

Sequoyah 2

1Q/2004 Plant Inspection Findings

Initiating Events



Significance: Dec 27, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Inservice Inspection Resulted in Failure to Correctly Identify a Gap in Pipe Support 2-CVCH-105

The inspectors identified a non-cited violation of TS 4.0.5, Inservice Inspection Program, for an inadequate examination of a pipe support. This resulted in the failure to identify a 3/16-inch gap between the pipe bottom and the supporting structural steel member during the inservice visual inspection of the ASME Class 1 Safety-Related Chemical & Volume Control System Seal Water Injection Line to Unit 2 Reactor Coolant Pump #4 pipe support. A gap in this support would change the support function from functional to non-functional.

This finding is more than minor because it was associated with the Initiating Events cornerstone and affected the objective of limiting the likelihood of events, such as a pipe break and support failure. Failure of the inspection program to identify a non-functional support, which would change the pipe stress analyses and the pipe support design, could lead to more significant problems if left uncorrected. The issue was determined to be of very low safety significance because it was found acceptable after the pipe stress analyses were re-performed with the gap condition and the new pipe support loads

Inspection Report# : [2003006\(pdf\)](#)



Significance: Dec 27, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Comply with Configuration Control Procedures

The inspectors identified a non-cited violation of Technical Specification (TS) 6.8.1 for failure to comply with plant configuration control procedures. Both pressurizer power-operated-relief-valve block valves on both units were simultaneously closed without the use of an approved work document, resulting in a missed risk assessment.

This finding is more than minor because it affected the configuration control attribute of the Initiating Events cornerstone. Alteration of safety related equipment configuration outside of approved processes would, if left uncorrected, result in a more significant safety concern. While not prohibited by TS, this action removed an over-pressure reactor trip barrier and would challenge the pressurizer safety valves in response to an over-pressure transient. This finding is of very low safety significance because closure of the block valves only affected the initiating event cornerstone and did not directly contribute to the likelihood of a primary system event initiator.

Inspection Report# : [2003006\(pdf\)](#)

Significance: N/A Jun 27, 2003

Identified By: NRC

Item Type: FIN Finding

Supplemental Inspection Report Results

This supplemental inspection was conducted to assess the licensee's evaluation associated with a White Performance Indicator (PI) in the Initiating Events Cornerstone. The Unit 2 Unplanned Scrams per 7,000 Critical Hours PI crossed the threshold from green to white for the fourth quarter of calendar year 2002. Specifically, the licensee experienced four reactor trips during the last three quarters of 2002. The first reactor trip, which occurred on May 19, 2002, was a manual trip during low power physics testing when portions of two banks of control rods would not move in the presence of a slightly increasing reactivity trend. The second reactor trip, which occurred on May 31, 2002, was an automatic trip from approximately 71 percent power caused by a valve failure on the stator cooling system heat exchanger. The third reactor trip, which occurred on July 12, 2002, was an automatic trip from approximately 100 percent reactor power caused by a loss of one start bus when the alternate supply breaker closed while being racked to the test position. The fourth reactor trip, which occurred on December 26, 2002, was an automatic trip from approximately 100 percent reactor power caused by an over-current condition on a reactor coolant pump.

During this supplemental inspection, performed in accordance with NRC Inspection Procedure 95001, the inspector determined that the licensee performed a comprehensive evaluation of the four reactor trips leading up to the White Performance Indicator. The licensee expanded the scope of the evaluation to include 10 other reactor trips in the previous five years plus several other events that involved a forced outage or could have resulted in a reactor trip. The licensee's evaluation identified 13 common causes associated with the expanded scope of events.

These causes included human performance and process issues as well as equipment issues. The licensee has developed a corrective action plan that addressed these causes, including the development of a trip-sensitive equipment list and an equipment reliability improvement plan. The licensee has begun appropriate implementation of the corrective actions.

Based on the results of this inspection, the NRC determined that the problem identification,

root cause and extent of condition evaluations, and corrective actions for the White PI were thorough.
Inspection Report# : [2003008\(pdf\)](#)

Mitigating Systems



Significance: Mar 27, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Comply with Procedure for Shutting Down Unit 2

The inspectors identified a non-cited violation of Technical Specification (TS) 6.8.1 for a self-revealing failure to comply with plant general operating procedures. While shutting down Unit 2 in November 2003, operators failed to close the motor-operated reheater steam supply valves to all six moisture-separator reheaters. This resulted in an open steam flow path through the reheaters to the main condenser and caused a Reactor Coolant System temperature decrease to the point where operators had to close the Main Steam Isolation Valves to maintain control.

This finding is more than minor because it affected the availability of the power conversion system to handle an anticipated transient. This finding is of very low safety significance because there was no actual loss of a safety function, no loss of a TS-required system or loss of a risk-significant maintenance rule system for greater than 24 hours, and no increase in risk from external events. The cause of the finding is related to the cross-cutting element of human performance

Inspection Report# : [2004002\(pdf\)](#)



Significance: Mar 27, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Inappropriate Change to the Approved Fire Protection Program

A non-cited Severity Level IV violation of 10 CFR 50.48(a) and the Unit 1 and 2 Operating License Conditions was identified for the licensee making an inappropriate change to the approved fire protection program. This change removed the requirement to implement fire watches for impaired fire protection systems and features.

This finding is more than minor because the lack of a posted fire watch could adversely affect the ability to achieve and maintain safe shutdown in the event of a severe fire in the affected area. This was based on recognition that the ability of the fire watch was not limited to fire identification, but also included mitigating actions taken in the event of fires, such as the ability to close doors limiting fire exposure to adjacent areas and providing more timely fire detection capability in certain cases. This finding is of very low safety significance because, based on an assessment of the impacts of the identified fire protection features removed from service, the licensee's overall safe shutdown capabilities and related fire protection features remained adequate to achieve and maintain safe shutdown conditions. Therefore, this finding is characterized as Green. (Section 40A5).

Inspection Report# : [2004002\(pdf\)](#)



Significance: Dec 27, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Implement Timely and Appropriate Fire Protection Compensatory Measures

The inspectors identified a non-cited violation of License Condition 2.C (13) for failure to implement and maintain all provisions of the approved fire protection program. The water supply to several hose stations inside the Unit 2 reactor building was isolated without implementing any compensatory measures as required by the fire protection program.

This finding is more than minor because it left portions of the Unit 2 containment without manual fire suppression for 48 hours, a reduction of fire defense-in-depth. If left uncorrected this would affect the ability of the station to mitigate a containment fire. This finding is of very low safety significance because automatic suppression systems were not affected and operability of the impaired fire suppression equipment could be rapidly restored in the event of a fire.

Inspection Report# : [2003006\(pdf\)](#)



Significance: Dec 27, 2003

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

Failure to Maintain Qualification Records for Licensed Operator Reactivation

The inspectors identified a non-cited violation (NCV) for failure to certify qualifications and status of licensed operators were current and valid

and that the requirements of 10 CFR 55.53, "Conditions of Licenses" for license reactivation were met prior to their resumption of license duties. Only four out of the thirteen selected operator reactivation records were available for inspection.

The finding is greater than minor because it is associated with the Mitigating Systems Cornerstone human performance attribute that affects the availability, reliability, and capability of operators to respond to initiating events to prevent undesirable consequences that could pose a potential risk to operations. The finding was evaluated using the Operator Requalification Human Performance SDP and was determined to be a finding of very low safety significance because there was no evidence of an inactive operator standing a watch. Since more than 20% of the reactivation records had deficiencies in that they were not available and could not be verified to meet reactivation requirements, the issue was determined to be a green finding.

Inspection Report# : [2003006\(pdf\)](#)



Significance: Dec 27, 2003

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

Failure to Comply with Procedure for Draining to Mid-loop

The inspectors identified a non-cited violation of Technical Specification 6.8.1 for a self-revealing failure to comply with plant general operating procedures. While draining Unit 2 to mid-loop conditions, the licensee failed to open a head vent valve required by the draining procedure. This caused the level monitoring system to indicate a lower level than was actually present.

This finding is more than minor because configuration control errors, while in reduced inventory or mid-loop conditions where safety margins are small, can result in a loss of decay heat removal capability. This finding is of very low safety significance because decay heat removal capability was not lost and the unit did not enter mid-loop conditions with the valve closed. The cause of the finding is related to the cross-cutting element of human performance.

Inspection Report# : [2003006\(pdf\)](#)



Significance: Dec 27, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Procedure for Protecting RWST Level Instruments

The inspectors identified a non-cited violation of Title 10 of the Code of Federal Regulations, Part 50, Appendix B, Criterion V, for failure to use an adequate procedure for freeze protection of the level instruments on the Unit 2 refueling water storage tank. The method of checking for proper operation of the heater in the instrument enclosures, checking for warmth by hand, was not capable of verifying sufficient current and thus could not detect any degradation or failure due to degraded cables and extreme cold. This resulted in two wide-range instruments failing due to freezing in extremely cold weather.

This finding is more than minor because, if left uncorrected, all four wide-range level instruments would have been affected. This finding is of very low safety significance because the safety function provided by the four instruments was not actually lost

Inspection Report# : [2003006\(pdf\)](#)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

Miscellaneous

Significance: N/A Sep 26, 2003

Identified By: NRC

Item Type: FIN Finding

PI&R Inspection Results

Overall, the licensee was effective at identifying problems, entering them into the corrective action program (CAP) for resolution, and implementing corrective actions to prevent recurrence. However, there were several examples where the documentation of problem evaluation reports (PERs) was not clear, concise, or comprehensive. The team had to seek out knowledgeable plant personnel to understand the issue in order to assess if the corrective actions were adequate. The inspection team did identify a significant improvement in the quality of PER development and documentation during recent months, indicating increased management and supervisory attention to overall PER quality.

Senior management involvement in the problem identification and resolution (PI&R) program was evident in the daily management review committee meeting review of all PERs. The licensee's threshold for identifying problems was low and the number of PERs met the licensee's goal for problem identification. However, due to the large number, backlog presented a challenge and did not meet the licensee's goals. The team did not identify any significant problems due to the backlog. The team also did not identify any adverse conditions which were not in the CAP for resolution.

Licensee assessments critically assessed PI&R activity and identified improvement needs. Prioritization and evaluation of problems were generally effective and consistent with risk and safety significance; however, there were some examples where evaluations were not thorough and detailed. Corrective actions were generally adequate; although some minor examples were identified where the corrective actions were not complete, or not comprehensive.

Long term equipment problems continue to challenge plant staff and unit operation, especially for safety related chillers and plant electrical breakers. Some corrective actions for chiller problems and component performance were not timely. The overall system health of safety related chillers, since the last PI&R inspection in December 2001, has declined. However, slight improvement was noted for specific components. The trending element of the CAP was not always effective in identifying potential adverse trends. The corrective actions for balance-of-plant equipment issues were not as detailed, rigorous, or effective in correcting problems as with safety related equipment.

Based on interviews conducted during the inspection, workers at the site feel free to raise issues with their management and to input them into the problem identification and resolution program.

Inspection Report# : [2003009\(pdf\)](#)

Significance: SL-II Jun 30, 2001

Identified By: NRC

Item Type: VIO Violation

EMPLOYEE PROTECTED ACTIVITY

On February 7, 2000, a Severity Level II violation with civil penalty was issued to the licensee. The violation was not site-specific and involved employment discrimination contrary to the requirements of 10 CFR 50.7, "Employee Protection," in that the licensee did not select a former employee to a competitive position in the corporate chemistry organization in 1996, due, at least in part, to his engagement in protected activities. On January 22, 2001, the licensee denied the violation and on May 4, an Order was issued sustaining the violation and imposing the civil penalty. On June 1, TVA requested an enforcement hearing on the Order.

Inspection Report# : [2001002\(pdf\)](#)

Last modified : May 05, 2004