

Salem 2

4Q/2003 Plant Inspection Findings

Initiating Events

Significance:  Dec 27, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PROMPTLY CORRECT A CONTROL ROD POWER SUPPLY DEFICIENCY

Deferral of vendor recommended design changes (fuse uprating) on the control drive mechanisms led to a November 23, 2003, manual reactor trip due to a dropped rod during startup physics testing. A self-revealing NCV was identified for ineffective corrective actions.

This finding is greater than minor, because it caused an actual plant transient. The finding is of very low safety significance, because all mitigation systems were unaffected.

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

Significance:  Dec 16, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT ADEQUATE DESIGN CONTROL MEASURES

The team identified a violation of 10 CFR 50, Appendix B, Criterion III, Design Control, for design control inadequacies during plant modifications, setpoint changes and revisions of calculations associated with the 4160 volt electrical power system. These electrical system design deficiencies caused the two offsite power sources not to be independent of each other as required by 10 CFR 50, Appendix A, Criterion 17, Electric Power Systems.

The finding was more than minor because it affected the design control attribute of the Initiating Events Cornerstone objective and resulted in an increased likelihood of a loss of offsite power (LOOP) event. The finding was determined to be of very low safety significance (Green) based on the results of a phase 3 SDP analysis which evaluated the increase in core damage frequency (CDF) due to the increased likelihood of a LOOP caused by the design deficiencies.

Inspection Report# : [2003008\(pdf\)](#)

Significance:  Dec 16, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT ADEQUATE CORRECTIVE ACTIONS

The team identified a violation of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, for the failure of the licensee to implement adequate corrective actions to address design issues identified following the July 29, 2003, loss of offsite power event. When performing an operability evaluation to support plant restart, the licensee failed to identify that the lower operating voltage limit for the 4.16 kV buses needed to be increased to prevent recurrence of a similar event. The plant was restarted and operated from August 4 to August 22, 2003, until the issue was identified by the NRC and corrected by the licensee.

The finding was more than minor because it affected the design control attribute of the Initiating Events Cornerstone objective and resulted in an increased likelihood of a loss of offsite power event (LOOP). The finding was determined to be of very low safety significance (Green) based on the results of a phase 3 SDP analysis which evaluated the increase in core damage frequency (CDF) due to the increased likelihood of a LOOP caused by the failure to take appropriate corrective actions prior to plant restart.

Inspection Report# : [2003008\(pdf\)](#)

G

Significance: Jun 28, 2003

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

SURVEILLANCE PROCEDURE FOR TESTING A PRESSURIZER SPRAY VALVE (2PS3) WHILE AT POWER WAS NOT FOLLOWED

A self-revealing finding identified a non-cited violation of Technical Specification 6.8.1 because a surveillance procedure for testing a pressurizer spray valve (2PS3) while at power was not followed. This resulted in the inadvertent initiation of continuous spray to the pressurizer. Equipment operators misunderstood the task instructions and prematurely unisolated 2PS3. Control room operators were ineffective in receiving communications from the field and did not question actions inconsistent with the pre-job brief.

This finding is greater than minor because it had an actual impact on reactor coolant system pressure and operator manual actions were necessary to avert a reactor plant trip. The finding is of very low safety significance because mitigation systems were unaffected by the operator errors.

Inspection Report# : [2003005\(pdf\)](#)

G

Significance: Mar 29, 2003

Identified By: Self Disclosing

Item Type: FIN Finding

SALEM UNITS 1 AND 2 CONTROL AIR TRANSIENT

A self-revealing finding occurred when Salem Units 1 and 2 experienced a control air transient. Equipment anomalies during the transient revealed a valve configuration problem, an incomplete control air preventive maintenance item, and inadequate corrective action for a significant air leak.

This finding was not a violation of NRC requirements, in that the performance deficiencies occurred on non-safety related systems. The finding had an actual impact on plant stability and operator actions were necessary to reseal a reactor coolant system letdown line relief valve. This finding screened to Green in phase 1 of the SDP, because mitigation equipment was not affected by the control air transient.

Inspection Report# : [2003003\(pdf\)](#)

Mitigating Systems

G

Significance: Dec 27, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PROMPTLY CORRECT AN EMERGENCY DIESEL GENERATOR DEFICIENCY

A compressor air leak on the starting air system for the Unit 2 A EDG was not properly evaluated and corrected, such

that the removal of the other compressor for maintenance resulted in the 2A EDG being inoperable. This resulted in a Green self-revealing NCV for ineffective corrective actions.

This finding is greater than minor, because it affected the Mitigating System Cornerstone objective of equipment reliability, in that the 2A EDG was rendered inoperable due to a support system failure. The finding is of very low safety significance, because other EDGs remained unaffected and shutdown risk was not significantly affected.

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



Significance: Dec 27, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PROMPTLY CORRECT A RHR WATER HAMMER CONDITION (UNIT 2 CONTAINMENT SPRAY WATER HAMMER)

Ineffective problem evaluation regarding a known air pocket in the Unit 2 residual heat removal (RHR) system resulted in a waterhammer on the RHR and containment spray (CS) systems during a CS full flow test. This self-revealing finding represented an NCV for corrective actions.

This finding is greater than minor, because it affected the Mitigating System Cornerstone objective of equipment reliability, in that the RHR system was unnecessarily subjected to an additional waterhammer and the associated hydraulic stresses and strains. The finding is of very low safety significance, because it did not render the RHR system inoperable.

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



Significance: Dec 27, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PRECLUDE STEAM VOID CONDITIONS IN THE RESIDUAL HEAT REMOVAL SYSTEM

Ineffective corrective actions existed regarding an identified problem, in that the RHR system operating procedure had an insufficient cooldown period to preclude steam void conditions from developing after RHR flow was secured and this error was not corrected prior to its use. PSEG calculations in May 2003 had identified that the cooldown period should be increased from 15 minutes to 21 minutes. Operators restarted the Unit 2 RHR system on November 19, 2003, after cooling it down for less than 21 minutes, and a waterhammer occurred.

This finding is greater than minor, because it affected the Mitigating System Cornerstone objective of equipment reliability, in that the residual heat removal system was started with potential steam void conditions present. The finding is of very low safety significance, because it did not render the RHR system inoperable.

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



Significance: Dec 27, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PROMPTLY PERFORM RESIDUAL HEAT REMOVAL WATER HAMMER CORRECTIVE ACTIONS

Corrective actions were untimely, in that analyses to determine the stresses on the Unit 2 RHR system from repeated waterhammers were not completed until November 25, 2003. The waterhammer had been first identified on May 10, 2002. The inspectors also identified loose RHR pipe support hangers, which had not been identified by PSEG during system walkdowns in support of the waterhammer issue. This represented an NCV for ineffective corrective actions.

This finding is greater than minor, because it affected the Mitigating System Cornerstone objective of equipment reliability, in that the RHR system was operated with unevaluated conditions due to repeated waterhammers and degraded pipe supports. The finding is of very low safety significance, because it did not render the RHR system inoperable.

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

G

Significance: Dec 16, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PROPERLY TRANSLATE DESIGN INTO PLANT PROCEDURES

The team identified a violation of 10 CFR 50, Appendix B, Criterion III, Design Control, for failure of the licensee to translate design change information into plant procedures. Following the installation of a plant modification to provide a cross connect between the Unit 1 and 2 chemical and volume control systems (CVCS), instructions for utilizing the cross connect feature were not included at the appropriate steps in the associated procedures.

The finding was more than minor because it affected the design control attribute of the Mitigating Systems Cornerstone objective. The issue was not a design or qualification deficiency that the licensee had evaluated in accordance with GL 91-18, and was determined to be of very low safety significance (Green) because it did not result in an actual loss of safety function of a single train for internal or external event initiated core damage sequences.

Inspection Report# : [2003008\(pdf\)](#)

G

Significance: Mar 29, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PROPERLY EVALUATE AUXILIARY FEEDWATER PUMP SKID

The inspectors identified that temporary modifications to the 22 auxiliary feedwater (AFW) pump and the 13 AFW pump skids were not properly evaluated.

This NCV of 10 CFR 50, Appendix B, Criterion III, "Design Control" was greater than minor, because it affected the mitigating system cornerstone and the reliability of two AFW pumps. This finding was determined to be of very low safety significance, because pump shaft leakoff conditions were such that the unauthorized modifications had not impacted pump operation.

Inspection Report# : [2003003\(pdf\)](#)

G

Significance: Mar 29, 2003

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

EMERGENCY DIESEL GENERATOR DEFICIENT CORRECTIVE ACTIONS

A self-revealing finding was identified when the 1B emergency diesel generator (EDG) tripped during post-maintenance testing (PMT). The PMT was for separate test reasons and fortuitously revealed the EDG deficiency. The EDG deficiency involved a known electrical connector problem and inadequate interim corrective actions.

This NCV of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," is greater than minor, because it affected the mitigating systems cornerstone of equipment reliability. This finding was of very low significance, because the inadequate interim corrective actions did not cause any EDG to be inoperable for greater than the TS allowed outage time.

Inspection Report# : [2003003\(pdf\)](#)

Significance:  Mar 28, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT CORRECTIVE ACTIONS

The team identified a non-cited violation involving two examples where PSEG failed to correct conditions adverse to quality as required by 10 CFR 50, Appendix B Criterion XVI, Corrective Actions. Specifically, PSEG failed to evaluate and correct an adverse condition involving the protection of wires located inside of control room panels from an over-current condition, and also failed to correct an adverse condition involving a degraded component cooling water system pipe support. These findings were evaluated using the Phase 1 worksheet of the significance determination process and found to be of very low significance (Green) since they did not result in the actual loss of a mitigating system.

Inspection Report# : [2003004\(pdf\)](#)

Barrier Integrity

Significance:  Dec 27, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PROPERLY IMPLEMENT REACTOR COOLANT SYSTEM INSPECTION PROCEDURES

Untimely placement of identified steam generator tube plug deficiencies into the corrective action program represented an NCV for TS procedure requirements.

This performance deficiency was more than minor, because if left uncorrected the degraded SG tube plugs could have led to a more significant problem such as a SG tube failure. The inspectors evaluated the significance of this issue using the guidance contained in the draft Appendix J to the Significance Determination Process, "Steam Generator Tube Integrity Findings." The inspectors determined that this condition was bounded by the column in the SG Tube Integrity SDP matrix associated with "one or more tubes that should have been repaired as a result of previous inspection." As a result this condition was determined to be of very low risk.

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

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

Miscellaneous

Significance: N/A Mar 28, 2003

Identified By: NRC

Item Type: FIN Finding

PI&R BIENNIAL SUMMARY CONCLUSION

The team determined that PSEG was generally effective at identifying discrepant conditions and entering them into the corrective action system. However, the findings identified by this team supported the conclusion in the Annual Assessment Letter (NRC Inspection Report 50-272, 311/2003-01) of the existence of a substantive cross cutting issue in the area of problem identification and resolution. The team identified four examples where conditions adverse to quality were not entered into the corrective action system. The team determined that PSEG was generally effective at classifying and performing operability evaluations for discrepant conditions, however, some examples were noted where problem evaluations did not contain sufficient detail to support the conclusions. The team identified a finding with two examples where PSEG failed to correct conditions adverse to quality. The team noted that PSEG performed a root cause evaluation to indentify areas to improve the corrective action program. The team was not able to assess the effectiveness of this effort since the corrective actions had not been completed. On the basis of interviews conducted during the inspection, workers at the site felt free to input safety findings into the corrective action program.

Inspection Report# : [2003004\(pdf\)](#)

Last modified : March 02, 2004