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## Salem 1 – Quarterly Plant Inspection Findings

### 3Q/2017 – Plant Inspection Findings

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#### Initiating Events

**Significance:** G Mar 31, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

#### **Inadequate Fire Risk Assessment and Management**

Inspectors identified a Green non-cited violation (NCV) of Title 10 of the Code of Federal Regulations (10 CFR) 50.65 (a)(4) when PSEG did not adequately assess and manage the risk of online maintenance activities associated with the 13 and 23 charging (CV) positive displacement pumps (PDPs) and the 16 service water (SW) pump. Consequently, this resulted in the approval of hot work and the introduction of unaccounted for transient combustibles into a restricted fire area. PSEG wrote notifications (NOTFs) 20758370, 20759221, and 20761411 to document the observations and fire risk program gaps. On March 9, a roving fire watch was implemented as previously planned by PSEG.

The finding was more than minor given its similarity to IMC 0612, Appendix E, example 7.e, in that had an adequate risk assessment been performed, it procedurally would have required additional risk management actions (RMAs). Additionally, this finding was more than minor because it adversely impacted the protection against external factors (fire) attribute of the Initiating Events cornerstone objective to limit the likelihood of events that upset plan stability and challenge critical safety functions during shutdown as well as power operations. The inspectors evaluated the finding in accordance with IMC 0609, Attachment 4 and Appendix K, since it involved a maintenance rule (MR) risk assessment. Since the performance deficiency was related to maintenance activities affecting structures, systems, and components (SSCs) needed for fire mitigation, Appendix K directed the significance to be determined by an internal NRC management review using risk insights. A Senior Reactor Analyst used risk insights from IMC 0609, Appendix F and its Attachment 2, to inform the significance and determined the issue screened to Green given that the combustible conditions and quantities were predominantly representative of a Low degradation rating.

Inspection Report# : 2017001 (*pdf*)

## Mitigating Systems

**Significance:** G Jul 14, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

### **Inadequate Design Verification that Inter-Cabinet Bolts were Installed Between SEC and Bailey Cabinets**

The team identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," because between May 1995 to July 2017, PSEG did not verify that bolts, or other suitable connections, were installed to connect the safeguard equipment control (SEC) cabinets to the Bailey termination cabinets to satisfy the Seismic Qualification Utilities Group (SQUG) recommended method to resolve effects of potential cabinet interaction during a seismic event. PSEG's immediate corrective actions included initiating several corrective action notifications (NOTFs) to evaluate operability, extent-of-condition, and long-term resolution.

This issue is more than minor because it is associated with the Design Control attribute of the Mitigating Systems cornerstone and adversely affected its objective to ensure the reliability of systems that respond to initiating events to prevent undesirable consequences. Specifically, PSEG performed a SQUG evaluation in response to unresolved safety issue (USI) A-46, "Verification of Seismic Adequacy of Mechanical and Electrical Equipment in Operating Reactors," and submitted the results to the NRC detailing a potential for SEC cabinet seismic interaction with the adjacent Bailey termination cabinet. The evaluation results recommended bolting the SEC cabinet to the Bailey cabinet to eliminate the interaction. However, PSEG did not ensure and verify that the SQUG recommended bolts were installed, which resulted in a reasonable doubt on the operability of the SEC to reliably perform its intended function during and following a design basis seismic event. In accordance with IMC 0609.04, "Initial Characterization of Findings," and Exhibit 2 of IMC 0609, Appendix A, "The SDP for Findings At-Power," the team determined that this finding was Green because it was a design deficiency that potentially affected the design or qualification of a mitigating system, however, the mitigating system maintained its operability. The team determined there was no cross-cutting aspect associated with this finding since it was not representative of current PSEG performance.

Inspection Report# : 2017007 (*pdf*)

**Significance:** G Jul 14, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

### **Inadequate PM for the EDG Room Ventilation System**

The team identified a Green non-cited violation of Technical Specification (TS) 6.8.1, "Procedures and Programs," because since January 2007, PSEG did not establish an appropriate preventive maintenance (PM) schedule for the emergency diesel generator (EDG) ventilation dampers. Specifically, PSEG cancelled a pre-existing 36-month lubrication/clean/inspect PM in 2007 but failed to add the lubrication task to an existing 6-year damper PM as intended. As a result, since January 2007, the intended lubrication PM was cancelled for the inlet, recirculation, and exhaust ventilation dampers on all six Unit 1 and Unit 2 EDG ventilation systems. PSEG's immediate corrective actions included initiating a corrective action NOTF to address the PM inadequacy and extent-of-condition.

The issue is more than minor because, if left uncorrected, it had the potential to lead to a more significant safety concern. Specifically, the removal of the EDG ventilation damper lubrication PM had the potential to adversely impact EDG reliability. In accordance with IMC 0609.04, "Initial Characterization of Findings," and Exhibit 2 of IMC 0609, Appendix A, "The SDP for Findings At-Power," the team determined that this finding was Green because it was not a design or qualification deficiency, did not involve an actual loss of safety function, did not represent the actual loss of a safety function of a single train for greater than its TS allowed outage time, and did not represent an actual loss of function of one or more non-TS trains of equipment designated as high safety-significant in PSEG's Maintenance Rule

program for greater than 24 hours. The team determined there was no cross-cutting aspect associated with this finding since it was not representative of current PSEG performance.

Inspection Report# : 2017007 (*pdf*)

**Significance:**  Mar 31, 2017

Identified By: Self-Revealing

Item Type: FIN Finding

#### **Loss of Unit 1C 4kV Vital Bus due to Inadequate Activity Risk Screening**

A self-revealing Green finding (FIN) was identified when PSEG did not screen the risk associated with replacing the Unit 1C emergency diesel generator (EDG) output breaker in accordance with WC-AA-105, "Work Activity Risk Management." Specifically, on December 14, 2016, the Unit 1C 4 kilovolt (kV) vital bus was inadvertently de-energized when the Unit 1 'C' EDG output breaker, which was removed without adequate risk mitigation actions, made contact with the switchgear (SWGR) cubicle door containing relays for bus differential current protection. PSEG entered this issue into their corrective action program (CAP) as NOTF 20751669 and performed apparent cause evaluation (ACE) 70191319. PSEG's corrective actions (CAs) included inspecting the involved relay and re energizing the vital bus.

The finding 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's objective of ensuring the availability, reliability, and capability of systems relied upon to mitigate the consequences of an accident. The inspectors evaluated the finding in accordance with IMC 0609, Appendix A, Exhibit 2, and determined the finding was Green because it did not affect the design or qualification of a mitigating SSC, and did not represent an actual loss of function or system. The finding had a cross cutting aspect in the area of Human Performance, Work Management, because the work process did not include the identification and management of risk commensurate to the work and the need for coordination with different groups or job activities. Specifically, PSEG did not identify the level of medium risk associated with the work activity, did not manage the level of risk commensurate with the work, and did not coordinate appropriate mitigating actions with different work groups.

Inspection Report# : 2017001 (*pdf*)

**Significance:**  Mar 31, 2017

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

#### **Failure to Conduct Post-Maintenance Testing Required by Procedure and Work Order Resulting in Inoperable Containment Fan Coil Units**

A self-revealing Green non-cited violation (NCV) of Technical Specification (TS) 6.8.1, "Procedures and Programs;" TS 3.6.2.3, "Containment Cooling Fans;" TS 3.6.1.1, "Primary Containment Integrity;" and TS 3.0.4, "Applicability," was identified. Specifically, PSEG did not perform a specified post-maintenance test (PMT) after replacing the air supply valve for service water (SW) system accumulator discharge valve 11SW535. As a result, valve 11SW535 failed its subsequent technical specification (TS) required stroke time to close surveillance, and rendered two of the five containment fan coil units (CFCUs) inoperable. PSEG entered this issue in the corrective action program (CAP) as NOTF 20736868 and completed corrective actions (CAs) included coaching the senior operator involved in closing the work order (WO) without ensuring the PMT was completed and a review of similar retest activities (no additional deficiencies identified).

This issue was more than minor because it was 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 incomplete

PMT resulted in a delay in identifying a degraded stroke time and resultant inoperability of two CFCUs. The inspectors determined that this finding was Green in accordance with IMC 0609, Appendix A, Exhibit 2, because the finding did not result in an actual loss of function of a system or train. The finding had a cross-cutting aspect in the area of Human Performance, Work Management, because the organization did not implement a process of planning, controlling, and executing work activities such that nuclear safety is the overriding priority. Specifically, PSEG did not execute WO instructions to conduct the appropriate PMT following maintenance on an air supply valve for SW accumulator discharge valve 11SW535, which resulted in 11SW535 stroking closed too fast and required declaring two CFCUs inoperable.

Inspection Report# : 2017001 (*pdf*)

**Significance:** G Dec 31, 2016

Identified By: Self-Revealing

Item Type: FIN Finding

**Inadequate Maintenance Procedure for Steam Generator Feedwater Pump Coupling Hub Set Screw Installation**

A self-revealing Green finding (FIN) against MA-AA-716-010, "Maintenance Planning Process," step 4.2.3, Revision 18, was identified for PSEG's inadequate maintenance guidance that resulted in 11 steam generator feedwater pump (SGFP) elevated vibrations and required an emergent down power to be taken out of service due to a coupling and shaft failure. PSEG entered this issue in their CAP as notification (NOTF) 20739299, conducted a prompt investigation, troubleshooting, repairs, and a completed a causal evaluation under Order 70189096.

This issue was more than minor since it was associated with the equipment performance attribute of the Mitigating Systems cornerstone and adversely impacted its objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding screened to Green in accordance with IMC 0609, Appendix A, because the finding did not represent an actual loss of function of one or more non-TS equipment trains designated as high safety-significant in accordance with PSEG's Maintenance Rule (MR) program. The finding had a cross-cutting aspect in the area of Problem Identification and Resolution, Operating Experience (OE), because PSEG did not ensure that the organization systematically and effectively collects, evaluates, and implements relevant internal and external operating experience in a timely manner.

Inspection Report# : 2016004 (*pdf*)

**Barrier Integrity**

**Emergency Preparedness**

**Occupational Radiation Safety**

**Public Radiation Safety**

**Security**

The security cornerstone is an important component of the ROP, which includes various security inspection activities the NRC uses to verify licensee compliance with Commission regulations and thus ensure public health and safety. The Commission determined in the staff requirements memorandum (SRM) for SECY-04-0191, "Withholding Sensitive Unclassified Information Concerning Nuclear Power Reactors from Public Disclosure," dated November 9, 2004, that specific information related to findings and performance indicators associated with the security cornerstone will not be publicly available to ensure that security-related information is not provided to a possible adversary. Security inspection report cover letters will be available on the NRC Web site; however, security-related information on the details of inspection finding(s) will not be displayed.

**Miscellaneous**

Current data as of : November 29, 2017

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