

Salem 1

1Q/2011 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance:  Feb 18, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

INADEQUATE CALCULATIONS FOR DEGRADED VOLTAGE RELAY VOLTAGE SETPOINT

The team identified a finding of very low safety significance involving a non-cited violation of 10 CFR 50, Appendix B, Criterion III, “Design Control”, because PSEG had not verified the adequacy of the design for the DVR voltage setpoint. Specifically, PSEG had not performed calculations for motor starting and running conditions, and for operation of other safety-related equipment based on voltages afforded by the degraded voltage relays. PSEG entered this issue into their corrective action program and performed preliminary calculations to demonstrate reasonable assurance of operability.

The finding is more than minor because it is associated with the design control attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The team evaluated the finding in accordance with IMC 0609, Attachment 0609.04, Phase 1 – Initial Screening and Characterization of Findings, Table 4a for the Mitigating Systems Cornerstone. The team determined that the finding was of very low safety significance because it was a design deficiency confirmed not to result in loss of operability.

The team determined that this finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Operating Experience Component, because PSEG did not ensure that relevant internal and external operating experience was collected, evaluated, and communicated to affected internal stakeholders in a timely manner. Specifically, PSEG did not adequately evaluate a similar finding documented in a Hope Creek Generating Station NRC component design bases inspection report in November 2009 (NCV 05000354/2009007-03) and missed an opportunity in their internal response to NRC Information Notice 2008-02, “Findings Identified During Component Design Bases Inspections”, issued in March 2008.

Inspection Report# : [2011007](#) (*pdf*)

Significance:  Feb 18, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PERFORM A TS REQUIRED BATTERY PERFORMANCE TEST

The team identified a finding of very low safety significance (Green) involving a non-cited violation of Salem Unit 1 Technical Specification (TS) Surveillance Requirement (SR) 4.8.2.5.2.h. Specifically, the team identified that PSEG did not perform a battery capacity test of the 1B 28VDC battery within 12 months of the previous performance test that showed signs of degradation (battery capacity as measured on October 28, 2008, dropped more than 10 percent compared to the April 26, 2004, performance test). PSEG promptly entered TS 4.0.3 and completed all TS 4.0.3 requirements for a surveillance not performed within its specified frequency. Additionally PSEG entered the issue into their corrective action program to evaluate the casual factors for long-term corrective action and scheduled the 1B 28VDC battery performance test during the next scheduled Salem Unit 1 shutdown.

The finding is more than minor because it is associated with the human performance attribute of the Mitigating

Systems Cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the availability of the 1B 28VDC battery was not ensured by performing additional surveillance testing to monitor for battery degradation. The team evaluated the finding in accordance with IMC 0609, Attachment 0609.04, Phase 1 – Initial Screening and Characterization of Findings, Table 4a for the Mitigating Systems Cornerstone. The team determined that the finding was of very low safety significance because it was a qualification deficiency confirmed not to result in loss of operability.

The team determined that this finding has a cross-cutting aspect in the area of Human Performance, Work Practices Component, because PSEG personnel did not follow procedure requirements during the 1B 28VDC battery performance discharge surveillance test. Specifically, personnel did not follow step 5.12.21 of SC.MD-FT.28D-0003, which required technicians to mark the surveillance data sheet “Yes” for “Battery Degraded”, notify supervision, and initiate a corrective action notification if the calculated battery performance capacity drop was greater than 10 percent.

Inspection Report# : [2011007](#) (*pdf*)

Significance:  Dec 31, 2010

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

13 Turbine Driven Auxiliary Feedwater Pump Trip Mechanism

A self-revealing NCV of Appendix B, Criterion V, “Instructions, Procedures, and Drawings”, was identified because of two unexpected trips of the turbine trip valve (1MS52) for the 13 turbine driven auxiliary feedwater (TDAFW) pump. Specifically, adjustments made to the overspeed linkage for the 13 TDAFW pump using a threaded rod, which was installed on the head lever, were not prescribed by documented procedures or drawings. These adjustments led to the increased sensitivity of the trip mechanism that resulted in the two unexpected trips. The issue was entered into the CAP as notification 20469586. PSEGs immediate corrective action was to remove the threaded rod from the 13 TDAFW head lever. An extent of condition inspection on the 23 TDAFW pump resulted in the removal of a threaded rod from the 23 TDAFW pump head lever.

The trips of the 1MS52 valve and repairs to the overspeed trip mechanism resulted in 41 hours of unavailability of the 13 TDAFW pump. In accordance with NRC IMC 0609, Attachment 4, the inspectors performed a Phase 1 SDP screening and determined the finding was of very low safety significance (Green) because it 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. This finding had a cross-cutting aspect in the area of human performance, resources, because PSEG did not ensure that complete accurate and up-to-date procedures and work packages were available and adequate to assure nuclear safety. Specifically, the procedure used to set the overspeed trip did not address adjustment of the threaded rod. (H.2(c)) (Section 1R12)

Inspection Report# : [2010005](#) (*pdf*)

Significance:  Jun 30, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

Buried AFW Discharge Piping not Tested in Accordance with 10 CFR 50.55a

The inspectors identified an NCV of very low safety significance for PSEG’s failure to perform auxiliary feedwater (AFW) discharge piping system pressure tests on buried piping components as required by 10 CFR 50.55a(g)(4) and the referenced American Society of Mechanical Engineers (ASME) Code, Section XI, paragraph IWA-5244 for Salem Unit 1. The required tests are intended to demonstrate the structural integrity of the buried piping portions of the system. PSEG entered this condition into the corrective action program (notification 20459689) and replaced the affected Unit 1 AFW piping.

This performance deficiency is more than minor because, if left uncorrected, it would have resulted in a more significant safety concern. Specifically, the inspectors determined that based on the degraded condition of the coating and piping discovered during excavation on Unit 1, without performance of the required pressure test, an undetected

failure of the piping would have resulted due to continued, undetected corrosion. The finding impacts the Mitigating Systems cornerstone. Using IMC 0609, Attachment 4, the finding was determined to be of very low safety significance because it 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. No cross-cutting aspect is assigned to this violation because this condition began in 1988, more than 3 years ago, and is not indicative of current performance

Inspection Report# : [2010003](#) (pdf)

Barrier Integrity

Significance:  Feb 18, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IDENTIFY AND CORRECT A CONDITION ADVERSE TO QUALITY AFFECTING THE CREACS EXPANSION JOINTS

The team identified a finding of very low safety significance (Green) involving a non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, “Corrective Action”, because PSEG did not identify and correct a condition adverse to quality. Specifically, PSEG did not identify and correct the degraded condition of the Unit 1 and Unit 2 control room emergency air conditioning system (CREACS) common suction expansion joints because they did not implement appropriate preventive maintenance (PM) per their performance-centered maintenance (PCM) template. PSEG placed the finding and the associated issues in its corrective action program. In response to the identified control room envelope (CRE) breach, operators promptly entered TS 3.7.6 and initiated mitigation actions. PSEG affected prompt repairs, performed an appropriate post maintenance test, declared the CRE fully operable, and exited the TS limiting condition for operation action statement.

The finding is more than minor because it is associated with the barrier performance attribute of the Barrier Integrity Cornerstone and adversely affected the cornerstone objective of providing reasonable assurance that physical design barriers protect the control room operators from radionuclide releases caused by accidents or events. The finding was evaluated in accordance with IMC 0609, Attachment 4, Table 4a for the containment barrier. Since the finding had the potential to impact more than the radiological barrier function, a Region I Senior Reactor Analyst (SRA) performed a Phase 3 analysis. The SRA determined that the dominant sequence involved a sufficient degradation of the CREACS barrier that would allow sufficient in-leakage to force an evacuation of the control room during a fire or toxic gas event. The areas with the degradation were in room 15615 and 25615 for Units 1 and 2, respectively. The SRA evaluated these areas and determined that the potential impact due to in-leakage through the degraded barrier from fire and toxic gas would be negligible. The SRA also reviewed the results of recent CRE in-leakage testing conducted in September 2010. The condition of the expansion joint tearing and wear could reasonably be assumed to have existed during the September testing. This testing also confirmed that the total in-leakage in these areas was small. Based on the above factors, the SRA determined the finding was of very low safety significance (Green).

The team determined that this finding has a cross-cutting aspect in the area of Human Performance, Work Control Component, because PSEG did not plan work activities to support long-term equipment reliability by ensuring that maintenance scheduling was more preventive than reactive. Specifically, PSEG did not implement appropriate PMs on the CREACS filter expansion joints necessitating several reactive corrective maintenance activities.

Inspection Report# : [2011007](#) (pdf)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

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.

Miscellaneous

Last modified : June 07, 2011