Hope Creek 1
1Q/2015 Plant Inspection Findings

Initiating Events

Significance: G Dec 31, 2014
Identified By: Self-Revealing
Item Type: NCV Non-Cited Violation
Failure to Identify and Correct a Condition Adverse to Quality Associated with Safety Relief Valve Discharge Piping Misalignment
A self-revealing Green NCV of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," was identified when PSEG did not promptly identify and correct a condition adverse to quality. Specifically, PSEG did not initiate a notification or perform an evaluation of a potential cold spring condition found in the 'H' safety relief valve (SRV) discharge piping during the valve's replacement in 2012. PSEG's corrective actions included replacing the 'H' SRV, providing training to all maintenance crews responsible for SRV work, and` adding steps to the SRV removal and installation procedure to: 1) generate a notification for the identification of any piping misalignment, and 2) to pin the discharge piping spring can prior to SRV removal.

The finding 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 an event that upsets plant stability. Also, if left uncorrected the performance deficiency had the potential to lead to more significant safety concern. The inspectors determined that this finding was of very low safety significance (Green) using Exhibit 1 of IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated June 19, 2012, because the finding did not cause both a reactor trip and the loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition. This finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Identification, because the licensee did not identify issues completely, accurately and in a timely manner in accordance with the program. [P.1] (Section 1R15)
Inspection Report# : 2014005 *(pdf)*

Significance: G Jun 30, 2014
Identified By: Self-Revealing
Item Type: NCV Non-Cited Violation
Failure to Follow Procedure Resulting in the Loss of a Vital 4kV Bus
A self-revealing Green NCV of TS 6.8.1.a, "Procedures and Programs," was identified for PSEG's failure to follow procedure MA-AA-1000, "Maintenance Standards and Practices," during the replacement of Bailey logic modules associated with the 'D' vital bus (10A404). Specifically, during the spring 2009 refueling outage (1R15), PSEG failed to follow a work order (WO) requiring the replacement of all Bailey logic modules listed in WO 60061175 with new logic modules. As a result, a logic module (H1PB-1PBXIS-DC652010302) for the 10A404 vital bus was not replaced during 1R15, and failed due to age on December 19, 2013, causing a loss of the 10A404 bus and an entry into the associated 8 hour TSAS 3.8.3.1 for Onsite Power Distribution Systems. PSEG's corrective actions included replacement of the failed logic module, performance of an extent of condition inspection to ensure other similar logic modules and relays were replaced, and reinforcement of proper maintenance practices with the individuals involved in the completion of WO 60061175.

The performance deficiency was determined to be more than minor because it was associated with the human

performance 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, not following the work order instructions resulted in an extended service duration and failure of a component that resulted in a loss of power to the 'D' vital bus on December 19, 2013. Similarly, this performance deficiency was also similar to examples 2.g and 4.b of NRC IMC 0612 Appendix E, in that the PSEG is required to follow their procedures per TS 6.8.1, and ultimately led to a safety impact given the failure of the logic module causing a loss of power to the 10A404 vital bus. The inspectors determined the finding to be of very low safety significance (Green) in accordance with Exhibit 1 of NRC IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power, dated June 19, 2012," because the finding involved the loss of a support system that contributes to the likelihood of an initiating event (Loss of an AC Bus), but did not affect mitigation equipment. The inspectors determined that there was no cross-cutting aspect associated with this finding because the cause of the performance deficiency occurred more than three years ago, and was not representative of present plant performance.

Inspection Report# : 2014003 *(pdf)*

Significance: G Jun 30, 2014
Identified By: Self-Revealing
Item Type: FIN Finding
Failure to Evaluate an Identified Issue with the Moisture Separator Dump Valve Performance
A self-revealing finding of very low safety significance (Green) was identified for PSEG's failure to evaluate an identified deficiency in accordance with PSEG procedure LS-AA-125, Corrective Action Program." Specifically, PSEG failed to take self-recommended actions in notification 20447050 to evaluate the 'B' moisture separator (MS) dump valve performance after failing to operate as designed during 'B' MS drain valve troubleshooting on January 11, 2010. As a result, PSEG did not identify and correct a potential design flaw associated with thermal binding of the MS dump valves which was determined to be the cause of the 'A' MS dump valve failing to stroke open on December 1, 2013, causing a reactor scram from 100 percent power. PSEG's corrective actions include a design change to the MS emergency level control system that eliminates dump valve cycling on high MS level.

The performance deficiency was determined to be more than minor because it was associated with the equipment performance 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. The inspectors determined that this finding was of very low safety significance (Green) using Exhibit 1 of NRC IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated June 19, 2012, because the finding did not cause both a reactor trip and the loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition (e.g. loss of condenser, loss of feed water). The inspectors determined that there was no cross-cutting aspect associated with this finding because the cause of the performance deficiency occurred more than three years ago, and was not representative of present plant performance.

Inspection Report# : 2014003 *(pdf)*

Significance: G Jun 30, 2014
Identified By: Self-Revealing
Item Type: FIN Finding
Inadequate Implementation of Contingency Actions During Moisture Separator Emergency Level Controller Tuning
.A self-revealing finding of very low safety significance (Green) was identified when PSEG failed to ensure that appropriate contingency actions were in place prior to the performance of 'A' moisture separator (MS) emergency level controller tuning as required by WC-AA-105, "Work Activity Risk Management." Specifically, the decision to

tune the emergency level controller without appropriate contingencies in place led to a turbine trip on high 'A' MS level and subsequent reactor scram on December 5, 2013. PSEG's corrective actions included conducting performance management with the individuals involved with the tuning evolution and revising the moisture separator drain tank level tuning procedure to require an individual at the normal and emergency level controllers when performing emergency level controller tuning.

This finding was more than minor because it was associated with the human performance 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. The inspectors determined that this finding was of very low safety significance (Green) using Exhibit 1 of NRC IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated June 19, 2012, because the finding did not cause both a reactor trip and the loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition (e.g. loss of condenser, loss of feed water). The inspectors determined that the finding had a cross cutting aspect in the Human Performance area associated with Work Management, because PSEG personnel did not implement a process of planning, controlling, and executing work activities such that nuclear safety is the overriding priority. Specifically, technicians were only stationed at the emergency level controller during the tuning, when having technicians at both controllers would have provided more time to recover from a high level condition in the 'A' MS, and may have prevented the turbine trip and subsequent reactor scram on December 5, 2013. [H.5]

Inspection Report# : 2014003 *(pdf)*

Mitigating Systems

Significance: G Mar 31, 2015
Identified By: Self-Revealing
Item Type: NCV Non-Cited Violation
Failure to Identify and Correct a Condition Adverse to Quality Associated with the Reactor Core Isolated Cooling System Insulation and Oil
A self-revealing finding of very low safety significance (Green) and associated non-cited violation (NCV) of Title 10 of the Code of Federal Regulations (10 CFR) Part 50, Appendix B, Criterion XVI, "Corrective Action," was identified because PSEG did not promptly identify and correct a condition adverse to quality (CAQ). Specifically, PSEG 1) failed to identify a deficiency with the reactor core isolation cooling (RCIC) turbine thermal insulation on July 28, August 19, and November 18, 2014; and, 2) failed to initiate a notification (NOTF) identifying an adverse trend in RCIC oil moisture content and level on November 18, 2014 and in January 2015. The failure to identify and correct a CAQ resulted in high moisture content in the RCIC oil. PSEG's corrective actions included replacing the RCIC system oil on February 19, 2015 and repairing the non-conforming turbine insulation on February 25, 2015.

The performance deficiency (PD) was determined to be more than minor because it affected the Equipment Performance attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). This PD was also similar to examples 3.j and 3.k of NRC IMC 0612, Appendix E, in that the increased moisture content in the RCIC oil created a reasonable doubt of operability of the RCIC system. The inspectors determined the finding to be of very low safety significance (Green) in accordance with Exhibit 2 of IMC 0609, Appendix A, The Significance Determination Process for Findings At-Power, dated June 19, 2012, because: it was not a deficiency affecting the design or qualification of the mitigating system; it did not represent a loss of system function; it did not represent the loss of function for any TS system, train, or component beyond the

allowed TS outage time; and it did not represent an actual loss of function of any non TS trains of equipment designated as high safety significance in accordance with PSEG's maintenance rule program. The inspectors determined the finding had a cross-cutting aspect in the area of Problem Identification and Resolution (PI&R), Trending, because PSEG did not periodically analyze information from the corrective action program and other assessments in the aggregate to identify programmatic and other common cause issues. Specifically, PSEG did not analyze multiple RCIC system oil sample results or RCIC system NOTFs in the aggregate to identify a CAQ.
Inspection Report# : 2015001 *(pdf)*

Significance: G Jun 30, 2014
Identified By: NRC
Item Type: NCV Non-Cited Violation
Inadequate Procedural Guidance for Responding to an Internal Flooding Event in the HPCI and RCIC Rooms
The inspectors identified a Green NCV of TS 6.8.1.a, "Procedures" because PSEG procedures HC.OP-AR.ZZ-0006 and HC.OP-AR.ZZ-0022 could potentially complicate an internal flooding event and adversely affect assumptions in Hope Creek's flood design. Specifically, the procedures did not ensure operator response would not communicate the high pressure coolant injection (HPCI) and reactor core isolation cooling (RCIC) watertight rooms and potentially render two safety-significant single train systems inoperable. In addition to entering the issue into the corrective action program (CAP) as NOTFs 20646334, 20646335 and 20620653586, PSEG's corrective actions include a planned revision of the annunciator response procedures and issuance of a standing order to the Operations department staff. The performance deficiency is more than minor because it was associated with the procedure quality attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, PSEG procedures HC.OP-AR.ZZ-0006 and HC.OP-AR.ZZ-0022 could potentially complicate an internal flooding event and adversely affect assumptions in Hope Creek's flood design, since the procedures did not ensure operator response would not communicate the HPCI and RCIC watertight rooms and potentially render multiple trains of safety-related SSCs inoperable. This performance deficiency was also similar to examples 3.j and 3.k of NRC IMC 0612, Appendix E, in that communicating the two watertight rooms created a reasonable doubt of operability of the HPCI and RCIC systems. PSEG plans to perform a detailed technical evaluation to evaluate the impact of internal flood propagation in the HPCI and RCIC rooms. The finding was evaluated in accordance with Exhibits 2 and 4 of NRC IMC 0609, Appendix A, "The SDP for Findings At-Power," dated June 19, 2012. Since opening the watertight door during an internal flooding event could bypass the flood protection feature and potentially degrade two or more trains of a multi-train system or function, a detailed risk assessment was performed. The finding was determined to be of very low safety significance (Green). Since the change in core damage frequency was sufficiently low, no further evaluation for large early release was required. The inspectors determined that the finding had a cross cutting aspect in the Human Performance area associated with Training, in that PSEG did not provide adequate training and ensure knowledge transfer to maintain a knowledgeable, technically competent workforce and instill nuclear safety values. Specifically, operator training did not ensure operator response to internal flooding would not result in communicating two watertight rooms containing safety significant single-train systems. [H.9]
Inspection Report# : 2014003 *(pdf)*

Barrier Integrity

Significance: G Mar 31, 2015
Identified By: Self-Revealing
Item Type: NCV Non-Cited Violation
Failure to Take Timely Corrective Actions to Correct a Condition Adverse to Quality Related to a 480 VAC

Masterpact Breaker Performer Plug
A self-revealing finding of very low safety significance (Green) and associated NCV of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," was identified for PSEG's failure to take timely corrective action to correct a CAQ. Specifically, PSEG failed to take timely corrective actions to replace a performer plug installed in the 'C' filtration recirculation and ventilation system (FRVS) recirculation fan motor breaker that was known to potentially cause inadvertent advanced protection breaker trips when closing motor starter breakers. PSEG's corrective actions include replacing the performer and sensor plugs and micrologic trip unit and changing the Masterpact breaker maintenance procedure to prevent the installation of breakers with the old performer plugs.

The performance deficiency (PD) was determined to be more than minor because it was associated with the Structure, System or Component (SSC) and Barrier Performance attribute of the Barrier Integrity cornerstone and adversely affected the cornerstone objective to provide reasonable assurance that physical design barriers (fuel cladding, reactor coolant system, and containment) protect the public from radionuclide releases caused by accidents or events. Specifically, the failure to replace the 'C' FRVS recirculation fan motor breaker performer plug resulted in an inadvertent advanced protection breaker trip and emergent inoperability of the 'C' FRVS recirculation fan. The finding is of very low safety significance (Green) per IMC 0609, Appendix A, "Exhibit 3 – Barrier Integrity Screening Questions," because the finding only represented a degradation of the radiological barrier function provided for the reactor building by the FRVS system. The inspectors determined the finding had a cross-cutting aspect in the area of Human Performance, Resources, because PSEG did not ensure that personnel, equipment, procedures, and other resources are available and adequate to support nuclear safety. Specifically, because of the deferral of the preventive maintenance (PM) work order (WO) with a corrective maintenance assignment, PSEG did not replace the 'C' FRVS recirculation fan breaker performer and sensor plugs during a 'C' FRVS work window in April 2014.

Inspection Report# : 2015001 *(pdf)*

Significance: G Jun 30, 2014
Identified By: Self-Revealing
Item Type: NCV Non-Cited Violation
Inadequate Evaluation of a Main Control Room Chiller Design Change
The inspectors reviewed a Green self-revealing NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for PSEG's failure to effectively implement the design change process. Specifically, PSEG's design change package (DCP) 4EC-3662 failed to reclassify the purchase classification (PC) of the main control room (MCR) chiller pressure control valve (PCV) positioner from non-safety related (PC4) to safety related (PC1). Because of the incorrectly assigned PC, PSEG did not track the shelf life of replacement positioner diaphragms, which led to the failure of the 'A' MCR positioner on December 20, 2013. PSEG's corrective actions included replacement of the failed positioner and changing the purchase classification for the chiller PCV positioners to safety-related (PC1). Since the implementation of DCP 4EC-3662, the DCP procedures have been enhanced to ensure the completion of a purchase class evaluation of procured materials that are implemented in the design change process.

The inspectors determined that the performance deficiency was more than minor because it is associated with the design control attribute of the Barrier Integrity cornerstone, and adversely affected the cornerstone objective of maintaining the radiological barrier functionality of the control room. In accordance with Exhibit 3 of NRC IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings at Power," issued June 19, 2012, the inspectors determined that this finding is of very low safety significance (Green) because the performance deficiency represents a degradation of only the radiological barrier function provided for the control room. The inspectors determined that there was no cross-cutting aspect associated with this finding because the cause of the performance deficiency occurred more than three years ago, and was not representative of present plant performance.

Inspection Report# : 2014003 *(pdf)*

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

Last modified : June 16, 2015