Sequoyah 2
4Q/2010 Plant Inspection Findings

Initiating Events

Significance: G Dec 31, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to collect reactor coolant pump oil leakage
•Green. The inspectors identified a Green non-cited violation of 10 CFR 50 Appendix R, Section III.O, “Oil collection system for reactor coolant pump,” for the licensee’s failure to ensure the capability of the reactor coolant pump (RCP) oil collection system to collect and drain all RCP oil leakage. System configuration and procedural deficiencies resulted in the inability of the oil collection system to collect and drain all RCP oil leakage. Approximately 2-3 gallons of oil leakage were identified on the containment floor following Unit 1 shutdown for a refueling outage. The licensee entered this issue into their corrective action program as PERs 270216, 278689, and 284244. Corrective actions included revision to applicable plant procedures to prevent the condition from occurring, as well as plans to evaluate a design change to modify the system configuration.

The finding was determined to be greater than minor because it was associated with the protection against external factors attribute of the initiating events cornerstone, and affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety function during shutdown as well as power operations. Specifically, the likelihood of a fire in the containment building was elevated due to the failure to maintain combustible material (RCP oil) within the boundaries of the oil collection system. Using IMC 0609 Appendix F, “Fire Protection Significance Determination Process,” the inspectors assumed that the condition represented a low degradation of the fire protection program element of fire prevention through control of combustible materials. Therefore, the finding was determined to be of very low safety significance (Green). No cross-cutting aspect was identified. The issue was not reflective of current licensee performance, since both the bowl drain line configuration (last modified in 1993) and the seal standpipe filling procedure (in place since at least 2000) had been in place for a number of years. (Section 1R05)
Inspection Report# : 2010005 *(pdf)*

Significance: G Mar 31, 2010
Identified By: Self-Revealing
Item Type: FIN Finding
Reactor trip due to inadequate configuratin control
A self-revealing finding was identified for two examples of the licensee’s failure to follow station procedures. The licensee failed to follow work order instructions to ensure two valves associated with the main feedwater pump turbine seal steam supply standpipe level switch were placed in their required positions following maintenance. Additionally, the licensee subsequently failed to follow requirements for procedure use and adherence when implementing a system operating procedure step to ensure the main feedwater pump turbine gland steam supply drain valves were in their required positions. This resulted in a manual reactor trip of Unit 2 due to indications of a loss of main feedwater pump turbine condenser vacuum. The licensee entered this event into their corrective action program as PER 209482.

The finding was determined to be greater than minor because it was associated with the configuration control attribute of the initiating events cornerstone and affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions. Using Inspection IMC 0609, “Significance Determination Process,” Attachment 4, “Phase 1 - Initial Screening and Characterization of Findings,” the finding was determined to have very low safety significance (Green) because it did not contribute to both the likelihood of a reactor trip and the likelihood that mitigating systems will not be available.

The cause of this finding was determined to have a cross-cutting aspect in the area of human performance associated

with the work practices component. The causes associated with the failures to follow procedures were directly related to inadequate implementation of human error prevention techniques such as self and peer checking, proper documentation of activities, and not proceeding in the face of uncertainty or unexpected circumstances [H.4(a)].

Inspection Report# : 2010002 *(pdf)*

Mitigating Systems

Significance: G Dec 31, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to implement Technical Specification requirements to vent ECCS piping
•Green. The inspectors identified a Green non-cited violation of Technical Specification 6.8.1(c), "Procedures and Programs," for the failure to establish surveillance test procedures to verify that ECCS piping systems were full of water by venting accessible piping high points on the suction side of the ECCS pumps as required by Surveillance Requirement (SR) 4.5.2.b.1. The licensee has entered this issue into their corrective action program as service request 291511.

The finding was determined to be greater than minor because it adversely affected the equipment performance attribute of the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to perform surveillance tests on the ECCS system reduced the assurance that the system could respond to initiating events to prevent undesirable consequences. Using IMC 0609, "Significance Determination Process," Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings," the finding was determined to be of very low safety significance (Green) since it was not a design or qualification deficiency, it did not represent the loss of a system safety function or the loss of any equipment trains, and is not potentially risk significant due to seismic, flooding or severe weather initiating events. Because site interdepartmental communication, coordination, and cooperation were not sufficient to identify the impact of changes to ECCS surveillance requirements on existing surveillance test procedures, the cross cutting aspect in the work control component of the human performance area applies to this finding [H.3(b)]. (Section 4OA5.4)
Inspection Report# : 2010005 *(pdf)*

Significance: G Dec 31, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to use worst case 6900 VAC bus voltage in design calculations
•Green. The inspectors identified a Green non-cited violation of 10 CFR 50, Appendix B, Criterion III, Design Control, for the licensee's failure to assure that applicable regulatory requirements and the design basis for structures, systems, and components are correctly translated into specifications, drawings, procedures, and instructions. Specifically, the licensee failed to assure that applicable regulatory requirements for undervoltage (degraded) voltage protection, including those prescribed in TS section 3.3.14, table 3.3.14-2, were correctly translated into design calculation, SQNETAPAC, "AC Auxiliary Power System Analysis", Rev. 36, which evaluated transient motor starting voltages at the beginning of a design basis loss of coolant accident (LOCA). The licensee has entered this into their corrective action program as PER 297671

This finding is more than minor because it affects the Design Control attribute of the Mitigating Systems Cornerstone. It impacts the cornerstone objective of ensuring the availability, reliability, and operability of the 6900 VAC safety buses to perform its intended safety function during a design basis event. The potential availability, reliability, and operability of the 6900 VAC safety buses during a potential degraded voltage condition was impacted as the licensee calculation used a non conservative degraded voltage input, with respect to the values specified in TS, into their safety-related motor starting and running calculations. The inspectors assessed the finding using the SDP and determined that the finding was of very low safety significance (Green) because the finding represented a design deficiency confirmed not to result in the loss of functionality of safety-related loads due to the availability of load tap

changers (LTCs) that are installed to improve a degraded voltage condition. (Section 4OA5.5)
Inspection Report# : 2010005 *(pdf)*

Significance: G Sep 30, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate inspection of raw water side of containment spray heat exchangers
The inspectors identified a non-cited violation of 10 CFR 50 Appendix B Criterion V, “Instructions, Procedures, and Drawings,” for the failure to provide adequate documented instructions for inspection of the containment spray heat exchangers. Preventive maintenance (PM) procedures associated with these inspections failed to provide for an adequate inspection of the ERCW side (shell side) of these heat exchangers. Consequently, the heat transfer capability of these heat exchangers has not been periodically verified through either testing or adequate visual inspection. The licensee entered this issue into their corrective action program as PER 236318. Planned corrective actions include the development and implementation of a single-tube method for thermal performance testing of the heat exchangers in lieu of inspection.

The finding was determined to be greater than minor because it was associated with the equipment performance attribute of the mitigating systems cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences, since the heat transfer capability of these heat exchangers has not been periodically verified through either testing or adequate visual inspection. Using IMC 0609, “Significance Determination Process,” Attachment 4, “Phase 1 - Initial Screening and Characterization of Findings,” the finding was determined to be of very low safety significance (Green) since the finding did not represent an actual loss of safety function. The cause of this finding was determined to have a cross-cutting aspect of Corrective Action Program Issue Identification in the area of Problem Identification and Resolution associated with the Corrective Action Program component, in that the evaluation of PERs in 2009 on the subject of CS heat exchanger inspection failed to identify the need to resolve the discrepancy between the scope of the program PMs and the implementing procedure requirement for CS heat exchanger shell side inspection. Thus, the licensee failed to completely and accurately identify issues in the corrective action program [P.1(a)]. (Section 1R07)

Inspection Report# : 2010004 *(pdf)*

Significance: G Sep 30, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Non-conservative design calculation for RHR suction temperature limit
The inspectors identified a Green non-cited violation of 10 CFR 50 Appendix B Criterion III, “Design Control,” for the failure to provide design control measures for verifying the adequacy of the design calculation used to establish the maximum RHR operating temperature limit for maintaining ECCS operability. A design calculation yielded a non-conservative temperature limit for use in plant operations procedures. This resulted in several occasions where ECCS operability was in question due to the fluid temperature in the RHR system suction piping. The licensee entered this issue into their corrective action program as PER 215434. Corrective actions included revising operations procedures to reflect the corrected temperature limit from a revised calculation.

The finding was determined to be greater than minor because it was similar to example 3.j. of IMC 0612 Appendix E in that the non-conservatism in the calculation resulted in a condition where reasonable doubt existed as to the operability of the ECCS system. Additionally, it was associated with the procedure quality attribute of the mitigating systems cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, plant procedures for RHR system operation contained non-conservative temperature limits for ensuring TS operability, and actual system temperatures exceeded the revised appropriate limit on several occasions. Using IMC 0609, “Significance Determination Process,” Attachment 4, “Phase 1 - Initial Screening and Characterization of Findings,” the finding was determined to be of very low safety significance (Green) since the finding did not represent an actual loss of safety function. No cross-cutting aspect was identified since the issue was not reflective of current licensee performance, since the previous calculation in question was last revised and approved in 1996. (Section 4OA2.3)

Inspection Report# : 2010004 *(pdf)*

Significance: G Apr 16, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Violation of 10 CFR 50, Appendix B, Criterion V for Failure to Follow Procedure for Vendor Contact Program
The team identified a Green non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion V, Instructions, Procedures, and Drawings, for the failure to properly maintain the vendor contact program for safety-related components. The team identified 37 examples of vendor technical manuals where the associated vendor had not been contacted in over three years. Procedure SPP-2.5, "Vendor Manual Control," required contact to be made with the vendors of safety-related components every three years to ensure that technical manuals and vendor documents contained the most current and applicable information consistent with the guidance of Generic Letter (GL) 90-03. The team identified 37 examples of vendor manuals and technical documents where the associated vendor had not been contacted in more than three years with several examples extending to almost six years. The licensee entered this issue into their corrective action program with actions to make contact with the vendors for all documents identified as having not been verified with the vendor in over the required three years. This finding was entered into the licensee's corrective action program as problem evaluation reports (PERs) 224364 and 224975. As an immediate corrective action, the licensee is ensuring that the vendor manuals and documents associated with safety-related components are being verified as most current with the respective vendors.

This finding is more than minor because it affected the Mitigating Systems Cornerstone objective of ensuring the availability and reliability of safety systems, is related to the attribute of Procedure Quality (i.e., Maintenance and Testing (Pre-Event) Procedures) and represented a programmatic break-down which if left uncorrected, could become a more significant safety concern. The team assessed this finding using the SDP and determined that the finding was of very low safety significance (Green) because the inspectors found no documented occurrences where the lack of vendor contact ultimately resulted in the inability of a safety-related component to perform the intended safety function and will be treated as an NCV.

The inspectors determined that the thorough evaluation of problems such that the resolutions address problems and extent of conditions, as necessary was a significant cause if this performance deficiency. The plant experienced a reactor trip in 2009 which was determined to have been caused, in part, by a vendor manual associated with a feedwater regulating valve (FRV) not being updated. The FRVs are components with both safety-related and non-safety-related features. The extent of condition of the corrective actions associated with this failed to identify the programmatic breakdown of the TVA vendor contact program for safety-related components. This is directly related to the Corrective Action Program component of the cross-cutting area of Problem Identification and Resolution (P.1. (c)). (Section 1R21.2.3)

Inspection Report# : 2010007 *(pdf)*

Barrier Integrity

Significance: G Sep 30, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to maintain thermal power less than licensed limit
The inspectors identified a Green non-cited violation of Unit 2 TS 6.8, "Procedures and Programs," for the failure to take prompt action to maintain reactor thermal power less than the licensed power limit of 3455 megawatts thermal (MWt) in response to a transient caused by the loss of a condensate booster pump, as required by station procedures. The licensee entered this issue into their corrective action program as PER 259098. The licensee is currently evaluating for planned corrective actions.

The finding was determined to be greater than minor because it was similar to example 8.b. of IMC 0612 Appendix E. Additionally, it was associated with the Human Performance attribute of the Barrier Integrity cornerstone and affected

the cornerstone objective relative to the fuel cladding barrier since operation above the licensed power limit reduces analyzed margins to fuel cladding damage. Using IMC 0609, “Significance Determination Process,” Attachment 4, “Phase 1 - Initial Screening and Characterization of Findings,” the finding was determined to be of very low safety significance (Green) since only the fuel cladding barrier was affected. The cause of this finding was determined to have a cross-cutting aspect of Conservative Assumptions and Safe Actions in the area of Human Performance associated with the Decision Making component. The decision to take no operator action in response to the thermal power transient reflected a non-conservative assumption that average thermal power could be allowed to exceed the licensed limit without operator action while the feedwater control system responded to the transient associated with the condensate pump failure [H.1(b)]. (Section 4OA3.3)

Inspection Report# : 2010004 *(pdf)*

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

Although the NRC is actively overseeing the Security cornerstone, the Commission has decided that certain findings pertaining to security cornerstone will not be publicly available to ensure that potentially useful information is not provided to a possible adversary. Therefore, the cover letters to security inspection reports may be viewed.

Miscellaneous

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