

Salem 1

2Q/2014 Plant Inspection Findings

Initiating Events

Significance: G Jun 30, 2014

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Maintain Shutdown Margin Calculation Procedure to Cover certain Mispositioned Control Rod Events

The inspectors determined there was a Green, self-revealing violation of TS 6.8.1, "Procedures and Programs," as described in Regulatory Guide 1.33, Revision 2, February 1978, when PSEG did not maintain procedure SC.RE-ST.ZZ-0002, "Shutdown Margin Calculation," to cover certain mispositioned control rod events. Consequently, PSEG performed unnecessary rapid boration, and a subsequent manual reactor trip, in response to a control rod drop event on January 31, 2014. PSEG entered this in their corrective action program (CAP), implemented compensatory measures for calculating shutdown margin, performed an apparent cause evaluation, and initiated actions to correct the cause of the problem, extent of condition, and extend of cause.

The issue was more than minor because it was associated with the procedure quality attribute of the initiating events cornerstone, and adversely affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the finding resulted in unnecessary rapid boration and a manual reactor trip. Using IMC 0609, Attachment 4, "Initial Characterization of Findings," and IMC 0609, Appendix A, "The SDP for Findings At-Power," the inspectors determined that this finding was of very low safety significance (Green) because it did not cause the loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition. The inspectors determined that this finding had a cross-cutting aspect in the area of Human Performance, Teamwork, because PSEG work groups did not communicate and coordinate their activities within and across organizational boundaries to ensure nuclear safety is maintained [H.4]. Specifically, PSEG reactor engineering and operations services did not communicate and coordinate a change to the shutdown margin calculation procedure that was conducted in response to vendor-issued guidance. Inspection Report# : [2014003](#) (*pdf*)

Significance: G Mar 31, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Online Risk Assessment for an Adverse Change in Grid Conditions

The inspectors identified a Green NCV of Title 10 of the Code of Federal Regulations (10 CFR) 50.65(a)(4) when PSEG inadequately assessed risk during a period of adverse grid conditions. On January 7, 2014, the regional transmission organization declared a Maximum Emergency Generation Action, a condition that PSEG was procedurally required to consider a high risk evolution (HRE) for a loss of offsite power (LOOP). Specifically, PSEG was to elevate online risk to a Yellow condition; however, PSEG did not assess risk as Yellow. PSEG subsequently elevated their risk condition, protected equipment, took other risk management actions (RMAs), and entered the issue in their CAP.

The issue was more than minor since it was associated with the Protection Against External Factors attribute of the Initiating Events cornerstone and adversely affected its objective to limit the likelihood of events that upset plant

stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the extreme cold weather conditions indirectly were affecting grid stability and required risk assessment and management. Additionally, it was similar to IMC 0612, Appendix E, example 7.e, in that an inadequate risk assessment is not minor if the overall plant risk would put the plant into a higher licensee-established risk category. In this case, plant risk was reclassified from Green to Yellow when properly assessed. Specifically, the extreme cold weather conditions indirectly were affecting grid stability. The inspectors evaluated the finding using IMC 0612, Appendix K, “Maintenance Risk Assessment and Risk Management Significance Determination Process.” Since the incremental core damage probability deficit was less than 1 E-6 and the incremental large early release probability deficit was less than 1 E-7, this finding was determined to be of very low safety significance (Green). The finding was determined to have a cross-cutting aspect in the area of Human Performance, Teamwork, in that individuals and work groups communicate and coordinate their activities within and across organizational boundaries to ensure nuclear safety is maintained. Specifically, PSEG staff in the Electric System Operations Center (ESOC), Salem control room, and Hope Creek control room did not appropriately communicate across organizational boundaries to ensure that risk was appropriately assessed.

Inspection Report# : [2014002](#) (pdf)

Significance:  Sep 30, 2013

Identified By: NRC

Item Type: FIN Finding

Inadequate Maintenance Procedure to Reconsolidate Pressurizer Spray Valve Packing

The inspectors identified a self-revealing Green finding when PSEG did not provide appropriate air-operated valve program setpoint control, and ensure adequate packing consolidation of the Unit 1 pressurizer spray valve (1PS1) in accordance with station procedure, ER-AA-410, “Air Operated Valve Program Implementing Procedure,” Revision 4. This resulted in a packing leak in excess of the Technical Specification (TS) allowable unidentified reactor coolant system (RCS) leak rate on August 22, 2013, and subsequently required an unplanned Unit shutdown. PSEG isolated the leak and entered this issue in the corrective action program (CAP) via Notifications 20618913 and 20618915.

This finding was more than minor because it was associated with the equipment performance attribute of the Initiating Events cornerstone, and adversely affected the associated cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Using IMC 0609, the inspectors determined that this finding was of very low safety significance (Green) using Exhibit 1 – “Initiating Events Screening Questions.” Specifically, after a reasonable assessment of degradation, the inspectors determined the finding would not exceed the RCS leak rate for a small loss-of-coolant accident (LOCA), and the finding would not have affected other systems used to mitigate a LOCA. The inspectors determined that this finding had a cross-cutting aspect in the area of Human Performance, Operating Experience (OE), because PSEG did not implement vendor recommendations through changes to station processes and procedures. [P.2(b)] (Section 40A3)

Inspection Report# : [2013004](#) (pdf)

Significance:  Aug 01, 2013

Identified By: NRC

Item Type: FIN Finding

Failure to Evaluate Performance Deficiency for FIN 2011004-02

The inspectors identified a Green finding (FIN) for PSEG’s failure to evaluate the performance deficiency documented for FIN 2011004-02 in accordance with procedure LSAA-1003, “NRC Inspection Preparation and Response.” Specifically, PSEG failed to initiate a notification to review FIN 2011004-02 and develop appropriate corrective actions. The original finding, FIN 201100402, was associated with untimely corrective actions for degraded reactor coolant pump motor cables. In addition to not addressing the performance

deficiency, the failure to initiate a notification creates the potential for future untimely corrective actions in similar cases. This issue was entered into PSEG's corrective action program as notification 20616485.

This finding is more than minor because if left uncorrected the issue has the potential to lead to a more significant safety concern. Specifically, PSEG has not corrected the performance deficiency which resulted in untimely corrective actions with regards to FIN 2011004-02. If similar untimely corrective actions were taken on a safety system this could result in a more significant safety concern. In accordance with IMC 0609.04, "Initial Characterization of Findings," and Exhibit 2 of IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power," issued June 19, 2012, this finding is of very low safety significance (Green) because it did not involve the complete or partial loss of a support system that contributes to the likelihood of, or cause, an initiating event and did not affect mitigation equipment. This finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program, because PSEG did not completely and accurately identify the issue for FIN 2011004-02. Specifically, PSEG did not initiate a notification to review FIN 2011004-02 to ensure corrective actions properly address the finding. [P.1(a)]

Inspection Report# : [2013008](#) (pdf)

Mitigating Systems

Significance:  Mar 31, 2014

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Follow Fire Protection Test Procedure Resulted in Fuel Oil Spill

The inspectors determined there was a Green, self-revealing violation of Technical Specification (TS) 6.8.1, "Procedures and Programs," as described in Regulatory Guide 1.33, Revision 2, February 1978, when PSEG failed to adequately implement procedure steps associated with fire protection hose flow verification testing on March 6, 2014. Consequently, a fuel oil day tank was overfilled, resulting in approximately 3000 gallons of fuel oil on the pump house roof, leaks through the roof onto the fire pumps, and Salem fire water suppression system unavailability for approximately two days. PSEG stopped the leak, entered this issue in their CAP, and completed a Prompt Investigation.

The inspectors determined that the performance deficiency was more than minor because it was associated with the Protection Against External Factors attribute of the Mitigating System cornerstone and adversely its cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events (fire) to prevent undesirable consequences. The inspectors determined that the finding was of very low safety significance (Green) because it did not impact the ability of Salem Units 1 or 2 to achieve and maintain safe shutdown. The inspectors determined that this finding had a cross-cutting aspect in the area of Human Performance, Avoid Complacency, because PSEG fire protection operators did not recognize and plan for the possibly of mistakes, latent issues, and inherent risk, even while expecting successful outcomes of procedure steps to refill the fuel oil day tank. Further, they did not implement appropriate error reduction tools.

Inspection Report# : [2014002](#) (pdf)

Significance:  Mar 31, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to establish appropriate MR performance goals

Green. The inspectors identified a Green NCV of Title 10 of the Code of Federal Regulations (10 CFR) 50.65(a)(4) when PSEG inadequately assessed risk during a period of adverse grid conditions. On January 7, 2014, the regional transmission organization declared a Maximum Emergency Generation Action, a condition that PSEG was procedurally required to consider a high risk evolution (HRE) for a loss of offsite power (LOOP). Specifically, PSEG was to elevate online risk to a Yellow condition; however, PSEG did not assess risk as Yellow. PSEG subsequently elevated their risk condition, protected equipment, took other risk management actions (RMAs), and entered the issue in their CAP.

The issue was more than minor since it was associated with the Protection Against External Factors attribute of the Initiating Events cornerstone and adversely affected its objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the extreme cold weather conditions indirectly were affecting grid stability and required risk assessment and management. Additionally, it was similar to IMC 0612, Appendix E, example 7.e, in that an inadequate risk assessment is not minor if the overall plant risk would put the plant into a higher licensee-established risk category. In this case, plant risk was reclassified from Green to Yellow when properly assessed. Specifically, the extreme cold weather conditions indirectly were affecting grid stability. The inspectors evaluated the finding using IMC 0612, Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process." Since the incremental core damage probability deficit was less than 1 E-6 and the incremental large early release probability deficit was less than 1 E-7, this finding was determined to be of very low safety significance (Green). The finding was determined to have a cross-cutting aspect in the area of Human Performance, Teamwork, in that individuals and work groups communicate and coordinate their activities within and across organizational boundaries to ensure nuclear safety is maintained. Specifically, PSEG staff in the Electric System Operations Center (ESOC), Salem control room, and Hope Creek control room did not appropriately communicate across organizational boundaries to ensure that risk was appropriately assessed.

Inspection Report# : [2014002](#) (pdf)

Significance:  Mar 31, 2014

Identified By: NRC

Item Type: FIN Finding

Failure to take adequate corrective actions following a PDP failure to couple-on-demand event.

The inspectors identified a Green FIN associated with Unit 1 for PSEG's failure to take adequate corrective actions in accordance with procedure LS-AA-125, "Corrective Action Program," Attachment 1 guidance following a PDP failure to couple-on-demand event, and to preclude subsequent failures during other couple-on-demand events and additional unplanned PDP unavailability. PSEG entered this issue into their CAP, implemented a compensatory measure, and initiated actions to correct the condition causing the failure to couple events.

The performance deficiency was more than minor because it was associated with the Equipment Performance attribute of the Mitigating Systems cornerstone and affected its objective to ensure the availability and reliability of systems (safe shutdown charging cross-connect) that respond to initiating events (fire) to prevent undesirable consequences (i.e., core damage). The inspectors determined that the finding was very low safety significance as the Unit 2 reactor would have been able to reach and maintain safe shutdown. This finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Resolution, in that PSEG did not take effective corrective actions to address issues in a timely manner commensurate with their safety significance. Specifically, PSEG did not take adequate corrective actions in response to a PDP failure-on-demand event in February 2013 to preclude several additional unexpected PDP failure-on-demand events which resulted in additional unplanned unavailability.

Inspection Report# : [2014002](#) (pdf)

Significance:  Dec 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate HELB Barrier Controls

The inspectors identified a Green NCV of TS 6.8.1, "Procedures and Programs", as described in Regulatory Guide (RG) 1.33, Revision 2, when PSEG did not properly implement high energy line break (HELB) barrier controls in accordance with CC-AA-201, Plant Barrier Control, during maintenance activities that affected the performance of safety-related equipment on October 1, 2 and 17, 2013. PSEG entered the issue into the CAP under notifications 20623371 and 20633614.

This finding was more than minor because it was associated with the configuration control attribute of the Mitigating System cornerstone, and adversely affected its objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, improper barrier controls could potentially affect the operating equipment in the case of a HELB. This performance deficiency required a detailed risk evaluation (DRE) in accordance with IMC 0609, Appendix A, screening questions in Exhibits 2, "Mitigating Systems," because of an assumed loss of the AFW system decay heat removal safety function. The inspectors and a Region I Senior Reactor Analyst (SRA) conducted a bounding DRE and determined this finding to be of very low safety significance (Green). This finding had a cross-cutting aspect in the area of Human Performance, Work Control, in that licensees plan and coordinate work activities by incorporating the need for planned contingencies, compensatory actions, and abort criteria. Specifically, PSEG did not properly plan and coordinate compensatory actions via station procedures for HELB barrier impairments. [H.3(a)] (Section 1R18)
Inspection Report# : [2013005](#) (*pdf*)

Significance:  Aug 01, 2013

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

13 Switchgear and penetration Area Ventilation Supply Fan Motor Bearing Failure due to Deletion of Preventative Maintenance Requirement

A self-revealing Green NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," was identified because PSEG did not complete a change to a preventative maintenance requirement for the Switchgear and Penetration Area Ventilation (SPAV) fan motors in accordance with PSEG procedure MA-AA-716-210-1005, "Predefine Change Processing." PSEG failed to perform an adequate engineering review of the Preventative Maintenance Change Request (PMCR) when bearing replacements were deleted from the SPAV fan motor maintenance plans in September, 2009. This resulted in the bearing not being lubricated and subsequent failure of the 13 SPAV supply fan motor on February 4, 2013. PSEG entered the issue into the corrective action program as notification 20594424.

The inspectors determined that the performance deficiency was more than minor because it was associated with the design control attribute of the Mitigating Systems cornerstone, and it adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, because PSEG failed to investigate a difference in bearing type documented in a 1998 NRC commitment letter and the SPAV fan motor material master, they did not resolve conflicting information on the type of bearing installed in the SPAV fan motors before a preventive maintenance change to delete periodic bearing replacements took effect. This resulted in bearing and fan motor failure. The inspectors evaluated the finding in accordance with IMC 0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations" (IMC 0609A). The inspectors determined that

the finding was of very low safety significance (Green) because the deficiency did not affect the design or qualification; did not represent a loss of system safety function; did not screen as potentially risk significant due to external initiating events; and SPAV fans are not designated as high safety-significance in the licensee's maintenance rule program. There is no cross-cutting aspect assigned because the performance deficiency is not indicative of current performance. Specifically, the performance deficiency involves an issue that occurred greater than three years ago and is not indicative of current performance.

Inspection Report# : [2013008](#) (*pdf*)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Security

Although the Security Cornerstone is included in the Reactor Oversight Process assessment program, the Commission has decided that specific information related to findings and performance indicators pertaining to the Security Cornerstone will not be publicly available to ensure that security information is not provided to a possible adversary. Other than the fact that a finding or performance indicator is Green or Greater-Than-Green, security related information will not be displayed on the public web page. Therefore, the [cover letters](#) to security inspection reports may be viewed.

Miscellaneous

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