Sequoyah 2
3Q/2013 Plant Inspection Findings

Initiating Events

Significance: G Mar 31, 2013
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Failure of ground fault relay leads to loss of RCP and reactor trip
A self-revealing Green NCV of Unit 2 Technical Specification (TS) 6.8.1, "Procedures & Programs," was noted for the licensee's failure to provide adequate procedures for maintenance and surveillance activities involving the RCP circuit breaker ground fault relay, GR-5. Specifically, the GR-5 relay continued to operate beyond its service life and ultimately failed causing a loss of a reactor coolant pump and a reactor trip on low system flow. No maintenance procedures were developed to periodically replace this relay. Failure to perform adequate preventative maintenance (e.g. periodic relay replacement) on the GR-5 relay at proper intervals was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the procedure quality attribute of the initiating event cornerstone and affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during power operations. This was self-evident as the relay failure ultimately led to a reactor trip which challenged the reactor protection system and led to a plant transient. The licensee has entered this issue into the corrective action program (CAP) as Problem Evaluation Report (PER) 596978.

The significance of this finding was evaluated in accordance with the IMC 0609 Appendix A, The SDP Process for Findings at Power. According to Exhibit 1 of this procedure, for transient indicators, since the reactor trip did NOT include a loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition, the finding screened to Green. Thus, the inspectors concluded that the finding was of very low safety significance (Green) based on the fact that the reactor trip was uncomplicated. This finding was determined to have a cross-cutting aspect in the area of human performance, the component of work control, and the aspect of work activity coordination, H.3(b), due to the failure to provide work planning activities that ensure long term equipment reliability. Specifically, the GR-5 relays were essentially treated as run-to-failure components which led to a reactor trip. (Section 4OA3)
Inspection Report# : 2013002 *(pdf)*

Mitigating Systems

Significance: G Sep 30, 2013
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to correct a condition adverse to quality
The NRC identified a Green non-cited violation (NCV) of 10CFR50 appendix B, Criterion XVI, for the licensee's failure to correct a condition adverse to quality (CAQ) per NPG-SPP-22.302, "Corrective Action Program Screening and Oversight". Specifically, in April 2013, an NRC inspector identified that a lack of a vent hole in the 2B RHR pump room flood switch housing was a deficiency previously identified in June 2005 that was not corrected for a period of over seven years. The licensee took immediate corrective action to install the required vent hole. The

licensee entered the finding into their corrective action program (CAP) as PER 739142.

This finding was determined to be greater than minor because it was associated with the Design Control attribute of Mitigating Systems cornerstone and adversely affected the cornerstone's 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 finding reduced the reliability and capability of the 2B RHR pump room flood switch to perform its safety function as designed. Using IMC 0609.04, Initial Characterization of Findings and IMC 0609 Appendix A, Exhibit 4 – External Events Screening Questions, the finding screened as very low safety significance (Green) because the finding did not involve the total loss of any safety function, identified by the licensee through a PRA, IPEEE, or similar analysis, that contributes to external event initiated core damage accident sequences. The cause of this finding was determined to have a cross-cutting aspect in the Problem Identification and Resolution area, Corrective Action component, and the aspect of taking appropriate corrective actions in a timely manner because corrective actions were not implemented after over seven years from discovery of the CAQ. [P.1(d)] (Section 4OA5.2).

Inspection Report# : 2013004 *(pdf)*

Significance: G 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 4OA2.2)

Inspection Report# : 2013002 *(pdf)*

Significance: G 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 4OA2.3)

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)*

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)*

Significance: N/A Feb 15, 2013
Identified By: NRC
Item Type: VIO Violation
Failire 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)*

Significance: G Dec 31, 2012
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to implement freeze protection program requirements
A NRC-identified Green non-cited violation (NCV) of Unit 1 and 2 Technical Specification 6.8.1.a for the licensee’s failure to follow station procedures to adequately implement freeze protection requirements. Specifically, inspectors found a number of requirements improperly executed with no specific follow-up of those requirements contained within periodic instructions used to verify program implementation. The licensee placed the issue into the CAP and corrected the identified deficiencies.

The inspectors determined that the failure to adequately implement all requirements of the licensee’s freeze protection program procedures was a performance deficiency. The inspectors determined that the performance deficiency was more than minor because it was associated with the Mitigating System Cornerstone attribute of Protection against External Factors and adversely affected the cornerstone objective in that specific measures required for freeze protection were not properly implemented and station procedures did not maintain those expected conditions. The inspectors determined the finding was of very low safety significance (Green) as the site had not experienced significant freeze conditions yet this season. The cause of this finding was related to the cross-cutting aspect of ensuring personnel training is adequate to assure nuclear safety [H.2(b)] (Section 1R01)

Inspection Report# : 2012005 *(pdf)*

Significance: G Dec 31, 2012
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to implement fire protection impairment requirements
The inspectors identified a Green noncited violation of Units 1 & 2 Technical Specification 6.8.1.f for the licensee's failure to implement procedures required for fire protection program implementation. The inspectors found multiple examples of where fire watches were not conducted in accordance with procedure NPG-SPP-18.4.6, Control of Fire Protection Impairments, Revision 1, when required. The licensee entered this issue into the CAP program as PERs 635934 and 635934.
Failure of the licensee to implement the requirements of procedure NPG-SPP-18.4.6, Control of Fire Protection Impairments, Revision 1, was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the protection against external events (fire) attribute of the mitigating systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to perform compensatory measures (fire watches), could have potentially compromised the ability to safely shutdown the plant in the event of a fire in any of the fire zones where the fire watches were required. The significance of this finding was evaluated in accordance with the IMC 0609 Attachment 4, Phase 1- Initial Screening and Characterization of Findings, which required further evaluation in accordance with Appendix F, Attachment 01, Part 1, Fire Protection SDP Phase 1 Worksheet. The finding was assigned to the fire prevention and administrative controls category and represented a low degradation level. The inspectors concluded that the finding was of very low safety significance (Green) based on a qualitative screening and the low degradation rating. The finding was determined to have a cross-cutting aspect in the Work Practices component of the Human Performance cross-cutting area [H.4(c)] since the licensee failed to ensure that there was adequate supervisory and management oversight of fire watches. (Section 1R05).

Inspection Report# : 2012005 *(pdf)*

Significance: G Dec 31, 2012
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to establish adequate procedures for fire protection impairment requirements
The inspectors identified a Green noncited violation of Units 1 & 2 Technical Specification 6.8.1.f for the licensee's failure to establish adequate procedures required for fire protection program implementation. Specifically, NPG-SPP-18.4.6, Control of Fire Protection, Revision 1 Impairments was determined to be inadequate because it did not provide any guidance on what a fire watch was supposed to do when they came to a protected door. The licensee entered this issue into the CAP program as PER 652672.

Failure of the licensee to establish adequate procedures required for fire protection program implementation was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the protection against external events (fire) attribute of the mitigating systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to establish adequate procedures required for fire protection program implementation caused compensatory measures (fire watches) to not be adequately completed and could have potentially compromised the ability to safely shutdown the plant in the event of a fire in any of the fire zones where the fire watches were required. The significance of this finding was evaluated in accordance with the IMC 0609 Attachment 4, Phase 1- Initial Screening and Characterization of Findings, which required further evaluation in accordance with Appendix F, Attachment 01, Part 1, Fire Protection SDP Phase 1 Worksheet. The

finding was assigned to the fire prevention and administrative controls category and represented a low degradation level. The inspectors concluded that the finding was of very low safety significance (Green) based on a qualitative screening and the low degradation rating. The finding was determined to have a cross-cutting aspect in the

Work Practices component of the Human Performance cross-cutting area [H.2(c)] for failure to provide adequate procedures for individuals conducting fire watches. (Section 1R05).

Inspection Report# : 2012005 *(pdf)*

Significance: G 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 4OA2.2)

Inspection Report# : 2012005 *(pdf)*

Barrier Integrity

Significance: G Dec 31, 2012
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to perform ISI general visual examinations of containment moisture barrier associated with containment liner leak chase test connection threaded pipe plugs
The inspectors identified a Green NCV of 10 CFR Part 50.55a, "Codes and Standards," involving the licensee's failure to properly apply Subsection IWE of ASME Section XI for conducting general visual examinations of the metal-to-metal pipe plugs installed in the containment liner channel weld leak chase test connections that provide a moisture barrier to the containment liner seam welds. Following the inspectors' identification of this issue, the licensee conducted the visual examinations on all eight of the leak chase test connection upper cavities. These visual examinations revealed significant corrosion of the upper cavities, including one through-wall hole in the tubing leading down to the leak chase channels. Upon further inspection of the channels using a boroscope, the licensee noted water in the channels and corresponding corrosion. No through-wall condition was noted in any leak chase channel, and corrosion was limited to a very small percentage of the liner plate thickness. The licensee adequately evaluated the deficiencies prior to entering Mode 4 (Hot Shutdown) to ensure the integrity of containment was maintained. The issue was entered into the licensee's CAP as problem evaluation report (PER) 636215.

The failure to conduct a general visual examination of 100 percent of the moisture barriers intended to prevent intrusion of moisture against inaccessible areas of the containment liner at metal-to-metal interfaces which are not seal welded, was a performance deficiency that was within the licensee's ability to foresee and correct. This finding was of more than minor significance because the failure to conduct required visual examinations and identify the degraded moisture barriers which allowed the intrusion of water into the liner leak chase channel, if left uncorrected, would have resulted in more significant corrosion degradation of the containment liner or associated liner welds. The finding was associated with the design control attribute of the Barrier Integrity Cornerstone and affected the cornerstone objective of providing reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Specifically, visual examinations of the containment metal liner provide assurance that the liner remains capable of performing its intended safety function. The inspectors used IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," and determined that the finding was of low safety significance (Green) because it did not represent an actual open pathway in the physical integrity of the reactor containment.

The inspectors identified a cross-cutting aspect in the Operating Experience component of the CAP cross-cutting area (P.2(b)). Specifically, the licensee failed to apply available Operating Experience from four other relevant industry issues to assure plant performance. (Section 1R08)

Inspection Report# : 2012005 *(pdf)*

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: VIO Violation
Failure to control vehicle access into the protected area
See Inspection Report
Inspection Report# : 2013404 *(pdf)*

Last modified : December 03, 2013