

Hope Creek 1

4Q/2013 Plant Inspection Findings

Initiating Events

Significance:  Dec 31, 2013

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Follow Procedure for Configuration Control Adversely Affected Unidentified Leakage in the Drywell.

A Green self-revealing NCV of TS 6.8.1, "Procedures and Programs," was identified regarding PSEG's conduct of maintenance and component configuration control during system restoration from an operation with a potential for draining the reactor vessel (OPDRV) activity. Specifically, PSEG did not close a reactor water cleanup (RWCU) valve in accordance with the maintenance procedure during the refueling outage. This resulted in increased RCS UIL in the reactor drywell area following startup. PSEG restored the mispositioned valves, conducted an extent of condition on other valves in the drywell, completed a prompt investigation concerning the valve mispositioning, and is in the process of conducting an Apparent Cause Evaluation (ACE) on the configuration control event under Order 70161461. PSEG has also placed this issue into CAP as notification 20632003.

The performance deficiency was more than minor because it was associated with the configuration control 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 evaluated the finding using IMC 0609, Attachment 4, Initial Screening and Characterization of Findings, which required an analysis using Exhibit 1 of IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power," dated June 19, 2012. The finding was determined to be of very low safety significance (Green) because the finding could not result in exceeding the RCS leak rate for a small loss of coolant accident (LOCA) or have likely affected other systems used to mitigate a LOCA resulting in a total loss of their function. This finding had a cross-cutting aspect in the area of Human Performance, Work Practices, because PSEG's communication of human error prevention techniques did not support human performance and proper personnel work practices. Specifically, PSEG did not use adequate human performance tools and valve position verification techniques when controlling valve position for components associated with an OPDRV activity. [H.4(a)] (Section 1R15)

Inspection Report# : [2013005](#) (*pdf*)

Significance:  Dec 31, 2013

Identified By: Self-Revealing

Item Type: FIN Finding

Failure to Identify Adverse Trend Regarding Bailey Module and Auxiliary Card Failures

A Green self-revealing finding was identified for PSEG's failure to identify and correct an adverse trend regarding 48 Bailey module failures across multiple systems since 2005, including six Bailey module failures in the circulating water (CW) system. As a result of continued problems associated with this previously unidentified adverse trend, on June 12, 2013, the 'B' CW pump tripped resulting in a manual scram of the reactor due to degrading condenser vacuum. PSEG corrective actions include addressing the programmatic weakness identified regarding the performance monitoring and trending program for circuit card failures by amending the Bailey Module Reliability Program to include fuse module and auxiliary card failures.

The finding was more than minor because it was associated with the Initiating Events cornerstone and 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, PSEG's failure to identify and correct the adverse trend regarding Bailey module failures resulted in a manual scram from 100 percent power due to the trip of the 'B' CW pump concurrent with the 'B' CW discharge valve being gagged in the open position. The finding was determined to be of very low safety significance (Green) in accordance with Appendix A of IMC 0609, "The Significance Determination Process (SDP) for Findings At-Power," dated June 19, 2012, because the finding did not contribute to 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. The inspectors determined that this finding had a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program, because PSEG did not trend and assess information from the CAP and other assessments in the aggregate to identify programmatic and common cause problems. Specifically, PSEG failed to trend or perform an aggregate assessment of Bailey module and auxiliary card failures. [P.1(b)] (Section 4OA3.2)

Inspection Report# : [2013005](#) (*pdf*)

Mitigating Systems

Significance:  Dec 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Follow the Primary Containment Closeout Procedure when Declaring the Drywell Ready for Power Operation

The inspectors identified a finding of very low safety significance (Green) and associated NCV of Title 10 of the Code of Federal Regulations (10 CFR) Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," for PSEG's failure to conduct primary containment (drywell) close-out activities in accordance with site procedures. Specifically, during the NRC's drywell closeout inspection, the inspectors identified several outage-related items that were not removed from the various elevations of the drywell. As a result, PSEG did not properly inspect the drywell in preparation for power operation. PSEG corrective actions included removing the items identified during the NRC drywell closeout inspection and placing the issue in the corrective action program (CAP).

The performance deficiency was determined to be more than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone, and affected the cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using NRC IMC 0609, Appendix G, "Shutdown Operations Significance Determination Process," dated February 28, 2005, the finding was determined to be of very low safety significance (Green) because the inspectors qualitatively determined that the finding involved adequate mitigation capability and was not an event that could be characterized as a loss of control. This finding had a cross-cutting aspect in the area of Human Performance, Work Practices, because PSEG did not define and effectively communicate expectations regarding procedural compliance and personnel did not follow procedures. Specifically, PSEG personnel did not ensure that the drywell was ready for power operations as required by site procedures. [H.4(b)] (Section 1R20)

Inspection Report# : [2013005](#) (*pdf*)

Significance:  Dec 31, 2013

Identified By: NRC

Item Type: FIN Finding

Inadequate Evaluation of Containment Vent Functionality

The inspectors identified a finding of very low safety significance (Green) for PSEG's failure to ensure evaluations addressed identified issues in accordance with PSEG procedure LS-AA-125, "Corrective Action Program." Specifically, PSEG failed to adequately assess the functionality of the containment vent following NRC identification of inadequate maintenance practices for an instrument air check valve (1KBV-300) and that design calculation H-1-KB-MDC-1007, "Backup Pneumatic Supply for 1GSHV-4964 and 1GSHV-11541 Valves," did not account for leakage through the valve. PSEG's corrective actions included installation of a design change to modify instrument air piping to support leak rate testing of 1KBV-300 and addition of 1KBV-300 to its check valve monitoring and preventive maintenance program. PSEG also completed a revision to design calculation H-1-KB-MDC-1007 to credit up to 500 standard cubic centimeter per minute (scm) of leakage through 1KBV-300.

This issue was more than minor because it was associated with the design control attribute of the mitigating systems cornerstone, and affected the cornerstone's objective to ensure the availability and reliability of systems that respond to initiating events to prevent undesirable consequences. 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 (SDP) for Findings At-Power," dated June 19, 2012, because: it was not a deficiency affecting the design or qualification of the containment vent; it did not represent a loss of system or function; it did not represent the loss of function for any technical specification (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 highly safety-significant in accordance with PSEG's maintenance rule program. The inspectors determined that the finding had a cross cutting aspect in the Human Performance area associated with Resources, because PSEG did not ensure that personnel, equipment, procedures, and other resources are available and adequate to assure nuclear safety, specifically, those necessary for maintaining long term plant safety by maintenance of design margins. Specifically, PSEG did not ensure maintenance of design margin for the containment vent system when concerns were identified regarding its functionality. This included PSEG relying upon operation of the containment vents with hydraulic jacks that have not been operated since 1992 following their installation [H.2(a)]. (Section 4OA2.5)

Inspection Report# : [2013005](#) (pdf)

Significance: G Jun 30, 2013

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Inadequate Preventive Maintenance Replacement Schedule for Tyco/Agastat General Purpose Control Relays

A self-revealing Green NCV of Technical Specifications (TS) 6.8.1, "Procedures," was identified because PSEG failed to establish an appropriate preventive maintenance (PM) schedule for Tyco/Agastat General Purpose (GP) control relays. Specifically, the evaluation PSEG performed to revise the relay replacement periodicity from 22 years to 40 years neither adequately addressed available relay references nor all applicable failure mechanisms. As a result, high pressure coolant injection (HPCI) failed to respond to logic system actuation signals during surveillance testing on April 8, 2013. PSEG's immediate corrective actions included replacing failed relays and placing the issues in the corrective action program (CAP). Additionally, PSEG plans to revise the replacement frequency and to replace other Tyco/Agastat GP control relays of high safety significance, as identified in their extent of condition review.

This finding was more than minor because it was associated with the equipment performance attribute of the mitigating systems cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure of a control relay caused the HPCI system to fail to automatically actuate during testing, and the HPCI system was unexpectedly declared inoperable. The inspectors evaluated the finding in accordance with IMC 0609, "Significance Determination Process," issued June 2, 2011, and determined the finding is of very low safety significance (Green)

following a detailed risk evaluation. No cross-cutting aspect was assigned to this finding because PSEG decisions made with regard to evaluating the PM replacement periodicity were made more than 3 years ago and a PM Ownership Committee has since been created to review PM change evaluations; therefore, this performance deficiency is not reflective of current plant performance. (Section 40A3)

Inspection Report# : [2013003](#) (*pdf*)

Significance:  Apr 05, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Post-Fire Safe Shutdown Procedures

The team identified a Green, Non-Cited Violation (NCV) of License Condition 2.C(7) of the Hope Creek operating license, in that the procedures for shutting down the plant in response to a fire in the cable spreading room, control equipment room, or control room were not adequate. Specifically, the alternative (remote) post-fire safe shutdown procedures were not adequate 1) to prevent overfilling of the reactor vessel following a spurious, fire-induced start of High Pressure Coolant Injection (HPCI) or 2) to ensure that cooling water is provided to the Emergency Diesel Generators (EDG) prior to overheating. Corrective actions included initiating revisions to the safe shutdown procedures and entering this issue into the corrective action program (CAP) as notifications 20600413 and 20601659.

The finding was more than minor because it affected the procedure quality attribute associated with the mitigating systems cornerstone as related to the objective of ensuring the reliability and availability of mitigating systems under postulated fire safe shutdown conditions. The finding screened as very low safety significance (Green) based upon IMC 0609, Appendix F, "Fire Protection Significance Determination Process," Attachment 1, "Fire Protection SDP Phase 1 Worksheet," because the procedural inadequacies would not have prevented the ability of the operators to safely shutdown the plant in a fire event. The team determined that operators had adequate operator training, there was operable detection/suppression systems in the fire areas of concern, there was no/limited ignition sources in the fire areas of concern, there was adequate administrative controls of transient combustibles and ignition sources, and the control room was continually manned. The inspectors determined that the finding has a cross-cutting aspect in the area of Human Performance, Resources, because PSEG did not provide complete and accurate procedures. Specifically the safe shutdown procedures were not adequate to prevent overfilling the reactor vessel or overheating the EDGs [H.2(c)] (Section 1R05.05).

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

Significance:  Mar 31, 2013

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

A Technical Specification Surveillance Procedure for Remote Shutdown Panel Instrumentation was Inadequately Established and Implemented

A self-revealing NCV of very low safety significance of technical specification (TS) 6.8.1 and TS 3.3.7.4 resulted because PSEG did not properly perform the monthly channel check required by TS surveillance requirement (SR) 4.3.7.4.1 to demonstrate operability of the remote shutdown system instrumentation and controls. Specifically, operators that performed PSEG procedure HC.OP-ST.SV-0001 did not identify that the reactor core isolation cooling

(RCIC) turbine bearing oil pressure low indication was inoperable and, as a result, PSEG did not take the action required within the TS allowed outage time. PSEG's immediate corrective actions included entering the issue into their corrective action program as notifications 20567832 and 20567743, replacing the failed relay and initiating an apparent cause evaluation (ACE).

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 and reliability of systems that respond to initiating events to prevent undesirable consequences. Specifically, when tested, the RCIC turbine bearing oil pressure low indication on the remote shutdown panel (RSP) was inoperable, and this condition went undetected for approximately one month. 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 determined that this finding is of very low safety significance (Green) because the performance deficiency was not a design or qualification deficiency, did not involve an actual loss of safety function, did not represent actual loss of a safety function of a single train for greater than its TS allowed outage time, and did not screen as potentially risk-significant due to a seismic, flooding, or severe weather initiating event. The NRC determined the finding had a cross-cutting aspect in the human performance area associated with work practices - procedural compliance, because PSEG did not ensure that personnel work practices support human performance, in that, a licensed reactor operator (RO) incorrectly documented HC.OP-ST.SV-0001 as satisfactory when it was not. Additionally, the senior reactor operator (SRO) that reviewed the test did not identify the procedure performance error. (H.4(b)) (Section 40A3.2)

Inspection Report# : [2013002](#) (pdf)

Barrier Integrity

Significance: G Sep 30, 2013

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Follow Post-Maintenance Testing Procedure Prior to Returning the 'B' Filtration, Recirculation and Ventilation System (FRVS) Recirculation Fan to Service Following System Maintenance.

A finding of very low safety significance (Green) and associated NCV of 10 Code of Federal Regulation (CFR) Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," was self-revealed for the licensee's failure to test the 'B' Filtration, Recirculation and Ventilation System (FRVS) recirculation fan following maintenance in accordance with site procedures. Specifically, on June 3, 2013, the licensee did not perform the required post-maintenance test (PMT) prior to returning the system to service. Consequently, when the fan failed during its surveillance on June 24, 2013, there was no reasonable assurance that the fan was operable since the last time maintenance was performed on it. PSEG entered this issue into its corrective action program (CAP).

The performance deficiency (PD) was determined to be more than minor because it is associated with the system, structure, or component (SSC) and Barrier Performance attribute of the Barrier Integrity cornerstone, and 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. Using IMC 0609, Appendix A, "The SDP for Findings At-Power," dated June 19, 2012, the finding was determined to have very low safety significance (Green) because it only represented a degradation of the radiological barrier function provided for the standby gas treatment system. This finding had a cross cutting aspect in the area of Human Performance, Decision-Making, because the Hope Creek's decisions did not demonstrate that nuclear safety is an overriding priority [H.1(b)]. (Section 1R19)

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

Significance: G Sep 30, 2013

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Perform Maintenance in Accordance with Station Procedures Led to Reactor Coolant System Pressure Boundary Leakage.

A finding of very low safety-significance (Green) and associated NCV of Technical Specifications (TS) 3.4.3.2, “Reactor Coolant System (RCS) Operational Leakage,” was self-revealed on June 12, 2013, when a through-wall flaw was identified in the RCS pressure boundary. Specifically, because Hope Creek failed to perform maintenance on the ‘B’ residual heat removal (RHR) shutdown cooling (SDC) system in accordance with PSEG maintenance procedures, the plant operated with RCS pressure boundary leakage for a period of time prohibited by TS. Immediate corrective actions included vent line assembly replacement and examination of additional vent line assemblies installed on RHR piping in the drywell under the same design change. Planned corrective actions include visual examination of other components that had work involving cutting on small bore piping in the drywell.

The finding is more than minor because it is associated with the RCS Equipment 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, RCS, and containment) protect the public from radionuclide releases caused by accidents or events. PSEG’s failure to perform maintenance in accordance with station procedures resulted in plant operation with a condition prohibited by TS and the degradation of a principal safety barrier. The inspectors determined that the finding is of very low safety significance (Green) because the PD, after a reasonable assessment of degradation, could not result in exceeding the RCS leak rate for a small loss of coolant accident (LOCA) and could not likely affect other systems used to mitigate a LOCA resulting in a total loss of their function. This finding had a cross-cutting aspect in the Human Performance area associated with Work Practices, because PSEG did not ensure supervisory and management oversight of work activities, including contractors, such that nuclear safety is supported. Specifically, management did not appropriately supervise workers to ensure work was performed in accordance with site maintenance procedures. Even though the PD could have occurred any time between November 2007 and May 2012, the inspectors determined that the performance characteristic associated with ineffective work activity oversight could not be conclusively placed in the earlier portion of that time window and that if it were to occur again, would not go undetected. As a result, the inspectors concluded that the PD is indicative of current performance [H.4(c)]. (Section 40A3)

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

Significance: G Feb 15, 2013

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Conduct Maintenance on the CR HVAC System in Accordance with the Procedure

A self-revealing, Green NCV of 10 CFR 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” was identified because PSEG failed to perform maintenance on the A control room air conditioning train in accordance with the documented procedure steps. Specifically, PSEG personnel failed to follow the maintenance procedure as written by stopping and restarting the A control room ventilation train prior to completing the monitoring period and obtaining the tuning parameters required by the procedure. PSEG’s corrective actions included entering this issue into its corrective action program as notification 20575256, conducting an apparent cause investigation, restoring the system to an operable status, conducting a training needs analysis, and revising the maintenance procedure.

This finding is more than minor because it is associated with the human performance attribute of the barrier integrity

cornerstone, and affected the cornerstone objective of maintaining the radiological barrier functionality of the control room. In accordance with IMC 0609.04, "Initial Characterization of Findings," and Exhibit 3 of 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. This finding has a cross-cutting aspect in the area of human performance, work control, because PSEG did not appropriately control work activities by incorporating actions to address the need for work groups to communicate, coordinate, and cooperate with each other during activities in which interdepartmental coordination is necessary to assure plant and human performance. Specifically, maintenance personnel did not communicate to operations personnel that the maintenance activity was not completed or that the A control room ventilation should not be stopped and restarted. (H.3(b)) (Section 4OA2.1.c(1))

Inspection Report# : [2013007](#) (pdf)

Significance: G Feb 15, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Take Timely Corrective Action for an Identified Design Deficiency with the CR HVAC System

The inspectors identified a Green NCV of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," because PSEG failed to promptly correct a design deficiency in the control room chilled water circulating low flow pump trip logic. Specifically, PSEG failed to take timely action to develop and implement a modification to add a 10-second time delay to the pump trip logic. PSEG's corrective actions included entering this issue into their corrective action program as notification 20567269, conducting an apparent cause investigation, and developing and implementing design change packages to modify the low flow control room air conditioning chilled water circulating pump trip logic.

This finding is more than minor because it is associated with the systems, structures, and components (SSC) and barrier performance attribute of the barrier integrity cornerstone, and affected the cornerstone objective of maintaining the radiological barrier functionality of the control room. In accordance with IMC 0609.04, "Initial Characterization of Findings," and Exhibit 3 of 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. This finding does not have a cross-cutting aspect associated with it because, although the performance deficiency occurred within the last three years, the performance characteristic associated with the untimely corrective action for this deficiency is not indicative of PSEG's current performance. PSEG demonstrated improved performance in response to trips of the A control room ventilation in June and July 2012 caused by chilled water pump low flow by taking timely corrective action to develop and implement a design change package for the modification to the low flow trip logic that had been identified in 2011. PSEG also identified an additional deficiency in the low flow trip logic and took timely action to correct it in mid-2012. Additionally, since PSEG identified that a modification to the low flow pump trip logic was necessary, PSEG has implemented a new station process in the fall of 2012, ER-AA-2001-1001, "Evaluation of Equipment Reliability Strategies," to evaluate the timeliness, effectiveness, and mitigating actions of proposed strategies developed for equipment reliability based on risk significance. Based on demonstrated improved performance in recent months as well as this new station process, which would have increased the priority and accelerated the implementation of these modifications, it is unlikely that this performance deficiency would occur again under similar circumstances. (Section 4OA2.1.c(2))

Inspection Report# : [2013007](#) (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

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