

Hope Creek 1

4Q/2005 Plant Inspection Findings

Initiating Events

Significance:  Sep 30, 2005
Identified By: Self-Revealing
Item Type: FIN Finding

AUTOMATIC TRIP OF SERVICE AIR COMPRESSOR

A self-revealing finding occurred when a vibration probe cable was not adequately protected from mechanical damage and resulted in an automatic trip of a service air compressor. The finding was determined not to involve a violation of regulatory requirements. PSEG's corrective actions included modifying the coupling guard and replacing the vibration cable and addressing performance issues.

The finding was more than minor because it was associated with the equipment performance attribute (availability and reliability) of the initiating events cornerstone and affected the objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Traditional enforcement does not apply because the issue did not have any actual safety consequence or potential for impacting the NRC's regulatory function, and was not the result of any willful violation of NRC requirements. The inspectors completed a Phase 1 screening using Appendix A of Inspection Manual Chapter 0609, "Determining the Significance of Reactor Inspection Findings for At-Power Situations," of the finding and determined that a more detailed Phase 2 evaluation was required to assess the safety significance because the finding contributed to both the likelihood of a reactor trip and the likelihood that mitigation equipment would not be available. The finding was determined to be of very low safety significance based upon a Significance Determination Process Phase 2 evaluation. The performance deficiency had a human performance cross-cutting aspect.

Inspection Report# : [2005004\(pdf\)](#)

Significance:  Sep 30, 2005
Identified By: NRC
Item Type: FIN Finding

EMERGENCY INSTRUMENT AIR COMPRESSOR CAPACITY

The inspectors identified a finding of very low safety significance regarding ineffective corrective actions to correct a problem where the instrument air system loads exceeded the capacity of the emergency instrument air compressor. The finding was determined not to involve a violation of regulatory requirements. PSEG's corrective actions included installing a temporary air compressor, entering the issue into their corrective action program, and taking action to search for instrument air system leak sources.

The finding was more than minor because it was associated with the initiating events cornerstone attribute (equipment performance) and 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. Traditional enforcement does not apply because the issue did not have any actual safety consequence or potential for impacting the NRC's regulatory function, and was not the result of any willful violation of NRC requirements. The inspectors completed a Phase 1 screening using Appendix A of Inspection Manual Chapter 0609, "Determining the Significance of Reactor Inspection Findings for At-Power Situations," and determined that a more detailed Phase 2 evaluation was required to assess the safety significance because the finding contributed to both the likelihood of a reactor trip and the likelihood that mitigation equipment would not be available. The finding was determined to be of very low safety significance based upon an Significance Determination Process Phase 3 evaluation. The performance deficiency had a problem identification and corrective action cross-cutting aspect.

Inspection Report# : [2005004\(pdf\)](#)

Significance:  Mar 31, 2005
Identified By: Self-Revealing
Item Type: NCV NonCited Violation

INADEQUATE CORRECTIVE ACTION FOR A CONTROL AREA CHILLED WATER PUMP

A self-revealing non-cited violation was identified for a recurring failure of the 'A' control area chill water (CACW) pump. The 'A' CACW pump malfunctioned about three weeks prior for a similar reason (air binding), but corrective actions were not effective at preventing recurrence. This finding was determined to be a non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action."

Traditional enforcement does not apply because the issue did not have any actual safety consequence or potential for impacting the NRC's regulatory function and was not the result of any willful violation of NRC requirements. The finding was more than minor because it was associated with the equipment performance attribute of the initiating events cornerstone and affected the objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. In accordance with IMC 0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations," the inspectors conducted a Phase I SDP screening and determined that the finding contributed to both the likelihood of a reactor trip and the likelihood that mitigation

equipment or functions would not be available. This required that a Phase 2 SDP analysis be performed. The Region I senior risk analyst (SRA) performed a modified Phase 2 analysis and determined that the issue was of very low safety significance (Green). The performance deficiency had a problem identification and resolution (evaluation and corrective actions) cross cutting aspect.

Inspection Report# : [2005002\(pdf\)](#)

Mitigating Systems

Significance:  Dec 16, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

HIGH PRESSURE COOLANT INJECTION MINIMUM FLOW VALVE DEGRADED CONDITION

The team identified an NCV of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," for failure to properly evaluate and correct a condition adverse to quality associated with the high pressure coolant injection (HPCI) system minimum flow valve. This condition was an improperly adjusted motor operated valve limit switch that allowed the minimum flow valve to open under test conditions, but still indicate shut. The anomaly with the minimum flow valve first occurred in January 2005, but it was insufficiently evaluated without any work performed. This problem led to unplanned unavailability of HPCI to troubleshoot and correct the limit switch problem when it repeated in September 2005. PSEG entered this issue into the corrective action program.

The finding was more than minor because it affected the equipment performance attribute of the Mitigating Systems cornerstone objective to ensure the availability 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 SDP screening and determined the issue to be of very low safety significance (Green). The finding was not a design or qualification deficiency, did not represent a loss of system safety function, did not represent an actual loss of safety function of a single train for greater than its Technical Specification allowed outage time, and did not screen as potentially risk significant due to external events. The performance deficiency had a problem identification and resolution cross-cutting aspect, in that engineering personnel missed a prior opportunity to identify the incorrectly set limit switch in January 2005.

Inspection Report# : [2005007\(pdf\)](#)

Significance:  Jun 30, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

INADEQUATE RISK ASSESSMENT

The inspectors identified that PSEG performed an inadequate risk assessment for a planned maintenance activity on the 'D' station service water system (SSWS) train, which resulted in an underestimation of the risk associated with performing the activity. The finding was determined to be a non-cited violation (NCV) of 10 CFR 50.65 (a)(4), "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants."

Traditional enforcement does not apply because the issue did not have any actual safety consequence or potential for impacting the NRC's regulatory function, and was not the result of any willful violation of NRC requirements. This finding was more than minor because the risk assessment did not accurately assess the time the 'D' SSWS train was unavailable to provide a key shutdown safety function. As a result, the elevated overall plant risk, when correctly assessed, was greater than 1.0E-6 incremental core damage probability, or would otherwise put the plant into an increased risk category. The inspectors determined that the finding was of very low safety significance (Green) using Appendix K of Inspection Manual Chapter 0609, "Maintenance Risk Assessment and Risk Management Significance Determination Process," because the incremental core damage probability deficit was determined to be less than 1.0 E-6, which indicated the finding was of very low risk significance.

Inspection Report# : [2005003\(pdf\)](#)

Significance:  Jun 30, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

INCORRECT TECHNICAL SPECIFICATION IMPLEMENTATION FOR TRIPPED DEGRADED RELAY

The inspectors identified that PSEG performed an inadequate operability assessment for a tripped degraded voltage relay that resulted in Technical Specification (TS) action statement 3.8.1.1.a not being entered when required. The finding was determined to be a NCV of TS 3.8.1.1, "Electrical Power Systems - A.C. Sources."

Traditional enforcement does not apply because the finding did not have any actual safety consequence or potential for impacting the NRC's regulatory function, and was not the result of any willful violation of NRC requirements. This finding was more than minor because it was associated with the equipment performance attribute (availability) of the mitigating systems cornerstone and affected the objective to ensure the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors determined that the finding was of very low safety significance (Green) using a Phase 1 screening in Appendix A of Inspection Manual Chapter

0609, "Determining the Significance of Reactor Inspection Findings for At-Power Situations." The finding was not a design or qualification deficiency that resulted in a loss of function, did not result in an actual loss of system safety function, did not represent the actual loss of safety function of a single train for greater than its Technical Specification allowed outage time, and was not screened as potentially risk significant from external events.

Inspection Report# : [2005003\(pdf\)](#)

Significance:  May 02, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

CORE SPRAY INJECTION VALVE FOUND WITH AN IMPROPER OPEN TORQUE SWITCH BYPASS SETTING

The team identified a non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," because PSEG did not identify a condition adverse to quality in August 2004, related to open torque switch bypass settings for a core spray injection valve that did not stroke open during in-service testing and, as a result, did not establish appropriate corrective action.

The finding was more than minor because it was associated with the Mitigating Systems cornerstone attribute for equipment performance and it affected the objective of ensuring the availability and reliability of the core spray system. The finding was of very low safety significance (Green) based upon Inspection Manual Chapter 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," Phase 1 analysis, because it was not a design deficiency, did not result in an actual loss of safety function, and did not screen as potentially risk significant due to external initiating events (seismic, flooding, or severe weather). The performance deficiency had a problem identification and resolution (evaluation) cross cutting aspect. Engineering incorrectly evaluated documented data on the open torque switch bypass setting for the valve and as a result did not identify that the settings were outside of range established in the site's procedures.

Inspection Report# : [2005006\(pdf\)](#)

Significance:  May 02, 2005

Identified By: NRC

Item Type: FIN Finding

LONGSTANDING RELIABILITY AND UNAVAILABILITY OF THE SERVICE WATER EMERGENCY MAKEUP SUPPLY TO SAFETY AUXILIARIES COOLING SYSTEM

The team identified a finding of very low safety significance because on at least seven occasions neither loop of service water was available to supply emergency makeup to the safety auxiliaries cooling system (SACS). The Hope Creek Updated Final Safety Analysis Report indicates that a safety-related makeup supply from service water is available.

This finding was more than minor because it was associated with the Mitigating Systems cornerstone attribute for equipment performance and it affected the objective to ensure the availability and reliability of the SACS system. The finding was of very low safety significance (Green), based on a Phase 1 significance determination process (SDP) because it was not a design deficiency, did not result in an actual loss of safety function, and did not screen as potentially risk significant due to external initiating events (seismic, flooding, or severe weather). The issue was similarly of very low risk in the Initiating Events cornerstone because the finding did not increase the likelihood of a loss of SACS event because the trains are not normally cross-connected and an inventory loss on one train would not reasonably be expected to impact the redundant train concurrently. The performance deficiency had a problem identification and resolution (evaluation) cross cutting aspect. Hope Creek did not fully evaluate the impact of this condition on the SACS system.

Inspection Report# : [2005006\(pdf\)](#)

Significance:  May 02, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

REPEATED CHALLENGES TO STANDBY SERVICE WATER PUMPS DUE TO SILTING AND DEBRIS IN THE STANDBY SERVICE WATER STRAINERS

The team identified a non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," for PSEG's failure to take adequate corrective action to address recurring challenges to standby service water (SW) pumps due to silting and debris in the out of service strainers.

The finding was more than minor because it affected the Mitigating Systems cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events. The finding was associated with the attribute of equipment performance (SW system availability and reliability). This issue also impacted the Initiating Events cornerstone because unavailability of one train of SW increased the likelihood of a loss of service water (LOSW) event. The finding was determined to be of very low safety significance based upon a SDP Phase 2 analysis. The performance deficiency had a problem identification and resolution (corrective actions) cross cutting aspect.

Inspection Report# : [2005006\(pdf\)](#)

Significance:  Mar 31, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

CONTROL ROD DRIVE PUMP ROOM DEGRADED FLOOD BARRIER AND DRAINS

The inspectors identified that PSEG did not correct a degraded condition associated with the control rod drive (CRD) pump room floor access hatches and floor drains after the condition resulted in water leaking onto the 'B' and 'D' core spray pumps in December 2004. This finding was determined to be a non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action."

Traditional enforcement does not apply because the issue did not have any actual safety consequences or potential for impacting the NRC's regulatory function, and was not the result of any willful violation of NRC requirements. The finding was more than minor because it was associated with the protection against external factors (flood hazard) attribute of the mitigating systems cornerstone and affected the objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. In accordance with Inspector Manual Chapter (IMC) 0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations," the inspectors conducted a Phase I SDP screening and determined the finding to be of very low safety significance (Green). The finding was of very low safety significance because the issue was not a design or qualification deficiency that resulted in a loss of function, did not result in an actual loss of safety function of a single train of equipment for greater than its Technical Specification allowed outage time, did not result in an actual loss of safety function of equipment considered risk significant in the maintenance rule program for greater than 24 hours, and the finding does not screen as potentially risk significant due to external events. The "Seismic, Flooding and Severe Weather Screening Criteria" worksheet in the SDP Phase 1 worksheet was used to determine that the finding was not risk significant due to flooding. The finding does involve the degradation of equipment designed to mitigate flooding events, but it would not cause an initiating event, does not degrade more than one train of the core spray system, and does not degrade a support system. The performance deficiency had a problem identification and resolution (identification and evaluation) cross cutting aspect.

Inspection Report# : [2005002\(pdf\)](#)

G

Significance: Mar 31, 2005

Identified By: NRC

Item Type: FIN Finding

INABILITY TO PROPERLY OPERATE REACTOR RECIRCULATION VIBRATION MONITORING EQUIPMENT

The inspectors identified that control room operators were not able to properly operate the reactor recirculation pump vibration monitoring equipment used to respond to vibration alarms and implement commitments to NRC Confirmatory Action Letter (CAL) 1-05-001. The finding was not a violation of NRC requirements, in that, the performance deficiency was related to operation of non-safety related equipment.

Traditional enforcement does not apply because the issue did not have any actual safety consequence or potential for impacting the NRC's regulatory function and was not the result of any willful violation of NRC requirements. The finding was more than minor because if the condition was left uncorrected the finding would become a more significant safety concern. The finding is not suitable for SDP evaluation because it did not have an actual impact on the initiating events, mitigating systems, or barrier integrity cornerstone. This finding has been reviewed by NRC management and was determined to be a finding of very low safety significance (Green). The performance deficiency had a problem identification and resolution (corrective action) cross cutting aspect.

Inspection Report# : [2005002\(pdf\)](#)

Barrier Integrity

G

Significance: Dec 31, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

VACUUM BREAKER MECHANICAL ENVIRONMENTAL QUALIFICATION IMPLEMENTATION

The inspectors identified a non-cited violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," in that work performed in April 2000 and October 2001 for the 'A' through 'H' suppression pool to drywell vacuum breakers did not include instructions with appropriate acceptance criteria. The licensee entered the deficiency into their corrective action program, performed an extent of condition review on the remaining seven suppression pool to drywell vacuum breakers, enhanced maintenance procedures, and provided training to maintenance technicians on testing and overhaul of these valves.

This finding was more than minor because the performance deficiency was associated with the procedure quality attribute of the containment barrier integrity cornerstone and affected the cornerstone's objective to provide reasonable assurance that physical design barriers protect the public from radionuclide release. Specifically, vacuum breaker sub-components were not replaced or refurbished in intervals evaluated and specified in the mechanical equipment qualification program. The inspectors completed a Phase 1 screening using Appendix A of Inspection Manual Chapter 0609, "Determining the Significance of Reactor Inspection Findings for At-Power Situations," and determined the safety significance of the issue was of very low risk (Green) because it did not represent an actual open pathway in the physical integrity of reactor containment or result in an actual reduction in defense-in-depth for the atmospheric control or hydrogen control of the reactor containment.

Inspection Report# : [2005005\(pdf\)](#)

Emergency Preparedness

Significance:  Jun 30, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

INADEQUATE 10 CFR 50.54(t) AUDIT

The inspectors identified that PSEG did not complete an independent quality assurance audit to assess all elements of the emergency preparedness program as required by federal regulations. The finding was determined to be a NCV of 10 CFR 50.54(t), "Conditions of Licenses."

Traditional enforcement does not apply because the finding did not have any actual safety consequence or potential for impacting the NRC's regulatory function, and was not the result of any willful violation of NRC requirements. This finding was more than minor because it was associated with all attributes of the emergency preparedness cornerstone and affected the objective to ensure that the licensee is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. The inspectors determined that the finding was of very low safety significance (Green) using Appendix B of Inspection Manual Chapter 0609, "Emergency Preparedness Significance Determination Process, Sheet 1, Failure to Comply," because it did not constitute a failure to meet an Emergency Preparedness planning standard or risk significant planning standard.

Inspection Report# : [2005003\(pdf\)](#)

Occupational Radiation Safety

Significance:  Mar 31, 2005

Identified By: Self-Revealing

Item Type: FIN Finding

WORK ACTIVITIES DURING RF12 EXCEEDED COLLECTIVE DOSE ESTIMATE

A self-revealing finding was identified when work activities during refueling outage 12 (RF12) in the general torus and torus room exceeded their collective dose estimate by 312 percent (%). PSEG failed to evaluate the expanded work scope that occurred in these areas for dose minimization. The finding was not a violation of NRC requirements, because overall exposure performance of the nuclear power plant is used to determine compliance with the as low as reasonably achievable (ALARA) rule.

Traditional enforcement does not apply because the issue did not have any actual safety consequence or potential for impacting the NRC's regulatory function and was not the result of any willful violation of NRC requirements. This finding was more than minor because it was associated with the ALARA planning attribute of the occupational radiation safety cornerstone and affected the objective to ensure the adequate protection of worker health and safety from exposure of radiation from radioactive material during routine civilian nuclear reactor operations. This finding was also similar to more than minor example 6.a in NRC Inspection Manual Chapter (IMC) 0612, Appendix E, "Examples of Minor Issues," in that, the actual dose achieved exceeded the planned, intended dose by more than fifty percent. This finding was evaluated using IMC 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process," because the issue involved ALARA. The inspectors determined the finding to be of very low safety significance (Green) because Hope Creek's three-year-rolling-average (2001-2003) is 126 person-rem, which is below the SDP criteria of 240 person-rem for Boiling Water Reactors (BWRs). The performance deficiency had a problem identification and resolution (identification) cross cutting aspect.

Inspection Report# : [2005002\(pdf\)](#)

Public Radiation Safety

Significance:  Mar 31, 2005

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

HOPE CREEK SHIPPED A RADIOACTIVE MATERIAL PACKAGE WITH RADIATION LEVELS IN EXCESS OF 200 MILLIREM PER HOUR

A self-revealing non-cited violation was identified when a PSEG shipment of outage related equipment received by a vendor had external radiation levels in excess of regulatory limits. This finding was determined to be a violation of 10 CFR 71.5, "Transportation of Licensed Material," and 49 CFR 173.441(a), "Radiation Level Limitations."

Traditional enforcement does not apply because the issue did not have any actual safety consequence or potential for impacting the NRC's regulatory function and was not the result of any willful violation of NRC requirements. This finding was more than minor because it was associated with the program and process attribute of the public radiation safety cornerstone and affected the objective to ensure adequate protection of public health and safety from exposure to radioactive materials released into the public domain as a result of routine civilian nuclear reactor operations. This finding was evaluated using Inspection Manual Chapter (IMC) 0609, Appendix D, "Public Radiation Safety Significance Determination Process," because it was a radiation material control (radioactive material packaging and transportation) issue. The

inspectors determined the finding to be of very low safety significance (Green) because the transportation issue resulted in a radiation limit being exceeded that involved external radiation levels that was not readily accessible by the public and not more than two times the federal limit. The inspectors also determined that the finding did not involve a breach in the package, a certificate of non-compliance issue, a low-level burial ground non-conformance, and that surface contamination limits were not exceeded.

Inspection Report# : [2005002\(pdf\)](#)

Physical Protection

[Physical Protection](#) information not publicly available.

Miscellaneous

Significance: SL-IV Sep 30, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

UNTIMELY LICENSEE EVENT REPORT FOR THE 'A' CONTROL ROOM EMERGENCY FILTRATION SUBSYSTEM

The inspectors identified that PSEG did not submit a licensee event report to document the 'A' control room emergency filtration system was inoperable for greater than seven days on two occasions in February 2005, a condition that is prohibited by Technical Specifications. The finding was determined to be a non-cited violation of 10 CFR 50.73, "Licensee Event Report System." PSEG's corrective actions included reinforcing procedure requirements to screen equipment problems for reportability.

Traditional enforcement applies because a failure to report a safety event in a timely manner has the potential to impact the NRC's ability to perform its regulatory function. This finding was reviewed by NRC management because the finding was related to traditional enforcement. The review determined the finding to be a Severity Level IV violation consistent with Supplement I.D of the NRC Enforcement Policy. The finding is not suitable for Significance Determination Process evaluation because it did not have an actual impact on the initiating events, mitigating systems, or barrier integrity cornerstone. The performance deficiency had a problem identification and resolution cross-cutting aspect.

Inspection Report# : [2005004\(pdf\)](#)



Significance: G Jun 30, 2005

Identified By: NRC

Item Type: FIN Finding

FAILURE TO IMPLEMENT THE EXECUTIVE REVIEW BOARD PROCESS

The inspectors identified a finding for several lapses in the use of the Executive Review Board (ERB) process. This finding involved not properly implementing a corrective action which had been intended to improve management effectiveness in detecting and preventing retaliation and the creation of a chilling effect. This finding was not a violation of regulatory requirements.

Traditional enforcement does not apply because the issue did not have any actual safety consequences or potential for impacting the NRC's regulatory function, and was not the result of any willful violation of NRC requirements. This finding was more than minor, because if left uncorrected, it would lead to the potential for retaliation and a chilled work environment. This finding was of very low safety significance (Green), based on management review, because there was no direct impact on human performance or equipment reliability. The performance deficiency had problem identification and resolution (corrective action) and safety conscious work environment cross cutting aspects.

Inspection Report# : [2005003\(pdf\)](#)

Significance: N/A May 02, 2005

Identified By: NRC

Item Type: FIN Finding

SALEM AND HOPE CREEK PROBLEM IDENTIFICATION AND RESOLUTION BIENNIAL INSPECTION

The team determined that, in general, problems were adequately identified, evaluated and corrected. However, the team noted that PSEG's implementation of their corrective action program was inconsistent. The team identified weaknesses in each of the three fundamental areas: problem identification, evaluation, and the effectiveness of corrective actions. The team identified six findings in which PSEG did not properly evaluate and correct conditions adverse to quality. Several staff interviews were conducted during the inspection. The team identified no new safety conscious work environment issues.

Inspection Report# : [2005006\(pdf\)](#)

Last modified : March 03, 2006