

Salem 2

1Q/2004 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 a 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 a 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\(pdf\)](#)



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\(pdf\)](#)

Mitigating Systems



Significance: Mar 12, 2004

Identified By: NRC

Item Type: FIN Finding

INEFFECTIVE CONTROL AIR QUALITY TESTING

A finding of very low safety significance was identified in that the Control Air (CA) quality test program was inadequate. The test program did not verify the quality of air meets standards specified in ANSI/ISA S7.3-1975, Quality Standard for Instrument Air, as delivered to safety-related air loads.

This finding is greater than minor because it is associated with the Procedure Quality attribute for the CA mitigating system function and, if left uncorrected, could become a more significant safety concern. The finding is of very low safety significance because it did not render the CA system inoperable and because of the CA system redundancy

Inspection Report# : [2004006\(pdf\)](#)



Significance: Mar 12, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

INEFFECTIVE DESIGN CONTROL ASSOCIATED WITH SERVICE WATER DESIGN CHANGE AND INEFFECTIVE CORRECTIVE ACTIONS RELATIVE TO SW HIGH PRESSURE CONDITIONS

A finding of very low safety significance (Green), that is also a non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion III, was identified regarding an inadequate design analysis for a service water system modification performed on both units. The modification had changed the service water recirculation valve operating characteristics and installed orifices in the line without adequately evaluating the effect of an increase in system pressure, impact on pump margin to minimum flow requirements during transients, and impact to the service water high pressure alarm design function.

The finding is greater than minor because it was associated with the mitigating system cornerstone attributes of design control and equipment performance and affected the capability of the system to ensure service water pressure would be maintained within previously evaluated design parameters. Based on a review of PSE&G's analyses of the issue, the team concluded that the finding was a design deficiency which was confirmed not to result in the loss of any mitigating system function. Therefore, in accordance with the SDP Phase I screening worksheet, the issue was determined to be of very low safety significance (Green).

The team identified that a contributing cause of the finding was related to the cross-cutting area of Problem Identification and Resolution. PSEG had not fully evaluated and corrected this issue after several previous opportunities had existed to do so.

Inspection Report# : [2004006\(pdf\)](#)



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\(pdf\)](#)

G**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\(pdf\)](#)G**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\(pdf\)](#)G**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\(pdf\)](#)

Barrier Integrity

G**Significance:** Mar 12, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

CALCULATIONS OF CONTROL AIR ACCUMULATOR VOLUME WERE NON-CONSERVATIVE WITH RESPECT TO THE LTOP PORV ACCUMULATOR DESIGN BASES EVALUATION

The inspectors identified a finding of very low safety significance (Green), that is also a non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, Design Control. Specifically, design calculations performed to verify adequate accumulator air pressure for Low Temperature Overpressure (LTOP) conditions and acceptable system leakage rates used incorrect design inputs. These non-conservative calculations were referenced during future system evaluations and also used as the basis for operability determinations and alarm set points.

This finding is greater than minor because it was associated with the design control attribute for the power operated relief valve (PORV) mitigating system function. The design calculations formed the bases for subsequent non-conservative operability reviews which affected the objective of adequately ensuring the capability of the PORV accumulators. Because the LTOP condition is only of concern during periods where the reactor is in cold shutdown, the inspectors evaluated the finding using Appendix G, Shutdown Operations to NRC IMC 0609, Significance Determination Process (SDP). The team concluded that this issue was of very low safety significance (Green) since the function had always been maintained.

The inspectors identified that a contributing cause of the finding was related to the cross-cutting area of Problem Identification and Resolution in that Design Engineering personnel had failed to identify and correct errors and discrepancies between design calculations of record.

Inspection Report# : [2004006\(pdf\)](#)G**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

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