

Sequoyah 1

4Q/2013 Plant Inspection Findings

Initiating Events

Significance: G Aug 09, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Evaluate a Potential Condition Adverse to Quality Prior to Mode Change

The team identified a non-cited violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the licensee's failure to follow a test control procedure to evaluate indications of excessive check valve leakage prior to changing modes. Specifically, the licensee failed to evaluate the potential inoperability of residual heat removal check valve 2-63-563, which exhibited indications of excessive leakage, as required by procedure NPG-SPP-06.9.1, "Conduct of Testing," prior to transitioning to Mode 3, during startup. This was a performance deficiency. After conducting interviews with operations staff and performing a prompt determination of operability, the licensee concluded that the valve was never inoperable, since the valve subsequently passed its leak rate test in Mode 3 with no maintenance being performed. The operability determination was documented in PER 757559.

This performance deficiency was determined to be more than minor because it affected the Human Performance attribute of the Initiating Events cornerstone and adversely affected the cornerstone objective of limiting the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, failing to evaluate indications of excessive check valve leakage while performing procedure 2-SISXV-063-206.0, "ECCS Check Valve Leak Testing" section 6.3.2, adversely affected the cornerstone objective of limiting the likelihood of events that challenge the critical safety function of maintaining the RCS pressure boundary. The team used Inspection Manual Chapter 0609, "Significance Determination Process," Attachment 4, "Initial Characterization of Findings," and Appendix A, "The Significance Determination Process for Findings At-Power," and determined that the finding was of very low safety significance (Green) because the finding would not have affected other systems used to mitigate a LOCA resulting in a total loss of their functions. The team determined that this finding represented present licensee performance and directly involved the cross-cutting area of Human Performance, component of Decision-Making because the licensee did not use conservative assumptions in their decision making when they failed to evaluate the potential inoperability of check valve 2-63-563 prior to transitioning to Mode 3. [H.1(b)]

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

Mitigating Systems

Significance: G Nov 22, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Adequately Translate Design Basis into Procedure Acceptance Criteria Time to Perform Operator Action.

The team identified a non-cited violation of 10 CFR 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to correctly translate design basis requirements into emergency sub-procedure, ES-1.3, "Transfer to

Residual Heat Removal Containment Sump,” Revision 19. Specifically, the time allotted for operators to perform time critical actions to swap emergency core cooling system (ECCS) pump suction from the refueling water storage tank (RWST) to the containment sump during a small break loss of coolant accident (SBLOCA) did not properly account for full range of instrument uncertainties (instrument, instrument calibration, instrument loop uncertainties, etc...) and the accident analysis design basis requirement in Updated Final Safety Analysis Report 15.3.1, to ensure the recovery of the core was demonstrated and to ensure continuous operation of the ECCS. This was a performance deficiency. As immediate corrective action, the licensee performed an operability review and documented the results in the corrective action program as problem evaluation reports 760336 and 758761. The licensee concluded that there were no current operability concerns, and created Standing Order SO-13-025 to reinforce operator time performance requirements.

This finding was not assigned a cross-cutting aspect because the underlying cause was not indicative of present licensee performance.

Inspection Report# : [2013014](#) (*pdf*)

Significance:  Aug 09, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Evaluate Impact for Full Range of EDG Frequency

The team identified a non-cited violation of 10 CFR 50, Appendix B, Criterion III, “Design Control,” for the licensee’s failure to translate the entire range of allowable emergency diesel generator (EDG) frequencies into design basis documents. The failure to analyze the effects of the technical specification allowable EDG frequency range on the safety-related components powered by the EDGs was a performance deficiency. The licensee entered this issue in their corrective action program as PER 758761 and performed a prompt operability evaluation to determine that the safety-related equipment powered by the EDGs with a limited frequency range variation of 59.9 to 60.1 Hz, would be able to perform their design basis functions under accident conditions. In addition, a review of the results of the EDGs’ surveillances indicates no history of being outside the range of 59.9 to 60.1 Hz for the last three years.

The performance deficiency was determined to be more than minor because it affected the Design Control attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of safety systems that respond to initiating events to prevent undesirable consequences. Specifically, failure to account for the allowable range of the EDG frequency and not evaluating the impact on safety-related components powered by the EDGs did not ensure the availability and capability of safety-related components to respond to initiating events. The team used Inspection Manual Chapter 0609, “Significance Determination Process,” Attachment 4, “Initial Characterization of Findings,” and Appendix A, “The Significance Determination Process for Findings At-Power,” and determined that the finding was of very low safety significance (Green) because the finding was not a design deficiency resulting in the loss of functionality or operability. The team determined that this finding represented present licensee performance and directly involved the cross-cutting area of Human Performance, component of Resources because the licensee failed to ensure that design calculations affected by EDG frequency were complete and accurate. [H.2(c)]

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

Significance:  Aug 09, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Properly Translate the Design and Licensing Basis for the 125 VDC System Into Design Calculations

The team identified a non-cited violation of 10 CFR 50, Appendix B, Criterion III, “Design Control,” for the licensee’s failure to properly translate the design and licensing bases for the 125 VDC system into design calculations. The licensee inappropriately credited the battery chargers for voltage support during accident scenarios in their

voltage drop calculations, and failed to include vital inverters in the battery load profile. This was a performance deficiency. In response to the team's inquiries, the licensee initiated PER 758465 that provided reasonable expectation of operability by demonstrating that the required voltages would be available. This was based on interpolation of the vendor battery curves considering the maximum loading on the battery for the applicable portions of the duty cycle.

This performance deficiency was determined to be more than minor because it affected the Design Control attribute of the Mitigating Systems cornerstone, and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the licensee failed to properly evaluate the 125 VDC system under accident conditions to ensure the capability and availability of 125V control circuits to operate during design basis events. The team used Inspection Manual Chapter 0609, "Significance Determination Process," Attachment 4, "Initial Characterization of Findings," and Appendix A, "The Significance Determination Process for Findings At-Power," and determined that the finding was of very low safety significance (Green) because the finding was not a design deficiency resulting in the loss of functionality or operability. A cross-cutting aspect was not identified because this performance deficiency was not indicative of present licensee performance.

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

Significance:  Aug 09, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Basis for AFW MOV Motor Brake Alternate Voltage Criteria

The team identified a non-cited violation of 10 CFR 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to check the adequacy of the design of the steam generator feedwater isolation valve motor brakes. Specifically, the licensee based voltage acceptance criterion of 74% of 460V for motor brakes used in a design basis calculation on inadequate testing and calculational methods. This was a performance deficiency. In response to the team's concerns, the licensee initiated PER 763818 and provided reasonable expectation of operability of the motor brakes, by use of administratively controlled voltage, pending restoration of full qualification.

This performance deficiency was determined to be more than minor because it affected the Design Control attribute of the Mitigating Systems cornerstone, and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, inadequate design criteria did not ensure the availability, reliability, and capability of the steam generator feedwater isolation valve motor brakes to operate under design basis degraded voltage conditions. The team used Inspection Manual Chapter 0609, "Significance Determination Process," Attachment 4, "Initial Characterization of Findings," and Appendix A, "The Significance Determination Process for Findings At-Power," and determined that the finding was of very low safety significance (Green) because the finding was not a design deficiency resulting in the loss of functionality or operability. A cross-cutting aspect was not identified because this performance deficiency was not indicative of present licensee performance.

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

Significance:  Aug 09, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Document Deficiencies Discovered During Receipt Inspections in the Corrective Action program

The team identified a non-cited violation of TS 6.8.1, Procedures and Programs, the licensee's failure to properly implement maintenance procedures for performing receipt inspection of new 480V circuit breakers. Specifically, the licensee's failure to evaluate the need to report defects and deficiencies,

identified on new safety-related 480V circuit breakers, in the corrective action program as prescribed by procedure was a performance deficiency. The licensee corrected the deficiencies prior to putting the breakers in service. This issue was entered into the licensee's corrective action program as PERs 763834 and 759238.

This performance deficiency was determined to be more than minor because if left uncorrected could lead to a more significant safety concern. Specifically, not documenting deficiencies that could adversely affect the breakers in the corrective action program, would not ensure breaker issues were being properly trended and that the issues have been adequately corrected and are not recurring. The team used Inspection Manual Chapter 0609, "Significance Determination Process," Attachment 4, "Initial Characterization of Findings," and Appendix A, "The Significance Determination Process for Findings At-Power," and determined that the finding was of very low safety significance (Green) because it was not a design deficiency resulting in the loss of functionality or operability. The team determined that this finding represented present licensee performance and directly involved the cross-cutting area Human Performance, component of Work Practices because the licensee failed to meet expectations regarding procedural compliance and did not follow procedures related to 480V safety-related breaker receipt inspections. [H.4(b)]

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

Significance:  Aug 09, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Perform 50.59 Screens for Scaffolds and Clearances

The team identified a non-cited violation of TS 6.8.1, Procedures and Programs, for the licensee's failure to implement procedures for equipment and maintenance control. The licensee's failure to perform 10 CFR 50.59 reviews of temporary plant changes (e.g., scaffolding and clearances) that existed for greater than 90 days of plant operation was a performance deficiency. The licensee implemented corrective actions to review all of the temporary plant changes. The licensee generated PERs 756276, 753175, and 756308.

This performance deficiency was determined to be more than minor because it affected the Design Control attribute of the Mitigating Systems cornerstone, and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the team identified multiple examples where the licensee failed to evaluate temporary plant changes to ensure those changes did not affect the availability, reliability, and capability of systems that respond to events. The team used Inspection Manual Chapter 0609, "Significance Determination Process," Attachment 4, "Initial Characterization of Findings," and Appendix A, "The Significance Determination Process for Findings At-Power," and determined that the finding was of very low safety significance (Green) because it was not a design deficiency resulting in the loss of functionality or operability. The team determined that this finding represented present licensee performance and directly involved the cross-cutting area of Human Performance, component of Work Practices because licensee failed to meet expectations regarding procedural compliance and did not follow procedures related to performing 50.59 reviews of temporary plant changes that existed for greater than 90 days of plant operation. [H.4(b)]

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

Significance:  Aug 09, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Corrective Action for 2010 Degraded Voltage Issue

The team identified a non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to promptly identify and correct deficiencies in electrical calculations for the safety-related AC

electrical distribution system identified during the 2010 CDBI. Specifically, the licensee's failure to identify that safety-related motor operated valve (MOV) needed to be evaluated for new lower calculated available voltage (degraded voltage) to ensure their operability was a performance deficiency. The licensee initiated PER 753504 and performed a prompt determination of operability (PDO). The team concluded that the evaluations and compensatory measures described in the PDO provided reasonable expectation of operability.

The team determined that this finding represented present licensee performance and directly involved the cross-cutting area of Problem Identification and Resolution, component of Corrective Action Program because the licensee failed to identify that safety-related MOVs needed to be evaluated for new lower calculated available voltage (degraded voltage) to ensure their operability. [P.1(c)]
Inspection Report# : [2013007](#) (*pdf*)

Significance:  Mar 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate abnormal operating procedure for internal flood mitigation strategy

The inspectors identified a Green NCV of Technical Specification (TS) 6.8.1, "Procedures and Programs," for the licensee's failure to establish an adequate procedure associated with Abnormal Operating Procedure (AOP) M.08, "Internal Flooding." Specifically, internal flooding due to a fire protection header pipe break into the shutdown board rooms did not prompt entry into AOP-M.08. Failure to properly establish an adequate abnormal operating procedure (AOP) to mitigate the impact of an internal flood in the shutdown board room was a performance deficiency. Specifically, the failure to properly establish an adequate AOP to mitigate the impact of an internal flood in the shutdown board rooms, could have potentially compromised the site's ability to safely shutdown the plant in the event of a pipe leak or rupture in that area. The licensee entered this issue into the CAP as PER 639295.

The performance deficiency was determined to be 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. The inspectors performed the significance determination using NRC Inspection Manual Chapter 0609, "Significance Determination Process." Because the finding affected the Mitigating Systems Cornerstone while the plant was at power, Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings," evaluates the finding using Appendix A. Using Appendix A, Exhibit 2, Mitigating Systems Screening Questions, the finding was determined to be of very low safety significance because it was not a design or qualification issue and was confirmed not to result in a loss of operability or functionality; did not represent an actual loss of safety function of the system or train; and did not result in the loss of one or more trains of non-technical specification equipment. The finding was determined to have a cross-cutting aspect in the CAP component of the Problem Identification and Resolution area [P.1(c)] since the licensee failed to thoroughly evaluate the issues identified in PER 344249 such that the resolution addressed the cause and extent of condition. (Section 40A2.2)

Inspection Report# : [2013002](#) (*pdf*)

Significance:  Mar 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to promptly identify and correct conditions adverse to quality

The inspectors identified a Green NCV of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," associated with three examples of the licensee's failure to promptly identify and correct conditions adverse to quality. Specifically, the licensee failed to promptly correct (1) the conduit penetration seals entering the ERCW building, (2) two penetrations in the wall of the ERCW building below the probable maximum flood level that were not sealed, and

(3) two diesel generator drain lines that could not be isolated. The licensee entered the finding into the CAP as PERs 594536, 594568, 610005, and 622421.

The failure to promptly identify and correct conditions adverse to quality was a performance deficiency. The performance deficiency was determined to be more than minor because if left uncorrected, the licensee's continued failure to promptly identify and correct conditions adverse to quality could result in more risk significant equipment being inoperable for longer periods of time without the licensee realizing, and is therefore a finding. The inspectors performed the significance determination using NRC Inspection Manual Chapter 0609, "Significance Determination Process." Because the finding affected the Mitigating Systems Cornerstone while the plant was at power, Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings," evaluates the finding using Appendix A. Using Appendix A, Exhibit 2, Mitigating Systems Screening Questions, the finding was determined to have very low safety significance because the finding: (1) was not a design or qualification issue confirmed not to result in a loss of operability or functionality; (2) did not represent an actual loss of safety function of the system or train; (3) did not result in the loss of one or more trains of nontechnical specification equipment; and (4) did not involve the loss or degradation of equipment or function specifically designed to mitigate a seismic, flooding, or severe weather initiating event. In addition, this finding had a human performance cross-cutting aspect associated with decision making. Specifically, the licensee failed to use conservative assumptions in decision making regarding the timely opening of manhole 33 for physical inspection to be able to quantitatively determine the in leakage value for the degraded condition and put in place an adequate comp measure. Also, the licensee incurred excessive delay in plugging of two ERCW building holes as well as evaluation of the potential water intrusion into the EDG building during flooding events [H.1(b)]. (Section 40A2.3)

Inspection Report# : [2013002](#) (*pdf*)

Significance: **W** Feb 28, 2013

Identified By: NRC

Item Type: VIO Violation

Degraded Intake Pumping Station Flooding Barriers

The licensee failed to translate the design basis related to onsite flooding into specifications, drawings, procedures, and instructions. Specifically, Sequoyah's existing design documentation including current licensing documents and configuration controlled drawings for the ERCW Pumping Station do not contain information to identify Design Basis flood barriers to prevent water from flooding the building during a design basis flood. As a result, the ERCW pump station would not remain functional when subjected to the maximum flood level, the ERCW Intake Station would not remain dry during flood mode, and portions of the ERCW walls and penetrations would not withstand all static and dynamic forces imposed by the DBF.

Inspection Report# : [2013010](#) (*pdf*)

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

Inspection Report# : [2013013](#) (*pdf*)

Significance: **W** Feb 15, 2013

Identified By: NRC

Item Type: VIO Violation

Inadequate abnormal operating procedure for flood mitigation strategy prior to installation of HESCO barriers.

Technical Specification 6.8.1, "Procedures and Programs," requires in part that written procedures shall be established, implemented, and maintained covering the activities recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Regulatory Guide 1.33, Revision 2, Appendix A, includes "Abnormal Conditions" as a typical safety-related activity that should be covered by written procedures. Abnormal operating procedure AOP-N.03, "External Flooding," Revision 29, provides detailed instructions for implementing required site flood mitigation

strategies necessary to cope with design basis flooding events. Contrary to the above, prior to September 30, 2009, the licensee failed to establish an adequate Abnormal Condition Procedure to implement its flood mitigation strategy. Specifically, AOP-N.03, “External Flooding,” was inadequate to mitigate the effects of a Probable Maximum Flood (PMF) event, in that earthen dams located upstream of the facility could potentially overtop, causing a subsequent breach. Failure of the earthen dams during a PMF event would have resulted in onsite flooding and subsequent submergence of critical equipment, such as the Emergency Diesel Generators, resulting in an ineffective flood mitigation strategy for these PMF events.. The NRC concluded that the significance of the finding is preliminarily of low to moderate safety significance (White). The inspectors determined that no cross-cutting aspect was applicable.

Inspection Report# : [2013009](#) (*pdf*)

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

Inspection Report# : [2013013](#) (*pdf*)

Significance: N/A Feb 15, 2013

Identified By: NRC

Item Type: VIO Violation

Failure to report unanalyzed condition related to external flooding

The inspectors identified an AV of 10 CFR 50.72(b)(3)(ii)(B), “Immediate Notification Requirements for Operating Nuclear Reactors,” for failure to report within eight hours an unanalyzed condition that significantly degraded plant safety. Specifically, the licensee failed to notify the NRC upon discovery that a postulated PMF would result in the overtopping of earthen dams not previously assumed in the plant design. The failure to report this unanalyzed condition resulted in the NRC not being made aware of a condition which would have resulted in additional NRC review. Specifically, the failure to notify the NRC within eight hours of discovery of an unanalyzed condition that significantly degraded plant safety and resulted in an unacceptable change to the facility or procedures. The inspectors determined an evaluation for cross-cutting aspect was not applicable because this is a traditional enforcement violation.

Inspection Report# : [2013009](#) (*pdf*)

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

Inspection Report# : [2013013](#) (*pdf*)

Significance:  Dec 31, 2012

Identified By: NRC

Item Type: VIO Violation

Failure to adequately evaluate and qualify molded case circuit breakers

The inspectors identified a violation with several examples of 10 CFR 50, Appendix B, Criterion III, “Design Control,” for failure to implement design control measures that review for suitability of application of materials, parts, and equipment that are essential to the safety-related functions of the structures, systems, and components and that 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, including qualification testing of a prototype unit under the most adverse design conditions. The licensee entered this issue into the CAP as PER 668367.

Failure of the licensee to ensure measures used to review the suitability of application of materials, parts, and equipment essential to the safety-related functions of molded case circuit breakers, and measures to provide for the verification of checking the adequacy of design were in place was a performance deficiency. This performance deficiency was more than minor because it affected the design control attribute of the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, adequate measures were not implemented to ensure the station 120-VAC vital instrumentation boards had properly maintained their seismic qualification for their application. The inspectors assessed this finding for significance in accordance with NRC Manual Chapter 0609, Appendix A, Exhibit 2, Significance Determination Process (SDP) for Findings At-Power – Mitigating Systems Screening Questions, and

determined that it was of very low safety significance (Green) as the devices in question had been intrinsically qualified for this application as part of a complete panel test by the original vendor and the licensee determined that the SSC maintained its operability or functionality despite the identified non-conformances. The inspectors evaluated this finding and violation of NRC requirements in accordance with the NRC Enforcement Policy, Section 2.3.2, and found two conditions to not be met requiring a Notice of Violation be issued. First, inspectors found the licensee failed to restore compliance within a reasonable time after the original violation (05000327.328/2011002-01) was identified. The NRC Enforcement Manual, Section 3.1.2.A.1.b).1), further defines restoring compliance to include those actions taken to stop an ongoing violation from continuing. Second, the inspectors determined that the identified non-conformances represented a repetitive violation as a result of inadequate corrective action and that identification was by the NRC inspector. The lack of rigor in addressing the root of the prior violation which resulted in the inadequate corrective action further led the inspectors to identify a crosscutting aspect in the CAP component of the Problem Identification and Resolution area [P.1(c)]. (Section 40A2.2)

Inspection Report# : [2012005](#) (*pdf*)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Security

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

Miscellaneous

Significance: **W** Mar 08, 2013

Identified By: NRC

Item Type: AV Apparent Violation

Failure to control vehicle access into the protected area

See Inspection Report

Inspection Report# : [2013404](#) (*pdf*)

Last modified : February 24, 2014