

# Salem 2

## 3Q/2008 Plant Inspection Findings

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### Initiating Events

**Significance:**  Jun 30, 2008  
Identified By: Self-Revealing  
Item Type: NCV NonCited Violation

#### **SALEM UNIT 2 LOSS OF ALL THREE CHILLERS**

A self-revealing non-cited violation of Technical Specification (TS) 6.8.1.a, "Procedures and Programs," was identified because PSEG did not maintain adequate control of the system configuration for the Unit 2 chill water system during maintenance on the 21 chiller. Specifically, on May 27, 2008, all three Unit 2 chill water system chillers tripped due to an error in the safety tagging sequence specified by the work control documents for maintenance on the 21 chiller.

This finding is more than minor because it is associated with the configuration control attribute of the Initiating Events cornerstone, and it adversely affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, unavailability of all three chillers increased the likelihood of a loss of control air that could result in a complicated plant trip. Per Inspection Manual Chapter (IMC) 0609, Attachment 0609.04, initial screening and characterization of findings, the inspectors conducted a Phase 1 analysis and determined that this finding required a Phase 2 analysis because the finding contributed to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions will not be available. The inspector determined that the finding was of very low safety significance (Green) using the Salem plant specific Phase 2 pre-solved worksheets in accordance with IMC 0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations."

This finding has a cross-cutting aspect in the area of human performance because PSEG personnel did not follow procedures [H.4(b)]. Specifically, revisions to the work control document for tagging the 21 chiller did not comply with the requirements of PSEG procedure SH.OP-AP.ZZ-0051, "Safety Tagging Operations."

Inspection Report# : [2008003](#) (*pdf*)

**Significance:**  Mar 31, 2008  
Identified By: Self-Revealing  
Item Type: NCV NonCited Violation

#### **SALEM UNIT 2 LOSS OF ALL THREE CHILLERS**

The inspectors identified a self-revealing non-cited violation of Technical Specification 6.8.1.a, "Procedures and Programs" when the 23 chiller failed to start on January 22, 2008. PSEG personnel did not start the 23 chiller and verify proper operation before removing the 21 and 22 chillers from service. This resulted in the plant operating for five hours with all three chillers out of service. The inspectors determined that the procedure for chiller operation was inadequate because it did not provide sufficient guidance to operators when removing two chillers from service. PSEG's corrective actions included revising the chiller operating procedure and replacement of the solenoid valve that caused the 23 chiller not to start.

The finding is more than minor because it is associated with the configuration control attribute of the Initiating Events cornerstone, and it adversely affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, unavailability of all three chillers increased the likelihood of a loss of control air. The inspectors determined that the finding was of very low safety significance using the Salem plant-specific Phase 2 pre-solved worksheets in accordance with IMC 0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations."

This performance deficiency has a cross-cutting aspect in the area of human performance because PSEG personnel did not effectively communicate human error prevention techniques, such as holding pre-job briefings, self checking, and peer checking, and these techniques were not used commensurate with the risk of the assigned task [H.4(a)]. Specifically, PSEG personnel did not verify the proper operation of the 23 chiller before removing the 21 and 22 chillers from service.

Inspection Report# : [2008002](#) (*pdf*)

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### Mitigating Systems

**G****Significance:** Jun 30, 2008

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

**SALEM UNIT 2 LOSS OF REACTOR VESSEL LEVEL INDICATION SYSTEM**

A self-revealing non-cited violation of Technical Specification (TS) 6.8.1.a, "Procedures and Programs," was identified because PSEG did not adequately maintain the calibration of the Unit 2 reactor vessel level indication system (RVLIS). Specifically, scaling for both RVLIS dynamic range channels was not completed when required. This resulted in Unit 2 RVLIS being inoperable for 13-days.

The finding is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone and because it affected the cornerstone objective of ensuring the reliability of systems that respond to initiating events to prevent undesirable consequences. Specifically, operators were not aware that both channels of RVLIS were inoperable and could have taken non-conservative actions during an inadequate core cooling or loss of coolant inventory event. Per inspection manual chapter (IMC) 0609.04, "Initial Screening and Characterization of Findings," the inspectors conducted a Phase 1 screen and determined the finding to be of very low safety significance (Green).

This finding has a cross-cutting aspect in the area of human performance because PSEG did not appropriately coordinate work activities as necessary to keep personnel apprised of work status and the operational impact of work activities [H.3(b)]. Specifically, PSEG did not ensure RVLIS scaling was completed per the established work control process because engineering did not adequately communicate the importance of entering the new dynamic range coefficients to the operability of the RVLIS system.

Inspection Report# : [2008003](#) (*pdf*)**G****Significance:** Mar 31, 2008

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

**25SW24 FAILURE CAUSED 25 SERVICE WATER PUMP UNAVAILABILITY**

The inspectors identified a self-revealing non-cited violation of Technical Specification 6.8.1.a, "Procedures and Programs." The inspectors determined that maintenance procedures for the 25 service water strainer (SWS) blow down valve (25SW24) were inadequate because they did not ensure proper alignment of the valve and actuator. This resulted in the 25 service water pump (SWP) being inoperable for approximately 35 hours. PSEG returned the 25 SW train to service following completion of corrective maintenance on the blow down valve and verification of proper alignment of the valve and actuator. PSEG also revised the applicable maintenance procedures for future maintenance activities.

The finding is more than minor because it is associated with the procedure quality attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. In accordance with IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," the inspectors conducted a Phase 1 screen and determined that this finding was of very low safety significance.

The finding has a cross-cutting aspect in the area of problem identification and resolution because PSEG did not implement and institutionalize operating experience, including internally generated lessons learned, through changes to station processes, procedures, equipment, and training programs [P.2(b)]. Specifically, PSEG procedures did not incorporate internal operating experience to ensure proper alignment between the service water strainer blow down valve actuator and valve stem.

Inspection Report# : [2008002](#) (*pdf*)

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## Barrier Integrity

**G****Significance:** Jun 30, 2008

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

**SALEM UNIT 2 22 CFCU VALVES MISPOSITIONED**

A self-revealing non-cited violation of TS 6.8.1.a, "Procedures and Programs" was identified because the 22 Containment Fan Coil Unit (CFCU) had cooling water flow to the motor cooler inadvertently isolated during a routine surveillance test. Specifically, the surveillance procedure did not include steps to operate specific gage isolation valves to place a test gage in service, and as a result technicians repositioned the wrong valves.

This finding is more than minor because it is associated with the system, structure, and component (SSC) and barrier performance attribute of the Barrier Integrity cornerstone and it affects the cornerstone objective of providing reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Specifically, unavailability of the 22 CFCU represented an actual loss of defense in depth of a system that controls containment pressure. Per inspection manual chapter (IMC) 0609, Attachment 0609.04,

“Determining the Significance of Reactor Inspection Findings for at-power Situations,” the inspectors conducted a Phase 1 screen and determined the finding to be of very low safety significance (Green) because the finding did not represent an actual open pathway in the physical integrity of reactor containment isolation system and heat removal components, did not involve an actual reduction in function of hydrogen igniters in containment, and did not screen as potentially risk significant due to external initiating events.

This finding has a cross-cutting aspect in the area of human resources because PSEG did not provide complete and accurate procedures for the performance of this surveillance test [H.2(c)]. Specifically, the continuous use procedure “Service Water Fouling Monitoring Containment Fan Coil Units”, revised on May 31, 2008, did not contain procedure steps to direct the opening and closing of valves that must be manipulated to successfully perform the procedure.

Inspection Report# : [2008003](#) (*pdf*)

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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**

Last modified : November 26, 2008