

Hope Creek 1

2Q/2012 Plant Inspection Findings

Initiating Events

Significance:  Sep 30, 2011

Identified By: Self-Revealing

Item Type: FIN Finding

Inadequate Corrective Actions Associated with a Known Degraded Condition of the 00-K-107 Service Air Compressor Outlet Check Valve (H0KA-0KAV-004)

A self-revealing finding was identified because the PMOC did not drive sustainable improvements in the 00-K-107 service air compressor's reliability as required by PM program procedure WC-AA-111. Specifically, PSEG did not change the PM frequency of the degraded compressor outlet check valve (H0KA-0KAV-004) nor evaluate the use of materials less susceptible to corrosion after several recent performances of the 18-month PM found excessive corrosion and rust on the valve internals. Consequently, this check valve failed closed due to corrosion, tripped the air compressor, and caused a service and instrument air headers pressure transients followed by an automatic start of the EIAC. After the May 12, 2011, failure, PSEG refurbished H0KA-0KAV-004's internals with new carbon steel components and plans to replace the 00-K-107 and 10-K-107 compressors' outlet check valves with stainless steel valves that are less susceptible to corrosion (Orders 60097323 and 60097371).

This finding is more than minor because it is associated with the equipment performance attribute of the Initiating Events cornerstone and affected the cornerstone objective of limiting the likelihood of events that upset plant stability and challenge critical safety functions at power. Specifically, the failure to adequately maintain the degraded compressor outlet check valve in the service air header increased the likelihood of a plant trip. The inspectors evaluated this finding using IMC 0609, Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings," Table 4a, and determined the finding to be of very low safety significance (Green) because the finding does not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment would not be available. The finding has a cross-cutting aspect in the area of human performance, work control component, because PSEG did not appropriately coordinate work activities by incorporating actions to ensure that maintenance scheduling is more preventive than reactive. Specifically, PSEG did not implement a recommended increase (PCR 80101517) in the frequency of a PM for H0KA-0KAV-004 before the valve failed shut and required reactive maintenance following a trip of the 00-K-107 air compressor. (H.3(b))

Inspection Report# : [2011004](#) (*pdf*)

Mitigating Systems

Significance:  Jun 30, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Average Power Range Monitor Flow Unit Summers out of Tech Spec Tolerance

The inspectors identified an NCV of very low safety significance of TSs 3.3.1 and 6.8.1 because PSEG's written procedure (HC.IC-CC.SE-0032) was not adequately established and implemented for performing the weekly channel test and calibration of the flow biased APRMs that input into the simulated thermal power upscale RPS trip. Specifically, the procedure provided inadequate instructions for calculating total reactor recirculation drive flow while in single loop operation (SLO). PSEG's corrective actions included revision of the appropriate procedures and development of a schedule template (including required surveillances) for entry into and return from SLO. The violation was entered into the CAP as notification 20549760.

The performance deficiency was more than minor because it is associated with the procedure quality attribute of the Mitigating Systems and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, incorrect calibration of the APRM flow units resulted in the APRM flow biased setpoint being non-conservative and exceeding the associated TS limiting safety system setpoint (LSSS) allowable value for a period of time that was considered a condition prohibited by TS. The inspectors performed a Phase I screening of the finding using IMC 0609, Attachment 0609.04, Table 4a, Mitigating Systems cornerstone, and determined the issue was of very low safety significance (Green) because the finding was not a design or qualification deficiency, did not result in an actual loss of safety function, and was not potentially risk significant for external events. The finding had a cross-cutting aspect in the area of human performance, resources component, because PSEG did not ensure that a TS-required RPS calibration procedure was complete, accurate, and adequate to assure nuclear safety. Specifically, the formula provided in the APRM flow unit summer procedure that calculated the drive flow was incorrect. The formula provided in the procedure was for dual loop operation, not for SLO.

Inspection Report# : [2012003](#) (*pdf*)

Significance:  Sep 30, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

HPCI Operability during SBLOCA/LOOP with the A EDG Failure

The inspectors identified a NCV of 10 CFR 50, Appendix B, Criterion III, “Design Control,” in that, PSEG did not ensure the adequacy of the high pressure coolant injection (HPCI) design under post-accident conditions. Specifically, PSEG did not evaluate the impact of elevated temperature in the HPCI room on the operability of the HPCI system during a postulated design basis small break loss of coolant accident (SBLOCA) coincident with a loss of offsite power (LOOP) and a single failure of the A emergency diesel generator (EDG). PSEG determined through subsequent evaluation that HPCI was operable but non-conforming because there was a potential for HPCI system to isolate unnecessarily on high differential temperature during the extreme winter low temperatures. PSEG plans to implement a design change to reduce the setpoints of the HPCI room coolers so that the initial HPCI room temperature is maintained at a lower temperature before extreme winter conditions. The violation was entered into the CAP as notifications 20518124 and 20520106.

The performance deficiency was more than minor because it was associated with the design control attribute of the Mitigating Systems cornerstone and affected the cornerstone objective of ensuring the reliability of systems that respond to initiating events to prevent undesirable consequences. Specifically, PSEG had not evaluated HPCI operability using actual HPCI room temperatures during normal operating conditions, and as a result, HPCI’s reliability during the most limiting accident conditions was not assured during extreme winter low temperatures. The inspectors reviewed this condition using IMC 0609, Attachment 4, and in consultation with a Region I senior reactor analyst (SRA), concluded that this issue screened to very low safety significance (Green). The finding had a cross-cutting aspect in the area of problem identification and resolution, corrective action component, because PSEG did not thoroughly evaluate a prior problem such that the problem resolution addressed the causes and the extent of condition. Specifically, PSEG’s evaluation for notification 20381041, HPCI Operability During Station Blackout (SBO) Conditions, did not identify the impact of the actual initial HPCI room temperature on other accident conditions, such as a SBLOCA and LOOP with the single failure of an EDG and, therefore, did not identify that the actual HPCI room temperature was beyond the HPCI design document assumption that temperature should be between 60°F and 100°F. (P.1(c))

Inspection Report# : [2011004](#) (*pdf*)

Barrier Integrity

Significance:  Jun 30, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Preconditioning of the Reactor Building to Torus Vacuum Relief Valves

The inspectors identified a NCV of very low safety significance of 10 CFR 50, Appendix B, Criterion XI, "Test Control," because PSEG conducted unacceptable preconditioning of the reactor building to torus vacuum relief valve. Specifically, PSEG's surveillance test procedure for these valves cycled the valve (H1GS-1GSPSV-5032) prior to recording the as-found opening setpoint required to meet Technical Specification (TS) Surveillance Requirement (SR) 4.6.4.2.b.2.a. PSEG's immediate corrective actions included revising the surveillance test procedure to record the as-found setpoint before cycling the valve manually. The violation was entered into the CAP as notification 20554080.

The performance deficiency was more than minor because it was associated with the procedure quality attribute of the Barrier Integrity Cornerstone and affected the cornerstone objective of providing reasonable assurance that physical design barriers (containment) protect the public from radionuclide releases caused by accidents or events. Specifically, preconditioning of the reactor building to torus vacuum relief opening setpoint could mask its actual as-found condition and result in an inability to verify its operability and potentially make it difficult to determine whether the vacuum breaker would perform its intended safety function during an event. The inspectors evaluated the finding using IMC 0609, Attachment 4, "Initial Screening and Characterization of Findings," and determined the finding was of very low safety significance (Green) because it was not a degradation of the radiological barrier function provided for the control room, auxiliary building, spent fuel pool, or standby gas treatment system, did not represent a degradation of the barrier function of the control room against smoke or toxic atmosphere, did not represent an actual open pathway in the physical integrity of reactor containment and heat removal components, and did not involve an actual reduction in function of hydrogen igniters in the reactor containment. The finding had a cross-cutting aspect in the area of problem identification and resolution, corrective action component, because PSEG did not thoroughly evaluate a prior problem such that the problem resolution addressed the extent of condition. Specifically, PSEG's extent of condition for notification 20370021, Potential Preconditioning BJHV-F004, did not go beyond operations' procedures and review maintenance procedures for unacceptable preconditioning. Therefore, PSEG did not identify the unacceptable preconditioning of the reactor building to torus vacuum relief valve opening setpoint because the surveillance test was in a maintenance procedure.

Inspection Report# : [2012003](#) (*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 : September 12, 2012