Hope Creek 1
3Q/2015 Plant Inspection Findings

Initiating Events

Significance: G Feb 13, 2015
Identified By: NRC
Item Type: NCV Non-Cited Violation
Inadequate Preventive Maintenance for Safety-Related Optical Isolators in the Residual Heat Removal System
The inspectors identified a Green NCV of TS 6.8.1.a, "Procedures and Programs," regarding PSEG's failure to adequately establish, implement, and justify a replacement frequency for the Residual Heat Removal (RHR) system optical isolators AT14 and AT18. These optical isolators were the most likely cause of an October 2013 RHR pump trip that resulted in a loss of shutdown cooling (SDC) during Hope Creek's R18 refueling outage. PSEG determined that the optical isolators did not have an established replacement frequency, and they had been installed since original plant construction. PSEG replaced the optical isolators and established a replacement preventive maintenance (PM) task going forward. The inspectors determined that PSEG had previous opportunity to identify the deficient PM strategy and replace the optical isolators prior to the October 2013 loss of SDC. In response to this finding, PSEG plans to conduct a causal evaluation and document the basis for their new PM frequency.

This issue is more than minor because it was associated with the equipment performance attribute of the initiating events cornerstone, and adversely affected the cornerstone objective of limiting the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the RHR optical isolators were determined to be the most likely cause of the 'B' RHR pump trip and associated loss of SDC on October 17, 2013. The inspectors, with the assistance of a Region I Senior Reactor Analyst (SRA), used IMC 0609, Appendix G, "Shutdown Operations Significance Determination Process," to evaluate the safety significance of this issue. Based upon Appendix G, Attachment 1, Exhibit 2, this issue required a Phase 2 analysis, because the performance deficiency resulted in an actual loss of decay heat removal event. Using Attachment 3, "Phase 2 Significance Determination Process Template for BWRs During Shutdown," Worksheet 5, the SRA determined this issue was of very low safety significance (Green). The inspectors determined that the finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Evaluation, which states that licensees thoroughly evaluate issues to ensure that resolutions address causes and extent of conditions commensurate with their safety significance. In this case, when the PCM template process was initially implemented in 2008, PSEG failed to evaluate AT14 and AT18 against the applicable PCM template (Signal Conditioner – Electronic) and generate replacement PMs. Although this performance deficiency dates back to 2008, the inspectors determined the issue is reflective of current licensee performance, because PSEG's root cause evaluation (RCE) and the associated PM change request (PCR), conducted in 2013, constituted a second missed opportunity for PSEG to evaluate the applicable PCM template against the PM strategy for AT14 and AT18.
Inspection Report# : 2015008 *(pdf)*

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)*

Mitigating Systems

Significance: N/A Sep 30, 2015
Identified By: NRC
Item Type: NCV Non-Cited Violation
Inaccurate Information Provided to the NRC in License Amendment Request for Service Water Bay Watertight Doors
The inspectors identified a severity level IV (SL IV) NCV of Title 10 of the Code of Federal Regulations (10 CFR) 10.50.9(a), "Completeness and Accuracy of Information," for PSEG's failure to provide accurate and complete information in a license amendment request regarding technical specification (TS) 3.7.3 "Flood Protection." This information was material to NRC because it was used, in part, as the basis for the approval and issuance of a license amendment to remove the Unit 2 service water intake structure (SWIS) watertight doors from TS flood protection requirements. PSEG's corrective actions include reinstatement of the Unit 2 watertight doors in the technical requirements manual (TRM) flood protection requirements. Additionally, since the inaccurate license change request submittal in 1998, PSEG implemented LS-AA-117, "Written Communications," which requires that all license amendment requests and documents submitted to the NRC under oath and affirmation shall receive a Technical Verification Team review. The Technical Verification Team review consists of a page-by-page review of the subject document that identifies and validates all statements of fact, assumptions, data inputs and calculations which could alter the conclusions reached in the document.

The inspectors evaluated this issue using the traditional enforcement process because the performance deficiency had the potential to impact the NRC's ability to perform its regulatory function. Specifically, this violation impacted the regulatory process in that the inaccurate information was material to the NRC's determination that there was reasonable assurance the proposed removal of the Unit 2 SWIS bay watertight doors from the Hope Creek TSs would not result in plant operations that would endanger the health and safety of the public. The inspectors concluded that had the information been complete and accurate at the time provided, it likely would have resulted in a reconsideration of this regulatory position. The inspectors determined that the performance deficiency identified is a Severity Level IV violation, because: the risk associated with an external flooding event at Hope Creek is very low (less than 10-8 per year), the flood protection TS requirement has been changed to a TRM requirement, and the procedure revision to HC.OP-AB.MISC-0001, "Acts of Nature," ensured that all of the SWIS exterior doors would be

closed during high river water level conditions. The performance deficiency was screened against the Reactor Oversight Process (ROP) per the guidance of IMC 0612, Appendix B, “Issue Screening,” and no associated ROP finding was identified. In accordance with IMC 0612, Appendix B, this traditional enforcement issue is not assigned a cross-cutting aspect.

Inspection Report# : 2015003 *(pdf)*

Significance: N/A Jun 30, 2015
Identified By: NRC
Item Type: NCV Non-Cited Violation
Failure to Request a Generic Fundamentals Examination Waiver for a Senior Operator License Applicant
During a review of recently issued operator licenses, the NRC identified an NCV of 10 CFR 50.9 associated with the licensee’s failure to request a Generic Fundamentals Examination (GFE) waiver for a Senior Operator License applicant. Compliance was restored on May 4, 2015, when the licensee submitted a letter to the NRC which provided additional information concerning the issue. The Senior Reactor Operator (SRO) applicant had completed classroom instruction and successfully passed a licensee administered GFE on August 16, 2013, and had passed an NRC prepared GFE when previously licensed as a reactor operator at another utility. The applicant met the requirements to request a waiver to sit for the exam and would have been granted a waiver if it had been requested.

The inspectors determined that traditional enforcement applied to this performance deficiency (PD), as the issue impacted the NRC’s ability to perform its regulatory function. Specifically, the NRC relies upon the licensee to ensure all license applicants have completed the preparation requirements of NUREG-1021. The PD was determined to be Severity Level IV because it fits the SL-IV example of Enforcement Policy Section 6.4.d.1.a, “Violation Examples: Licensed Reactor Operators.” This section states, “Severity Level IV violations involve for example …cases of inaccurate or incomplete information inadvertently provided to the NRC that does not contribute to the NRC making an incorrect regulatory decision as a result of the originally submitted information.” Because the applicant met the requirements for a waiver and the waiver would have been granted if
it had been requested, the performance deficiency did not cause the NRC to make an incorrect regulatory decision. The performance deficiency was screened against the Reactor Oversight Process (ROP) per the guidance of IMC 0612, Appendix B, “Issue Screening.” No associated ROP finding was identified and no cross-cutting aspect was assigned.
Inspection Report# : 2015002 *(pdf)*

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 Isolation 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: N/A Feb 13, 2015
Identified By: NRC
Item Type: NCV Non-Cited Violation
Failure to Submit a Licensee Event Report for a Condition Prohibited by Technical Specifications
The inspectors identified a Severity Level IV NCV of 10 CFR Part 50.73(a)(2)(i)(B) because PSEG did not provide a written Licensee Event Report (LER)
to the NRC within 60 days of identifying a condition prohibited by the plant's technical specifications (TS). Specifically, PSEG personnel did not submit a 50.73 report for the inoperability of the 'B' Filtration, Recirculation and Ventilation System (FRVS) recirculation
fan that exceeded its TS allowed outage time. PSEG entered this issue into the corrective action program as notification 20678572. Planned actions include submitting an LER and performing a causal evaluation.
Because the failure to submit a required LER impacts the regulatory process, this violation was evaluated using Section 2.2.4 of the NRC's Enforcement Policy, dated July 9, 2013. The issue was determined to be a Severity Level IV violation in accordance with the example listed in Section 6.9.d.9, "a licensee fails to make a report required by 10 CFR 50.72 or 10 CFR 50.73." The inspectors reviewed the issue for reactor oversight process significance and concluded there was no associated finding. Because this violation involves the traditional enforcement process and does not have an underlying technical violation that would be considered more-than-minor, a cross-cutting aspect is not assigned to this violation in accordance with IMC 0612.
Inspection Report# : 2015008 *(pdf)*

Significance: G Feb 13, 2015
Identified By: NRC
Item Type: NCV Non-Cited Violation
Inadequate Maintenance Rule Monitoring of the Reactor Manual Control System
The inspectors identified a Green NCV of 10 CFR 50.65(a)(1) due to inadequate maintenance rule monitoring of the Reactor Manual Control System (RMCS). Specifically, PSEG did not properly evaluate and account for 52 maintenance preventable functional failures (MPFFs) across various systems, which were discovered by PSEG during a 2013 self-assessment of the Maintenance Rule Program. The inspectors determined that the multiple functional failures and a repeat MPFF experienced by RMCS demonstrated that the performance of RMCS was not being effectively controlled through appropriate preventive maintenance, and additional monitoring actions were required by 10 CFR 50.65(a)(1) and the PSEG Maintenance Rule Program. In response to this finding, PSEG plans to re-evaluate the 52 MPFFs for potential repeat MPFFs, generate a new notification for any repeat MPFFs identified, and conduct a work group evaluation to determine the cause of
the improperly evaluated MPFFs.

This issue was determined to be more than minor in accordance with IMC 0612 Appendix B, "Issue Screening,"

because it was associated with 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. Specifically, because PSEG did not identify the repeat MPFF and implement required (a)(1) corrective actions and goals, PSEG missed an opportunity to assure reliability of RMCS by preventing additional failures. The inspectors determined that this finding was of very low safety significance (Green) using Exhibit 2 of IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated June 19, 2012, because the finding did not 1) affect a single reactor protection system (RPS) trip signal to initiate a reactor scram and the function of other redundant trips or diverse methods of reactor shutdown; 2) involve control manipulations that unintentionally added positive reactivity; or, 3) result in mismanagement of reactivity by operators. The inspectors determined that the finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Resolution, which states that licensees are expected to take effective corrective actions to address issues in a timely manner commensurate with their safety significance. In this case, PSEG failed to take effective corrective actions to resolve a known maintenance rule program deficiency with respect to non-conservative functional failure cause determination evaluations (FFCDEs). This directly led to inadequate reliability monitoring of RMCS under the maintenance rule, and potentially affected other maintenance rule systems as well.
Inspection Report# : 2015008 *(pdf)*

Barrier Integrity

Significance: G Jun 30, 2015
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 Inlet Piping
A self-revealing Green NCV of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Actions," was identified involving PSEG's failure to promptly identify and correct a condition adverse to quality. Specifically, PSEG did not identify and initiate a Corrective Action Process Notification Report for numerous tooling marks on the Reactor Coolant System (RCS) inlet piping connecting the Safety Relief Valves (SRVs) to the primary system following periodic removal and replacement. PSEG determined that the tooling marks could have resulted in stress risers on the RCS piping, making the pipe prone to cracking, and reduced the margin to the piping minimum wall thickness. PSEG's corrective actions included blending the tooling marks on all 14 SRV inlet pipes, verifying thickness above the minimum wall value, completing ultrasonic thickness measurements and magnetic particle surface examinations of the piping, and completing an RCS operational pressure test to verify the operability and functionality of the SRV inlet piping.

This finding was more than minor because it was associated with the human 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. The inspectors used IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated June 19, 2012, which states in the Barrier Integrity section that for all non-pressurized thermal shock issues, the inspectors should evaluate the issue under the initiating events cornerstone (Exhibit 1). Using Exhibit 1 for Transient Initiators, the inspectors determined that the finding was of very low safety significance (Green), because after a reasonable assessment of the degradation; the condition did not adversely impact RCS leakage or functionality of available Loss of Coolant Accident (LOCA) mitigation capabilities. Specifically, the SRV inlet piping safety-related function, relied upon for accident mitigation and pressure relief, remained operable. The inspectors determined this finding has a cross-cutting aspect in Human Performance, Work Management, because the organization did not implement a process of planning, controlling, and executing work activities such that nuclear

safety is the overriding priority. The work process did not include the identification of risk (risk of the torque tool damaging the SRV pipe, and the failure to identify damage during inspections when performing maintenance on the SRV's) commensurate to the work and the need for coordination with different groups or job activities.

Inspection Report# : 2015002 *(pdf)*

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)*

Emergency Preparedness

Occupational Radiation Safety

Significance: G Sep 30, 2015
Identified By: Self-Revealing
Item Type: NCV Non-Cited Violation
Unauthorized Locked High Radiation Area Entry
A self-revealing Green NCV of TS 6.12.2 was identified when a worker entered a posted locked high radiation area

(LHRA) without proper authorization. Specifically, the worker entered the LHRA without being signed onto the proper radiation work permit (RWP) or receiving a pre-entry LHRA briefing, and subsequently received a dose rate alarm. Upon identification, PSEG promptly restricted the worker's access to the radiologically controlled area (RCA). This condition has been entered into PSEG's corrective action program (CAP) as notification (NOTF) 20701814.

This finding was more than minor since it was associated with the program and process attribute of the Occupational Radiation Safety cornerstone and adversely affected its objective to ensure the adequate protection of the worker health and safety from exposure to radiation from radioactive material during routine reactor operation. Additionally, the finding was similar to IMC 0612, Appendix E, Example 6.h, which describes an improper entry into a high radiation area (HRA). Specifically, the worker entered the LHRA without being signed on to the proper RWP, without receiving a pre-entry LHRA briefing from radiation protection (RP) staff, and subsequently received a dose rate alarm. The finding was evaluated using IMC 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process," issued August 19, 2008, where it screened to very low safety significance (Green) since it was not associated with an as low as is reasonably achievable (ALARA) issue, did not involve an overexposure, did not constitute a substantial potential for overexposure, and did not compromise PSEG's ability to assess dose. The inspectors determined this finding has a cross-cutting aspect in the area of Human Performance, Avoid Complacency, in that the worker did not recognize and plan for the possibility of mistakes, latent issues, and inherent risk, even while expecting successful outcomes. Specifically, the worked lacked situational awareness when they became distracted and crossed a radiological boundary without the appropriate authorization.

Inspection Report# : 2015003 *(pdf)*

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

Significance: N/A Feb 13, 2015
Identified By: NRC
Item Type: FIN Finding
Biennel PI&R Overall Assessment
The inspectors concluded that PSEG was generally effective in identifying, evaluating, and resolving problems. PSEG personnel identified problems, entered them into the corrective action program (CAP) at a low threshold, and prioritized issues commensurate with their safety significance. The inspectors concluded that, in general, PSEG adequately identified, reviewed, and applied relevant industry operating experience to Hope Creek operations. In

addition, the inspectors determined that PSEG's self-assessments and audits were thorough, and identified deficiencies were entered into the CAP for follow up.

In most cases, PSEG appropriately screened issues for operability and reportability, and performed causal analyses that appropriately considered extent of condition, generic issues, and previous occurrences. The inspectors also determined that PSEG typically implemented corrective actions (CAs) to address the problems identified in the CAP in a timely manner. However, the inspectors identified three violations of NRC requirements; two in the area of effectiveness of prioritization and evaluation of issues and one in the area of effectiveness of corrective actions.

Based on interviews the inspectors conducted over the course of the inspection, observations of plant activities, and reviews of individual CAP and employee concerns program issues, the inspectors did not identify any indications that site personnel were unwilling to raise safety issues nor did they identify any conditions that could have had a negative impact on the site's safety conscious work environment.
Inspection Report# : 2015008 *(pdf)*

Last modified : December 15, 2015