

Salem 1

2Q/2012 Plant Inspection Findings

Initiating Events

Significance: G Jul 21, 2011

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Untimely Completion of Corrective Actions Results in No. 11 Service Water Strainer Trip Due To Grassing

The inspectors identified a self-revealing Green non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," because the 11 service water strainer overloads tripped on February 9, 2011, due to binding of the strainer rotating drum, which rendered the 11 service water pump inoperable and unavailable. The binding occurred because PSEG did not complete timely corrective actions for a condition adverse to quality identified following an April 4, 2010, 11 service water strainer trip. Specifically, PSEG did not repair excessive grooves on the strainer body wear surface by taking the actions specified in the corrective action program in January 2011. The grooves caused river grass to become trapped between the rotating strainer drum and body wear surface, which eventually bound and tripped the strainer overloads. (4OA2.1c(3))

This performance deficiency was more than minor because PSEG did not complete timely corrective actions for excessive grooving identified on 11 strainer's body wear ring in January 2011, which degraded the availability and reliability of the 11 service water pump. The finding was determined to be of very low safety significance in accordance with IMC 0609, Appendix A. A Phase 3 analysis was required because the Salem Pre-solved Risk-Informed Inspection Notebook does not address the loss of one train of SW. An external event evaluation was also conducted, because the internal event increase in core damage frequency (?CDF) was in the E-7 range. This finding has a cross-cutting aspect in the area of problem identification and resolution, corrective action program, because PSEG did not implement timely actions to repair excessive grooves identified in the 11 service water strainer body wear ring in January 2011 because work control documents were not correctly coded in July 2010 (P.1(d)).

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

Inspection Report# : [2011009](#) (*pdf*)

Mitigating Systems

Significance: G Jun 30, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

13 Service Water Strainer Unavailability due to Inadequate Post Maintenance Test

A self-revealing NCV of Technical Specification (TS) 6.8.1.a, "Procedures and Programs," was identified because the 13 service water (SW) strainer failed while in-service on March 13, 2012. PSEG failed to perform adequate post-maintenance testing (PMT) on the 13 SW strainer before declaring it operable on January 13, 2012, and therefore did not find adequate clearance between the strainer drum and body. This issue was entered into PSEG's CAP as notification 20550115. PSEG's immediate corrective actions were to replace the strainer drum o-ring, adjust the strainer clearances, and perform a PMT of the strainer.

The inspectors determined that the performance deficiency was more than minor because it was associated with the human performance attribute of the Mitigating Systems cornerstone and it adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the trip of the 13 SW strainer while the 14 SW pump was inoperable for planned maintenance resulted in Salem Unit 1 entering a 72 hour unplanned limiting condition of operation (LCO) for 11.5

hours. The finding was evaluated in accordance with IMC 0609, Attachment 4, "Initial Screening and Characterization of Findings," and was determined to require additional evaluation. The finding was subsequently evaluated in IMC 0609, Phase 3 utilizing the NRC's SAPHIRE 8 risk analysis SDP interface tool using the Salem specific standardized plant analysis review model, and confirmed to be of very low safety significance. This finding has a cross-cutting aspect in the area of human performance, work practices, because PSEG personnel did not follow procedures. Specifically, PSEG personnel failed to comply with procedure "Service Water Auto Strainer Adjustment, Inspection, Repair and Replacement," which required an evaluation of a torque curve generated by a baker box.

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

Significance:  Jun 30, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Correct Repeat Failures in Safety-Related Solenoid Valves in a Timely Manner

A self-revealing NCV of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," was identified because PSEG did not correct a condition adverse to quality. Specifically, repeat failures of solenoid operated valves (SOVs) with voltage applied greater than design voltage has not been corrected in a timely manner and caused a failure of the 11 control area chiller (CAC).

The performance deficiency was determined to be more than minor because it was associated with the equipment performance attribute of the Mitigating Systems cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using IMC 0609, Attachment 4, "Initial Screening and Characterization of Findings," the inspectors determined that a single train of a safety-related system was unavailable for eight hours, less than the TS allowed outage time. Therefore, the issue was of very low safety significance (Green) because it did not result in a loss of system safety function, loss of a single train for greater than TS allowed outage time, or potentially risk-significant due to a fire, flooding, or severe weather initiating event. Immediate corrective actions taken included replacement of the failed SOV, and compensatory measures include periodic temperature monitoring of similar energized SOVs. This finding has a cross-cutting aspect in the area of problem identification and resolution, corrective action program, because PSEG did not take appropriate corrective actions to address a safety issue in a timely manner, commensurate with the safety significance and complexity. Specifically, the premature failure of SOVs, due to a higher than design voltage that created higher than design heat in the coil and insulation, was a known issue that was not corrected in a timely manner.

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

Significance:  Jun 30, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Deficient Control of Transient Equipment in Seismic Class Auxiliary Building

The inspectors identified a NCV of TS 6.8.1.a, "Procedures and Programs," because PSEG failed to properly control and store transient material within seismic class I buildings such that the equipment did not pose a hazard to safe plant operation. Specifically, two large tool gang boxes were stored unrestrained in the vicinity of the sodium hydroxide storage tank and associated containment spray valves and two full 55 gallon SW maintenance drums were stored unrestrained next to the 11, 12, and 15 containment fan cooler unit SW flow transmitters. This issue was entered into PSEG's CAP as notification 20559092. PSEG's immediate corrective actions were to restrain the subject material in accordance with the PSEG procedure CC-AA-320-011, "Transient Loads."

The performance deficiency was determined to be 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. The issue was also similar to IMC 0612, Appendix E, "Examples of Minor Issues," example 4.a, which stated the issue was more than minor if the licensee routinely failed to follow their procedure and safety-related equipment was adversely impacted. Specifically, PSEG was not following the requirements of procedure CC-AA-

320-011, “Transient Loads,” and equipment had been stowed in close vicinity of safety-related equipment. The finding was evaluated under IMC 0609, Attachment 4, “Initial Screening and Characterization of Findings.” The inspectors determined that the finding is of very low safety significance (Green) because it did not involve loss or degradation of equipment specifically designed to mitigate a seismic event, and did not involve total loss of a safety function that contributes to external event initiated core damage sequences. The finding has a cross-cutting aspect in the area of human performance, work practices, in that PSEG did not define and effectively communicate expectations regarding procedural compliance and personnel did not follow procedures. Specifically, station personnel did not follow procedures for the storage of transient loads in the auxiliary building.

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

Barrier Integrity

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

Significance: N/A Jul 21, 2011

Identified By: NRC

Item Type: FIN Finding

Biennial PI&R Summary 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 at a low threshold, and prioritized issues commensurate with their safety significance. In most cases, PSEG appropriately screened issues for operability and reportability, and performed causal analyses that appropriately considered extent of condition and cause, generic issues, and previous occurrences. The inspectors also determined that PSEG typically implemented corrective actions to address identified problems in a timely manner. However, for one issue reviewed by the inspectors, the corrective actions completed by PSEG were not timely and the inspectors determined that this was a violation of NRC

requirements, in the area of corrective action implementation.

The inspectors concluded that, in general, PSEG adequately identified, reviewed, and applied relevant industry operating experience to Salem operations and identified appropriate corrective actions. In addition, based on those items selected for review, the inspectors determined that PSEG self-assessments and audits were thorough and appropriately used the corrective action program to initiate corrective actions for identified issues.

With respect to safety conscious work environment, based on interviews and reviews of the corrective action program and the employees concerns program (ECP) the inspectors did not identify conditions that negatively impacted the site's safety conscious work environment and determined that site personnel were willing to raise safety issues through multiple means.

Inspection Report# : [2011009](#) (*pdf*)

Last modified : September 12, 2012