Sequoyah 2
3Q/2009 Plant Inspection Findings

Initiating Events

Significance: G Sep 30, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to perform a 10 CFR 50.59 evaluation for abnormal operating procedure M.09, "loss of charging".
The inspectors identified a Severity Level IV NCV of 10 CFR 50.59 for the licensee's failure to perform a 10 CFR 50.59 evaluation for a new station Abnormal Operating Procedure (AOP) - M.09, "Loss of Charging," Rev. 0, that included a preplanned, proceduralized 10 CFR 50.54(x) action that was a deviation from the Technical Specifications (TS). The licensee entered this issue into their corrective action program as PER 158739, and completed the corrective actions to remove the NRC unapproved operator actions from the procedure.
This finding was assessed using traditional enforcement. The finding was more than minor because the change requiring 10 CFR 50.59 evaluation would have required NRC review and approval prior to implementation. A regional senior risk analyst performed a Phase 3 Significance Determination and characterized the performance deficiency as very low safety significance (Green) based on risk. The inspectors concluded that the finding reflected current licensee performance and involved the cross-cutting aspect of non-conservative assumptions of the decision-making component of the cross-cutting area of Human Performance [H.1(b)]. (Section 4OA5.2)

Inspection Report# : 2009004 *(pdf)*

Significance: G Jun 30, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
Reactor trip due to inadequate plant operating procedures
On April 28, 2009, with Unit 1 operating at approximately 27 percent RTP during startup from a refueling outage, a moisture separator reheater (MSR) shell side relief valve lifted. Operators responded by reducing power to approximately 18 percent RTP in accordance with plant procedures. With the affected relief valve still open, operators tripped the turbine in accordance with plant procedures. Approximately 10 minutes after the turbine trip occurred, two of the three parallel "strings" of intermediate pressure feedwater heaters had automatically isolated due to high level on the shell side of the #2 heaters in each string, with the third string isolation imminent for the same reason. Operators responded in accordance with plant procedures by manually tripping the reactor due to imminent loss of condensate supply to the main feedwater pumps, and, thus, main feedwater supply to the steam generators.

The inspectors reviewed the UFSAR and noted that following a turbine trip from an initial power level below 50 percent, the reactor will not be tripped, but instead the reactor plant is designed to be maintained in a stable and controlled manner by plant systems.

This event was entered into the licensee's corrective action program as PERs 169863 and 169976. The licensee evaluation determined that the heater string isolations occurred due to an elevation difference between the #2 heaters and the #3 heater drain tank (HDT), combined with the lack of residual extraction steam pressure (to overcome the elevation difference) following a turbine trip from low power. This configuration resulted in the inventory in the #3 HDT gravity draining back to fill the #2 heaters, which caused the heater string isolations to occur when heater shell side levels reached their respective high level setpoints. This susceptibility was identified by the licensee in 1998 following a similar event.

A nominal operating level in the #3 HDT must be established prior to placing the #3 HDT pump(s) in service, which is required for power operation above approximately 80 percent RTP, as noted in the UFSAR section 10.4.9.3: "With all drains from the No. 3 heater drain tank being bypassed to the condenser (and being passed through the hotwell, demineralized condensate, and condensate booster pumps) the Condensate-Feedwater System can deliver

approximately 82 percent (Unit 2) and 81.6 percent (Unit 1) guaranteed flow to the steam generators."

Licensee procedure 0-GO-5, "Normal Power Operation," Revision 60, which was in effect at the time of the event, directed operators to establish level in the #3 HDT when increasing power from 30 percent power. Approximately two weeks later, the inspectors noted that licensee Procedure 0-GO-4, "Power Ascension From Less Than 5% Reactor Power to 30% Reactor Power," Revision 59, which was also in effect at the time of the event, contained similar requirements regarding the operation of #3 HDT.

Three days after the event took place, as an interim corrective action, the licensee revised Procedure 0-GO-5 to require that the #3 HDT remain drained and bypassed to the condenser until power exceeds ~45-50 percent power. The licensee had identified this, as well, as the similar deficiency in Procedure 0-GO-4, and revised Procedure 0-GO-4 on May 14, 2009, to also require that the #3 HDT remain drained and bypassed to the condenser until power exceeds ~45-50 percent power.

Since plant systems are designed to prevent a reactor trip following a turbine trip from less than 50 percent power, the inspectors concluded that the operating procedures in effect at the time of the event were inadequate. This was reasonably within the licensee's ability to foresee and correct, and should have been prevented, since the issue was identified following a similar event in 1998. However, corrective actions to eliminate this susceptibility by controlling, via operating procedures, the power level at which the #3 HDT would be placed in service were not taken at that time.

Inspection Report# : 2009003 *(pdf)*

Significance: G Jan 07, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
Pressurizer Pressure Transient due to Inadequate Maintenance Procedure
Green. A Green self-revealing non-cited violation of Unit 2 Technical Specification 6.8.1 was identified for the licensee's failure to have an adequate procedure to ensure replacement of the pressurizer pressure master controller would not adversely impact plant stability. Specifically, on January 7, 2009, operators placed a pressurizer spray valve controller in automatic while the master controller was in manual with a large demand output signal present. This resulted in the spray valve fully opening and an associated reactor coolant system pressure transient. Operators immediately restored pressure to its normal value, and the finding was entered into the licensee's corrective action program as Problem Evaluation Report (PER) 160504.

The finding was greater than minor because it was associated with the procedure quality 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 Manual Chapter 0609, "Significance Determination Process," Attachment 4, 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 be in the cross-cutting area of human performance associated with work practices and the aspect of human error prevention, in that, during the pre-job brief, the operators discussed minimizing the master controller demand signal but failed to self and peer check to ensure that the procedural steps were consistent with the appropriate actions [H.4(a)] (Section 1R19).

Inspection Report# : 2009002 *(pdf)*

Mitigating Systems

Significance: G Sep 30, 2009
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Failure to follow emergency diesel generator operating procedure

A self-revealing non-cited violation (NCV) of 10 CFR 50 Appendix B, Criterion V, Instructions, Procedures, and Drawings, was identified for the licensee's failure to follow plant procedures for performing independent verifications of procedural steps. Emergency Diesel Generator (EDG) 1B-B was declared operable when it was unable to perform its required safety function due to 11 of 32 cylinder test plugs not being positioned as required following pre-start rolling, which subsequently resulted in EDG damage during testing. This issue was entered into the licensee's corrective action program as Problem Evaluation Report (PER) 201282. The licensee performed corrective maintenance and returned the emergency diesel generator to service.

The finding was determined to be greater than minor because it was associated with the configuration control attribute of the mitigating system cornerstone and affected the cornerstone objective to ensure the availability of systems that respond to initiating events to prevent undesirable consequences, in that operator error and damage to the 1B-B EDG rendered the EDG unavailable to perform its safety function. Using Inspection Manual Chapter (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 the it did not represent a loss of safety function, a loss of single train of safety equipment for greater than the TS allowed outage time, a loss of significant maintenance rule equipment for greater than 24 hours, or screen as potentially risk-significant due to a seismic, flooding, or severe weather initiating event. The cause of this finding was determined to have a cross-cutting aspect in the area of human performance associated with the resources component. It was directly related to the training of personnel [H.2(b)]. Specifically, the operator that performed the independent verification of the vent valves positions did not receive training on the operation of the new design of EDG cylinder vent valves. (Section 1R15).

Inspection Report# : 2009004 *(pdf)*

Significance: SL-IV Dec 31, 2008
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Notify the Commission Within 30 Days After a Licensed Operator Was Diagnosed With a Permanent Physical Medical Condition
The NRC identified a non-cited violation (NCV) of 10 CFR 55.25 and § 50.74 for failure to notify the Commission within 30 days after a licensed operator developed a permanent change in his physical condition. The licensee entered this finding into their corrective action program as problem evaluation report 158614.

This finding was evaluated using the traditional enforcement process because the licensee's failure to report the changes in medical condition impacted the Commission's ability to perform its regulatory function associated with operator licensing. Using Supplement I, "Reactor Operations," of the NRC Enforcement Policy, this finding was determined to be a Severity Level IV violation because the change in the operator's physical condition did not impact his ability to perform licensed duties.

The cause of the finding was the licensee failed to understand that all permanent conditions, disabilities, and incapacities must be reported to the NRC for evaluation, regardless of whether the operator had exceeded the specific minimum requirement or the related disqualifying condition threshold in ANSI/ANS-3.4, "Medical Certification and Monitoring of Personnel Requiring Operator Licenses for Nuclear Power Plants."
Inspection Report# : 2008005 *(pdf)*

Barrier Integrity

Significance:  Jul 31, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Promptly Correct a Condition Adverse to Quality Associated with Out-of-Train Maintenance Controls
Green. The NRC identified a Green non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, for the licensee's failure to promptly correct a condition adverse to quality by failing to implement corrective actions to address deficient out-of-train maintenance controls during opposite train work weeks. This contributed to entry into

a short term shutdown action statement and a Notice of Enforcement Discretion (NOED). The failure to implement corrective action to
provide guidance for controlling out-of-train maintenance was entered into the licensee's corrective action program as PER 177665.

This finding was determined to be greater than minor because it was associated with the Barrier Integrity Cornerstone attribute of barrier performance, and on September 25, 2008, adversely affected the cornerstone objective to provide reasonable assurance that physical design barriers such as the control room protect plant operators and plant controls. The finding was evaluated using Phase 1 of the At-Power Significance Determination Process, and was determined to be of very low safety significance (Green) because the finding only represented a degradation of the radiological barrier function provided for the control room. The finding was assigned a cross-cutting aspect in the corrective action program component of the problem identification and resolution area because, although the licensee had identified deficient controls for out-of-train maintenance, corrective actions were not taken to address the issue in an adequate and timely manner, commensurate with safety significance and complexity. (P.1(d)). (Section 4OA2.a.(3))

Inspection Report# : 2009006 *(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

Significance: N/A Jul 31, 2009
Identified By: NRC
Item Type: FIN Finding
Seqouyah PI&R Summary
The team concluded that, in general, problems were properly identified, evaluated, prioritized, and corrected. Generally, the threshold for initiating problem evaluation reports (PERs) was appropriately low, as evidenced by the types of problems identified and the large number of PERs entered annually into the Corrective Action Program (CAP). Employees were encouraged by management to initiate PERs. However, several examples of minor problems were identified by the team, including equipment issues that were not entered into the corrective action program and corrective action item closures that did not implement the actions required to be performed.

The team determined that, overall, audits and self-assessments were adequate in identifying deficiencies and areas for improvement in the CAP, and appropriate corrective actions were developed to address the issues identified.

Operating experience usage was found to be generally acceptable and integrated into the licensee’s processes for performing and managing work and plant operations.

Based on discussions and interviews conducted with plant employees from various departments, the inspectors determined that personnel at the site felt free to raise safety concerns to management and use the CAP to resolve those concerns.

Inspection Report# : 2009006 *(pdf)*

Last modified : December 10, 2009