

# Hope Creek 1

## 1Q/2012 Plant Inspection Findings

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### 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*)

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### Mitigating Systems

**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))

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## **Barrier Integrity**

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## **Emergency Preparedness**

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## **Occupational Radiation Safety**

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## **Public Radiation Safety**

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## **Physical Protection**

Although the NRC is actively overseeing the Security cornerstone, the Commission has decided that certain findings pertaining to security cornerstone will not be publicly available to ensure that potentially useful information is not provided to a possible adversary. Therefore, the [cover letters](#) to security inspection reports may be viewed.

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## **Miscellaneous**

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