed the maximum analyzed temperature limit specified in the site specific licensing basis, did not result from fuel handling errors, dropped fuel assembly, dropped storage cask, or crane operations over the SFP that caused mechanical damage to fuel clad and a detectible release of radionuclides, did not result in a loss of spent fuel pool water inventory decreasing below the minimum analyzed level limit specified in the site-specific licensing basis, and did not affect the SFP neutron absorber, fuel bundle misplacement or soluble boron concentration. The inspectors determined that the finding had a training cross cutting aspect in the area of human performance because the licensee did not provide training and ensure knowledge transfer to maintain a knowledgeable, technically competent workforce and instill nuclear safety values.

Inspection Report# : [2015002](#) (*pdf*)

## Emergency Preparedness

**Significance:** N/A Jun 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

### **Failure to Submit Summaries of the Impact of Changes to the Emergency Plan and Implementing Procedures**

The inspector identified a non-cited violation of 10 CFR 50.54(q)(5) for the licensee’s failure to submit reports of its analysis of the impact of changes to the emergency plan and implementing procedures on the emergency plan.

Specifically, the inspector identified three examples between February 21 and June 18, 2015, of the licensee submitting changes to the emergency plan and implementing procedures without the required summaries. The issue was entered into the licensee’s corrective action program as Condition Report CR 2015-04934.

The licensee failed to submit summaries of its analysis of the effect of changes to the emergency plan and implementing procedures as required by 10 CFR 50.54(q)(5). The issue was evaluated using Section 6.6.d of the NRC Enforcement Policy because the failure to submit the required summaries affected the NRC’s ability to perform its regulatory function and was determined to be a Severity Level IV violation because the issue involved the licensee’s ability to implement a regulatory requirement not related to assessment or notification. Traditional enforcement violations are not assigned a cross-cutting aspect.

Inspection Report# : [2015002](#) (*pdf*)

**Significance:**  Dec 31, 2014

Identified By: NRC

Item Type: NCV Non-Cited Violation

### **Failure to Determine the Availability of Local Population Data for Use in Estimating Changes in the EPZ Population**

The NRC identified a Green non-cited violation for the licensee’s failure to determine the availability of 2013 state and local population data for use in estimating annual changes in the plume exposure emergency planning zone population. This finding is more than minor because the issue is associated with procedure quality and offsite Emergency Preparedness cornerstone attributes and adversely affected the Emergency Preparedness cornerstone objective. The finding was evaluated using Manual Chapter 0609, Appendix B, “Emergency Preparedness Significance Determination Process,” dated February 24, 2014, and was determined to be of very low safety significance (Green) because it was a failure to comply with NRC requirements, was not a loss of planning standard function, and was not a degraded planning standard function. The planning standard function was not degraded

because including state and local 2013 data would not have required the current emergency planning zone time estimate to be updated.

Appendix E to 10 CFR 50, Section IV.5, states, in part, that during the years between decennial censuses, nuclear power reactor licensees shall estimate emergency planning zone permanent resident population changes once a year using the most recent U.S. Census Bureau annual resident population estimate and State/local government population data, if available. Contrary to the above, Fort Calhoun Station failed in 2013 to estimate emergency planning zone permanent resident population changes using the most recent U.S. Census Bureau annual resident population estimate and State/local government population data, if available. Specifically, Fort Calhoun Station failed to determine whether State and local government population data was available prior to performing the analysis. This finding was assigned a cross-cutting aspect in the area of human performance associated with work management because the licensee failed to understand the scope of work performed by a contractor on their behalf, and failed to ensure the contractor fully complied with regulatory requirements. The issue was entered into the licensee's corrective action system as Condition Report 2014-12474.

Inspection Report# : [2014005](#) (*pdf*)

**Significance:**  Sep 12, 2014

Identified By: NRC

Item Type: VIO Violation

#### **Failure to Maintain Effectiveness of an Emergency Plan**

A cited violation of 10 CFR 50.54(q)(2), "Conditions of License," was identified involving the failure to maintain the effectiveness of the site's emergency plan. Specifically, the licensee established an "Alert" low river level emergency classification criteria that was below the raw water pump's minimum suction requirements, contrary to the standard emergency action level scheme. The licensee entered this issue into its corrective action program as Condition Report 2014-08757 which included actions to re-evaluate the capability of the raw water pumps to operate at low river levels.

This finding was more than minor, and therefore a finding, because it was associated with the emergency response organization performance attribute of the Emergency Preparedness Cornerstone and affected the associated cornerstone objective to ensure that the licensee is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. Specifically, inaccurate emergency actions levels degrade the licensee's ability to implement adequate measures to protect public health and safety. The finding was evaluated using the Emergency Preparedness Significance Determination Process, and was determined to be of very low safety significance (Green) because the finding was not a lost or degraded risk significant planning function. The planning standard function was not degraded because the emergency classifications would have been declared although potentially in a delayed manner. This finding has a cross-cutting aspect in the area of human performance in that the licensee did not ensure that personnel, equipment, procedures and other resources are available and adequate to support nuclear safety. Specifically, the licensee deferred funding for a vendor analysis of the capabilities of the raw water pumps at the design low river level.

Inspection Report# : [2014009](#) (*pdf*)

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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

**Significance:**  Mar 05, 2015

Identified By: NRC

Item Type: VIO Violation

### **Failure to Provide Complete and Accurate Information on Licensed Operator Applications**

On April 3, 2014, during performance of a self-assessment, the licensee identified a Severity Level IV violation of 10 CFR 50.9, "Completeness and Accuracy of Information," for the Fort Calhoun Station's failure to perform combustion order testing as required in American National Standards Institute Standard 3.4-1996 for physical examinations of licensed operators and as documented in NRC Form 396, "Certification of Medical Examination by Facility Licensee." Although licensed operators were subsequently tested and found to have passed the olfactory tests, this failure had regulatory significance because the incomplete and inaccurate information was provided under a signed statement to the NRC and impacted numerous licensing decisions.

The failure to maintain information required by the Commission's regulations complete and accurate in all material respects in accordance with 10 CFR 50.9 was a performance deficiency. The failure to properly perform medical examinations in accordance with ANS/ANSI 3.4-1996 as documented on NRC Form 396 was a performance deficiency and a violation of 10 CFR 50.9, "Completeness and Accuracy of Information". Traditional enforcement applied to this finding because it involved a violation that impacted the regulatory process. Assessing the violation in accordance with the Enforcement Policy, the team determined it to be of Severity Level IV because all the licensed operators subsequently passed the combustion odor testing (Enforcement Policy Example 6.4.d.1(c)). A cross-cutting aspect was not assigned as this was a traditional enforcement violation without an associated reactor oversight process finding.

Inspection Report# : [2015010](#) (*pdf*)

**Significance:** N/A Jan 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

### **Failure to Make Required Licensee Event Report**

The team identified a Severity Level IV non-cited violation of 10 CFR 50.73(a)(2)(v)(B) for the failure to make a licensee event report to the NRC. Specifically, the licensee failed to include the loss of the auxiliary feedwater system as a safety system functional failure when reporting a condition prohibited by technical specifications on May 2, 2014. The licensee subsequently made a revision to and submitted a revised licensee event report to the NRC on January 29, 2015. The licensee entered the issue in its corrective action program as Condition Report CR 2015-010903.

The failure to submit a required report within the time requirements specified in Part 50.73(a)(2)(v)(B) is a performance deficiency. The NRC relies on licensees to identify and report conditions or events meeting the criteria specified in the regulations in order to perform its regulatory function. Using Inspection Manual Chapter 0612, the team determined that this performance deficiency was not appropriate to evaluate using the NRC's Significance Determination Process due to the finding only affecting the NRC's ability to perform its regulatory oversight function. As a result, this performance deficiency was evaluated for traditional enforcement in accordance with the NRC Enforcement Policy. This performance deficiency was determined to be a Severity Level IV violation in accordance with Sections 6.9.d.9 and 6.9.d.10 of the NRC Enforcement Policy, dated July 9, 2013. The team determined that assigning a cross-cutting aspect was not applicable to this performance deficiency due to the performance deficiency being screened exclusively using the traditional enforcement process.

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

**Significance:**  Sep 12, 2014

Identified By: NRC

Item Type: VIO Violation

#### **Failure to Perform Evaluation for Design Change**

A cited violation of 10 CFR 50.59, "Changes, Tests, and Experiments," was identified involving the failure to evaluate if a change to the facility as described in the Updated Safety Analysis Report would require prior NRC review and approval. Specifically, the licensee did not evaluate a change that would permanently substitute a manual action for an automatic action to add water and nitrogen gas to the component cooling water surge tank. The licensee entered this issue into its corrective action program as Condition Report 2014-09080 and initiated action to evaluate the change to the component cooling water system.

The NRC determined that the licensee's failure to perform an evaluation prior to implementing a proposed change described in the Updated Safety Analysis Report was a violation of 10 CFR 50.59. Because this performance deficiency had the potential to impact the NRC's ability to perform its regulatory function, the NRC evaluated the performance deficiency using traditional enforcement. In accordance with Section 2.1.3.E.6 of the NRC Enforcement Manual, the team evaluated this finding using the significance determination process to assess its significance. The NRC performed an initial screening of the finding in accordance with NRC Manual Chapter IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Using IMC 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," dated July 1, 2012, the finding was 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. Therefore, in accordance with Section 6.1.d.2 of the NRC Enforcement Policy this performance deficiency is being characterized as a Severity Level IV violation. The team determined that a cross-cutting aspect was not applicable to this finding because the issue was strictly associated with a traditional enforcement violation.

Inspection Report# : [2014009](#) (pdf)

**Significance:** N/A Sep 30, 2012

Identified By: NRC

Item Type: VIO Violation

#### **Failure to Update the Updated Safety Analysis Report- Solid Waste**

The inspectors identified a cited violation of 10 CFR 50.71(e), "Maintenance of Records, Making of Reports," for the failure to update the Updated Safety Analysis Report with a detailed description of the Original Steam Generator Storage Facility. Specifically, since December 2006, the licensee stored a significant source of radioactivity in the Original Steam Generator Storage Facility, but failed to describe the volume of waste, the principal sources of

radioactivity, the total quantity of radioactivity, and the estimated dose rate at the site boundary per curie of radioactivity in the Updated Safety Analysis Report. The licensee has entered this violation into their corrective action program as Condition Report 2012-05725.

This issue was evaluated using traditional enforcement because it has the potential to impact the NRC's ability to perform its regulatory function. This issue is being characterized as a Severity Level IV violation in accordance with Section 6.1.d.3 of the NRC Enforcement Policy. Cross-cutting aspects are not assigned to traditional enforcement violations

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