

# Sequoyah 1

## 2Q/2004 Plant Inspection Findings

### Initiating Events

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**Significance:** Jun 26, 2004

Identified By: Self Disclosing

Item Type: FIN Finding

#### **Electrical Ground on Improperly Abandoned Cable Resulted in Reactor Trip**

A self-revealing finding was identified for an improperly abandoned cable in the non-safety related 250-VDC Battery Board 2 system that resulted in a reactor trip of Unit 1. A Design Change Notice (DCN) in 1999 required the cable to be disconnected and insulated on both ends; however, the work was done only on one end. The cable subsequently grounded and, in conjunction with a second ground, actuated a protective relay on the main bank transformer and tripped the unit.

This finding is more than minor because it affected the design control attribute of the initiating event cornerstone and resulted in an upset in plant stability. This finding is of very low safety significance because no mitigating system was affected

Inspection Report# : [2004003\(pdf\)](#)

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**Significance:** Dec 27, 2003

Identified By: Self Disclosing

Item Type: FIN Finding

#### **Failure to Maintain Configuration Control of Turbine Oil Valves Resulted in Reactor Trip**

The inspectors identified a finding for a self-revealing failure to follow the plant configuration control process on non-safety related equipment. An instrument isolation valve on the Unit 1 turbine front standard was inappropriately left closed following a refueling outage and resulted in a generator load rejection and reactor trip.

This finding is more than minor because it affected the configuration control attribute of the initiating event cornerstone and challenged the ability of operators and the reactor protection system to safely shut down the plant. With the isolation valve to Pressure Switch 1-PS-47-76 inappropriately closed, a generator load rejection and subsequent reactor trip were assured when the turbine thrust bearing trip test was performed. This finding is of very low safety significance because no mitigating system was affected. The cause of the finding is related to the cross-cutting element of human performance.

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

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**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 Sep 04, 2003

Identified By: NRC

Item Type: FIN Finding

#### **Special Inspection Conclusions**

Operations personnel both at the turbine front standard and in the control room took the proper actions for the observed plant indications and the nature of the event. The quick response of the control room operators to trip the reactor was appropriate and mitigated the event before a reactor protection system (RPS) setpoint was reached. The declaration of an Alert made by the Shift Manager was appropriate based on the nature of the event and the understanding of plant conditions at the time of the declaration.

The turbine control system responded as designed and no RPS logic input was required from the turbine auto-stop oil system to automatically trip the reactor. RPS logic inputs, which would initiate an automatic reactor trip, were not generated from the auto-stop oil pressure switches or from the turbine main stop valves.

The inspectors independently reviewed the information from the licensee's event investigation and concluded that the licensee's investigation of this event was thorough and comprehensive and that the identification of the closed auto-stop oil pressure switch isolation valve fully explained the cause and the resulting sequence of events. The investigation identified two possible causes for the closed isolation valve: An inappropriate verification process following calibration of the auto-stop oil pressure switch or inappropriate configuration control while troubleshooting problems with turbine latching during the last unit startup.

There were two opportunities for which the licensee did not complete actions that could have prevented the August 28 event. A single point failure identified in a Problem Event Report (closed pressure switch contacts) was not addressed before performing the turbine testing on August 28. Also, a computer point indicating a generator trip would occur during the last turbine test in June 2003 (unit was not on-line) was not investigated or addressed prior to the August 28 testing.

Inspection Report# : [2003010\(pdf\)](#)

## Mitigating Systems

**Significance:**  Jun 26, 2004

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 a self-revealing failure to comply with status control procedures. While attempting to get information to set a limit switch on Electric Board Room Chiller A, maintenance personnel removed the slide valve position indicator cover on Electric Board Room Chiller B. When replacing it, the cover contacted the control power circuits and caused a short circuit that tripped the B Chiller. In removing the cover, maintenance personnel had not obtained prior approval from operations, nor did they have work documents that authorized the actions.

This finding is more than minor because it affected the availability of both electric board room chillers, a mitigating system. Alteration of safety-related equipment configuration outside of approved processes would, if left uncorrected, result in a more significant safety concern. A protected train that is lost due to configuration control errors has an increased chance that it will not restart.

This finding is of very low safety significance because there was no loss of safety function, no loss of TS equipment for more than the allowed outage time, no loss of maintenance rule (MR) risk-significant system for more than 24 hours, and no increase in risk from external events. The cause of this finding is related to the cross-cutting area of human performance.

Inspection Report# : [2004003\(pdf\)](#)

**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 4OA5).

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

**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: NRC

Item Type: NCV NonCited Violation

#### **Failure to Manage the Risk from Proposed Maintenance Activities**

The inspectors identified a non-cited violation of 10 CFR, Part 50.65, Paragraph (a)(4), for the failure to properly manage risk when removing the Unit 1 B-Train components from service for a component cooling and essential raw cooling water header outage. Centrifugal Charging Pump 1B was inadvertently tagged out and made unavailable when it was not part of the scheduled maintenance plan. This put Unit 1 in a configuration different from that evaluated in the risk assessment and resulted in a situation not allowed by licensee site risk procedures.

This finding is more than minor because it was associated with the equipment performance attribute of the mitigating systems cornerstone and affected the availability of the charging pumps. It resulted in an unplanned 8.5 hour unavailability of the pump and an unplanned, unrecognized increase in risk. This finding is of very low safety significance because it did not represent an actual loss of safety function of a system nor did it represent an actual loss of safety function of a single train for greater than its technical specification-allowed outage time.

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

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## **Barrier Integrity**

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## **Emergency Preparedness**

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## **Occupational Radiation Safety**

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## **Public Radiation Safety**

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## **Physical Protection**

[Physical Protection](#) information not publicly available.

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## **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 : September 08, 2004