Salem 2
4Q/2016 Plant Inspection Findings

Initiating Events

Significance: G Sep 30, 2016
Identified By: Self-Revealing
Item Type: FIN Finding
Misclassification of and Lack of Preventative Maintenance for SWC Valve 2GW75 and Relay S62-C1
The inspectors documented a self-revealing, Green finding (FIN) because PSEG did not classify plant equipment in accordance with procedure ER-AA-1001, "Component Classification," Revision 0, step 4.5. Specifically, PSEG did not appropriately classify a valve and relay within the stator water cooling (SWC) system, and subsequently did not perform the appropriate periodic maintenance. As a result of the absence of maintenance, the valve developed a packing leak, which dripped onto the trip relay and caused the relay to internally fill with water. On February 14, 2016, the trip relay contacts experienced an electrical short, which led to a turbine trip and a reactor trip from 100 percent power. PSEG entered this issue into the corrective action program (CAP) under notifications 20720566 and 20745264, performed apparent cause evaluation (ACE) 70184453, replaced the failed relay, and repaired the packing leak on the SWC valve.

The inspectors determined that a performance deficiency existed because PSEG did not properly classify the SWC relay and valve in accordance with station procedures to ensure the components would receive the appropriate preventive maintenance (PM). The finding was more than minor because it was associated with the equipment performance attribute of the Initiating Events cornerstone and adversely impacted its objective to limit the likelihood of events that upset plant stability (main generator and turbine trip) and challenge critical safety functions. Using IMC 0609, Attachment 4 and Appendix A, Exhibit 1, the inspectors determined that this finding was of very low safety significance, or Green, since mitigating equipment relied up to transition the plant to stable shutdown remained available. The inspectors determined there was no cross-cutting aspect associated with this finding since it was not representative of current PSEG performance.

Inspection Report# : 2016003 *(pdf)*

Significance: G Jun 30, 2016
Identified By: Self-Revealing
Item Type: FIN Finding
Inadequate Work Order Planning Results in Main Generator AVR STV Relay Trip
A Green, self-revealing finding (FIN) was identified against MA-AA-716-010, "Maintenance Planning Process," Revision 18, when PSEG work orders (WOs) did not specify the appropriate procedure to perform satisfactory modification testing of the main generator automatic voltage regulator (AVR) protective relay (model STV1). Consequently, the relay actuated below its design setpoint on February 4, 2016, resulting in an automatic trip of the Unit 2 main turbine and reactor. PSEG entered the issue in their Corrective Action Program (CAP) and performed a root cause evaluation (RCE), replaced the failed STV1 relay with a properly tested relay, verified other STV relays were appropriately tested as an extent of condition, and initiated an action to revise Laboratory Testing Services (LTS) department relay test procedures to ensure all applicable acceptance criteria will be incorporated.

The inspectors determined that a performance deficiency existed because PSEG WOs did not specify the appropriate

procedure to perform satisfactory modification testing of the main generator AVR protection relay. This issue was more than minor since it was associated with the procedure quality attribute of the Initiating Events cornerstone and adversely impacted its objective to limit the likelihood of events that upset plant stability (turbine and reactor trip) and challenge critical safety functions. Using IMC 0609, Attachment 4 and Appendix A, Exhibit 1, the inspectors determined that this finding was of very low safety significance, or Green, since mitigating equipment relied up to transition the plant to stable shutdown remained available. The finding had a cross-cutting aspect in the area of Human Performance, Work Management, in that the PSEG did not adequately implement the work process to coordinate with engineering and maintenance departments as needed to appropriately plan the STV1 relay modification test WO.

Inspection Report# : 2016002 *(pdf)*

Significance: G Mar 31, 2016
Identified By: Self-Revealing
Item Type: FIN Finding
Inadequate Digital Feedwater Design Change Evaluation
A self-revealing Green finding against procedure CC-AA-103, Configuration Change Control for Permanent Physical Plant Changes, Revision 15, was identified when PSEG did not adequately evaluate a modification's effect on existing design and operating margins. Specifically, an Advanced Digital Feedwater Control System (ADFCS) modification introduced a steam generator feedwater pump (SGFP) over-acceleration trip feature that was not evaluated and resulted in a SGFP trip and auxiliary feedwater (AFW) actuation. PSEG corrective actions included re-establishing main feedwater, making a report to the NRC via ENS 51738 for the AFW actuation, and entering this in their Corrective Action Program (CAP) as 20718519.

The inadequate evaluation of the ADFCS modification's effect on existing design and operating margins was a performance deficiency. The issue was determined to be more than minor since it was similar to IMC 0612, Appendix E, example 3b in that the design was not correctly translated and resulted in system operation being adversely affected by a SGFP trip and an AFW system actuation. It was also more than minor since it was associated with the design control attribute (plant modification) 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. The finding was evaluated in accordance with IMC 0609, Attachment 4 and Appendix A, where it was screened to Green since the transient did not result in both a reactor trip and loss of mitigation equipment relied upon to transition the plant from the onset of a trip to a stable shutdown condition (loss of feedwater). The finding had a cross-cutting aspect in the area of Human Performance, Change Management, in that, PSEG did not anticipate, manage, and communicate the effects of the over-acceleration trip change in the ADFCS modification to ensure unintended consequences were avoided.

Inspection Report# : 2016001 *(pdf)*

Mitigating Systems

Significance: G Jun 30, 2016
Identified By: NRC
Item Type: NCV Non-Cited Violation
Failure to Follow Operability Determination Procedure for Unit 2 Baffle-Former Bolts
The inspectors identified a Green non-cited violation (NCV) of Title 10 of the Code of Federal Regulations (10 CFR) Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," because, from June 15, 2016 until July

26, 2016, PSEG did not accomplish actions necessary to provide adequate confidence that a structure, system, and component (SSC) would perform satisfactorily in service (an activity affecting quality) as prescribed by a documented procedure. Specifically, although PSEG had concluded Salem Unit 2 is susceptible to baffle bolt failure due to its design and operating life (but less susceptible than Salem Unit 1), PSEG inadequately implemented Procedure OP AA-108-115, "Operability Determinations & Functionality Assessments," Sections 4.7.14 followed by Sections 4.7.18 4.7.20 to perform an operability evaluation (OpEval) to justify continued operation of the unit until the next refueling outage. PSEG's immediate corrective actions included entering the issue into its corrective action program (NOTF 20736630) and documenting an operability evaluation to support the basis for functionality of the baffle structure and the operability of the emergency core cooling system (ECCS) and reactivity control systems.

This finding is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences, in that degradation of a significant number of baffle bolts could result in baffle plates dislodging following an accident. This issue was dispositioned as more than minor because it was also similar to example 3.j of IMC 0612, Appendix E, "Examples of Minor Issues," in that the condition resulted in reasonable doubt of operability of the ECCS and additional analysis was necessary to verify operability. 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, the inspectors screened the finding for safety significance and determined it to be of very low safety significance (Green), since the finding did not represent an actual loss of system or function. After inspector questioning, PSEG performed OpEval 2016-015, which provided sufficient bases to conclude the Unit 2 baffle assembly would support ECCS and control rod system operability until the next refueling outage. This finding is related to the cross-cutting aspect of Operating Experience because PSEG did not effectively evaluate relevant internal and external operating experience. Specifically, PSEG did not adequately evaluate the impact of degraded baffle bolts in Unit 2 when directly relevant operating experience was identified at Unit 1.

Inspection Report# : 2016002 *(pdf)*

Significance:  Mar 31, 2016
Identified By: Self-Revealing
Item Type: NCV Non-Cited Violation
Failure to Correct Chiller Failures due to Gasket Leakage
A self-revealing Green non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion XVI, was identified when PSEG did not assure that an identified condition adverse to quality was corrected. Specifically, PSEG closed a corrective action to address chiller gasket leakage without performing the designated action. This resulted in four subsequent chiller trips due to gasket failures. PSEG entered this issue in the CAP under notification 20708693, and completed ACE 70181604 on December 21, 2015. Corrective actions from the ACE were completed on February 25, 2016, and included: obtaining the proper gasket material; testing an alternative gasket material (Teflon); and establishing interim performance monitoring under Order 80115963.

The inspectors determined that closing a corrective action to correct a condition adverse to quality evaluated by an ACE without implementing the corrective action was a performance deficiency. This performance deficiency was more than minor because it was associated with the equipment performance attribute of the Mitigating System cornerstone, and adversely affected the cornerstone objective of ensuring the availability and reliability of systems that respond to initiating events to prevent undesirable consequences, in that safety-related chillers were subsequently rendered inoperable as a result of not having the proper gasket material. The inspectors determined that this finding screened to Green in accordance with IMC 0609, Appendix A, because the finding did not represent an actual loss of function of at least a single train for greater than its technical specification allowed outage time. The inspectors determined that this finding had a cross-cutting aspect in the area of Problem Identification and Resolution, Resolution, because PSEG did not take effective corrective action to address recurring chiller evaporator head gasket

leaks in a timely manner.
Inspection Report# : 2016001 *(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.

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Miscellaneous

Last modified : February 01, 2017