

Sequoyah 1

3Q/2016 Plant Inspection Findings

Initiating Events

Significance: G Jul 15, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Maintain Design Control of MSIV Controls

A self-revealing Green non-cited violation of Title 10 of the Code of Federal Regulations (10 CFR) 50, Appendix B, Criterion III, "Design Control", was identified for the licensee's failure to maintain design control of MSIV 1-FCV-1-22 controls.

Specifically, inadequate design controls led to under tightened electrical connection following replacement of the Unit 1 MSIV Control Room handswitch (1-HS-1-22A).

On November 23, 2015, a manual reactor trip was initiated by operators as a result of a slowly closing loop # 3 main steam isolation valve. The event was reported to the NRC as event notification (EN) 51559, and documented in the licensee's CAP as CR 1107656. The licensee's root cause into the event identified the Unit 1 MSIV Control Room handswitch (1-HS-1-22A) having a loose connection (terminal lug and nut assembly - terminal E, wire 1B6) located in Panel 1-M-4 as the direct causes of 1-FCV-1-22A drifting shut and the manual reactor trip. In 1994, SQN electric shop technicians completed replacement of the MSIV 1-22 handswitch (1-HS-1-22A) under Work Order (WO) 93-000869-000. Review of WO 93-000896-000 identified work planning and work steps were consistent with 1994 methodologies and requirements in that it provided references for fastener tightness.

Inspection Report# : [2016008](#) (*pdf*)

Significance: G Mar 31, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Inadvertent Safety Injection Due to Inadequate Main Steam Procedure

A self-revealing NCV of Units 1 & 2 Technical Specification, 5.4.1 was documented for the licensee's failure to implement an adequate procedure associate with the startup of the main steam system. Specifically, the licensee caused an inadvertent safety injection which unnecessarily challenged the operators due to an inadequate draining of the main steam header during system start up. The licensee placed the issue into the CAP.

The failure of the licensee to adequately drain condensate from the main steam header resulted in an inadvertent safety injection (SI) and was a performance efficiency. The finding was determined to be greater than minor because it adversely effected the Procedure Quality attribute of the Initiating Events Cornerstone to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. The significance of this finding was evaluated in accordance with the Manual Chapter 0609 Appendix A, "The Significance Determination Process for Findings At-Power." Although the unit was in Mode 3 at the time, this appendix was chosen because the plant did not meet the entry conditions for residual heat removal system operation. The inspectors concluded that the finding was of very low safety significance (Green) because no significant initiating

event prompted this transient. The finding was determined to have a cross-cutting aspect in the operating experience component of the problem identification and resolution area, because the licensee failed to evaluate and implement relevant internal and external operating experience. [P.5]

Inspection Report# : [2016001](#) (*pdf*)

Mitigating Systems

Significance:  Sep 30, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Isolation of Fire Suppression System to a Significant Portion of the Plant Site

A self-revealing Green NCV of the facility's operating license was identified for the licensee's failure ensure the fire suppression system was operable and capable of suppressing fires. Specifically, the licensee inadvertently disabled the High Pressure Fire Protection (HPFP) water system in excess of 24 hours and concurrently failed to implement required compensatory measures for the disabled header contrary to the approved fire protection report (FPR).

On March 23, 2016, the licensee established a clearance on the high pressure fire water system in order to perform planned maintenance in a valve pit.

Subsequently, it was determined that the clearance boundary was inadequate in that one of the boundary valves leaked by the seat. On March 29, the clearance boundary was expanded in order to reduce any leakage into the affected work area. On March 30, during routine fire operation testing, operators noted that water was not available at a hose station near the emergency diesel generator (EDG) building. Subsequent investigation revealed the expanded clearance had isolated the main fire suppression system from the fire pumps and fire tanks. Thus, if a fire had occurred, no suppression would have been available to most of the plant site. The affected areas included the control building, turbine building, auxiliary building, and the EDG building. Upon discovery, the licensee implemented the requirements of the fire protection report (FPR).

This, included fire operating requirement (FOR), 14.2.1, 14.3.1, and 14.5.1 for fire water suppression system, spray/sprinkler systems, and fire hose stations, respectively. On

March 31, full functionality of the HPFP system was restored and operations exited the requirements of the FPR. The exposure time for the disabled HPFP system was approximately 41 hours.

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

Significance:  Jun 17, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Implement the Design Change Process when Modifying the Safety-Related Fire Dampers

The NRC identified a non-cited violation of Title 10 Code of Federal Regulations (CFR) Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," for the licensee's failure to use the design change process to make modifications to the Emergency Diesel Generator EDG room inlet dampers as required by NPG-SPP-9.3, "Plant Modifications and Engineering Change Control." The licensee entered the issue into the corrective action program and implemented compensatory measures, while implementing plans to modify each of the affected inlet and exhaust fire dampers.

This performance deficiency was determined to be more than minor because it was associated with the Equipment Performance 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 modified the dampers to include the wrong brackets, which could adversely affect the dampers ability to remain open to provide cooling during EDG operation and support EDG reliability and availability. The team determined the finding to be of very low safety significance (Green) because the finding was a deficiency affecting the design of a mitigating structure, system, or component (SSC), and the SSC maintained its operability or functionality. This finding was not assigned a cross-cutting aspect because the issue did not reflect current licensee performance.

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

Significance:  Jun 17, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Install Safety-Related Components that are Designed to Withstand the Effects of a Design Basis Tornado

The NRC identified a non-cited violation of Title 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to install emergency diesel generator components that could withstand the effects of a design basis tornado as required by Section 3.1.2 of the Update Final Safety Analysis Report (UFSAR). The licensee entered the issue into the corrective action program and implemented compensatory measures to protect the affected components.

This performance deficiency was determined to be more than minor because it was associated with the Design Control attribute of the Mitigating Systems cornerstone and adversely affects the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the capability of the equipment to withstand the effects of a

tornado was not ensured. The team determined the finding to be of very low safety significance (Green) because of the low frequency of tornados/high winds and the potential for recovery by the operators on site. This finding was not assigned a crosscutting aspect because the issue did not reflect present licensee performance.

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

Significance:  Jun 17, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Inadequate Monitoring of the 480V Shutdown Transformers

The NRC identified a non-cited violation of Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," for the licensee's failure to have documented procedures in place to ensure effective monitoring of the 480V Shutdown Transformers as required by Section 5.3.2.(4) of IEEE 308-1971. The licensee entered the issue into the corrective action program and planned to put additional transformer testing/monitoring in place to detect degradation prior to equipment failure.

This performance deficiency was determined to be more than minor because it was associated with the Equipment Performance 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 perform adequate maintenance on the shutdown transformer, which could result in the inability to detect

the deterioration of the shutdown transformer toward an unacceptable condition. The team determined the finding to be of very low safety significance (Green) because the finding was a deficiency affecting the design of a mitigating structure, system, or component (SSC), and the SSC maintained its operability or functionality. This finding was not assigned a cross-cutting aspect because the issue did not reflect present licensee performance.

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

Significance:  Mar 31, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Inadequate Application of Flame Retardant on Cable Room Penetrations

The NRC identified a non-cited violation (NCV) of Unit 1 and 2 Technical Specification 5.4.1 for the licensee's failure to adequately implement fire protection procedures. Specifically, the inspectors identified several cables located within a cable tray that penetrated the floor of the cable spreading room that were not adequately coating with fire retardant material as required by plant procedures. The licensee placed the issue into the corrective action program (CAP) and implemented a fire watch for the degraded condition.

The inspectors determined that the failure to adequately implement all requirements of the licensee's fire protection program procedures 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. The inspectors determined the finding was of very low safety significance (Green) because of the fire protection defense in depth concept provided other barriers to prevent the spread of fires. The cause of this finding was related to the procedural adherence component of the human performance area, because the licensee failed to properly install cable bundles through wall penetrations. [H.8]

Inspection Report# : [2016001](#) (*pdf*)

Barrier Integrity

Significance:  Sep 30, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Hydrogen Mitigation System Inoperable Longer than Allowed by Technical Specifications

A self-revealing Green NCV of TS 3.6.8 was noted for the licensee's failure to restore an inoperable train of HMS to service within the required completion time 7 days. In addition, the licensee failed to be in Mode 3 within the following 6 hours following the failure to meet the 7 day action time. The licensee estimated the entire exposure time to be approximately 91 days.

On June 7, during the performance of procedure 1-SI-EIV-268-305.A,

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“Hydrogen Mitigation System Operability Current Check,” Rev. 4, the craft personnel noted that circuit breaker, 1-BKRB-268-YA/129A, breaker 11, was open. This procedure is used to verify the operability of the HMS pursuant to Surveillance requirement 3.6.8.1 and 3.6.8.2 This breaker supplied the power to two hydrogen ignitors, 124 and 129. This was brought to the attention of the operations crew and the ‘A’ train HMS was declared out-of-service at 0914.

The operations crew directed closure of the breaker and the 'A' train HMS was restored to operable status at 0916. A subsequent POE determined that the last time the cabinet was accessed was on March 8 in order to replace ignitor 128. Breaker 11 was noted to be in the "OFF" position and not the "TRIP" position. The POE concluded that the breaker was accidentally bumped and moved from its normal ("ON") position. The POE established the exposure time of 91 days.

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

Significance:  Jun 17, 2016

Identified By: NRC

Item Type: FIN Finding

Failure to Energize Hydrogen Igniters during Extended Station Blackout

The NRC identified a finding (FIN) for the licensee's failure to meet their docketed commitment to revise the back-up generators to include supplying one train of containment hydrogen igniters per unit in response to Generic Safety Issue 189, "Susceptibility of Ice Condenser and Mark III Containments to Early Failure from Hydrogen Combustion During a Severe Accident." The licensee entered this issue into their corrective action program and completed immediate corrective actions to revise procedure FSI-5.01, "Initial Assessment and Flex Equipment Deployment," Rev. 0, to ensure the hydrogen igniters would be energized during an extended station blackout (SBO) event.

The performance deficiency was determined to be more than minor because it was associated with the Procedure Quality attribute of the Barrier Integrity Cornerstone and adversely affected the cornerstone objective of providing reasonable assurance that physical barriers protect the public from radionuclide releases caused by accidents or events. Specifically, the failure to energize the hydrogen igniters during an extended SBO event could result in containment failure. The team determined the finding to be of very low safety significance (Green) because the risk was mitigated by the low frequency of SBO conditions and the high likelihood of operator recovery given the obvious diagnosis of the performance deficiency. The team determined the finding was indicative of present licensee performance and was associated with the cross-cutting aspect of operating experience (OE), in the area of Problem Identification and Resolution, because the licensee failed to effectively collect, evaluate, and implement relevant internal OE before implementing their new station procedures to use the FLEX diesels as the power supply to the hydrogen igniters

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

Significance:  Oct 01, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Implement Work Risk Activity and Oversight of Supplemental Personnel Procedures

A self-revealing Green NCV of TS 6.8.1.a, "Administrative Controls of Procedures and Programs," was identified for the licensee's failure to implement procedures related to quality during the surveillance capsule relocation activity. Specifically, procedures NPG-SPP-07.3, "Work Activity Risk Management," and NPG-SPP.07.7, "NPG TCM Role and Oversight of Supplemental Personnel," were not appropriately implemented. The deficiency was entered into the licensee's CAP as Problem Evaluation Report (PER) 1016839.

This finding was determined to be greater than minor because it was associated with the Human Performance attribute of the Barrier Integrity Cornerstone, and adversely affected the cornerstone objective to provide reasonable assurance that physical design barriers (fuel cladding, reactor coolant system, and containment) protect the public from

radionuclide releases caused by accidents or events. Specifically, the performance deficiency resulted in the failure to properly secure reactor vessel surveillance capsules and the subsequent damage to the reactor vessel pressure boundary, reactor internals and fuel filter screens. The proper higher risk categorization would have led to enhanced contractor oversight, and the ability to detect when the contractors were performing actions outside the approved procedure. These additional oversights would reasonably be expected to prevent the events that led to the surveillance capsule ejections, and eliminate any potential to cause damage to the reactor vessel pressure boundary, reactor internals, and fuel filter screens. The inspectors identified a cross-cutting aspect in the Human Performance Consistent Process cross-cutting area. Specifically, the licensee failed to consistently incorporate risk insights, as required by procedure NPG-SPP-07.3, which resulted in less than conservative classification for an infrequently performed activity inside the reactor vessel performed by contract personnel. [H.13]

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

Emergency Preparedness

Significance:  Dec 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Recognize and Submit for Approval a Reduction in Effectiveness of the Emergency Plan

The inspectors identified a Severity Level IV NCV of Title 10 of the Code of Federal Regulations, Part 50.54(q), for changes to the licensee's radiological emergency plan, effective December 18, 2014, that reduced the effectiveness of the plan and therefore, should have received NRC approval prior to making the change. Specifically, the effectiveness of TVA's Radiological Emergency Plan (Generic Part), Revision 104, was reduced by the inadvertent removal of the offsite telephone communications description for the Health Physics Network and Emergency Notification System communication tools, as well as the monthly testing of those devices. The licensee's failure to recognize that Revision 104 reduced the effectiveness of the emergency plan was a performance deficiency. The licensee entered this issue into their corrective action program (CAP) as Condition Report (CR) 1093684.

A licensee making changes to its emergency plan that reduces the effectiveness of the plan without prior NRC approval is considered a performance deficiency within the licensee's ability to foresee and correct. This finding is more than minor because it brings into question the thoroughness of the licensee's review process when making changes to the emergency plan and adversely affects the procedure quality attribute of the emergency preparedness cornerstone objective. This finding is a violation of NRC requirements and because it has the potential for impacting the NRC's ability to perform its regulatory function, traditional enforcement is applicable in accordance with IMC 0612, Appendix B. This finding is determined to be a Severity Level IV violation in accordance with Section 6.6.d.1 of the Enforcement Policy because it involves the licensee's ability to meet or implement a regulatory requirement not related to assessment or notification such that the effectiveness of the emergency plan is reduced.

Inspection Report# : [2015004](#) (*pdf*)

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.

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Miscellaneous

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