

Peach Bottom 2 4Q/2004 Plant Inspection Findings

Initiating Events

Significance: N/A Dec 03, 2004

Identified By: Self Disclosing

Item Type: FIN Finding

Supplemental Inspection of Exelon's Evaluation of the White PI Associated with the Peach Bottom Unit 2 Scrams

Overall, the inspectors concluded that Exelon adequately addressed the problem identification attributes of IP 95001. Regarding the problem resolution attributes of IP 95001, the inspector did not identify any common root causes for the five scrams; however, there were some common contributing causes including: not entering or resolving equipment failures in the corrective action process; not implementing timely corrective measures; not appropriately assessing potential safety risk associated with equipment anomalies and problems. Some examples of these problems were discussed in the licensee's common cause analysis and the inspector identified additional examples that are discussed in the body of this report.

The inspector independently evaluated the cause analysis for each of the five scrams and identified an overall weakness in the area of problem resolution. Specifically, Exelon's cause evaluations for the scrams were not always thorough in that some of the conclusions were not supported by available information and two of the root cause evaluations did not identify the underlying causes. In most cases there was little evidence of the use of credited evaluation methods and some conclusions did not appear to be supported by these evaluation methods. Additionally, the extent of condition and cause reviews were not always appropriately focused and there were problems with the adequacy and implementation of some corrective actions. Nonetheless, the inspector concluded that although Exelon missed some opportunities to identify the underlying causes of events and that some of the root cause analysis were not thorough, the evaluations did identify and the licensee did implement corrective actions sufficient to prevent recurrence of similar events. This conclusion is also supported by the fact that there were no additional scrams as of the conclusion of this inspection. We plan to review your actions to address these weaknesses during subsequent baseline inspections such as our problem identification and resolution (PI&R) biennial team inspection and PI&R sample inspections.

Inspection Report# : [2004011\(pdf\)](#)

Mitigating Systems

Significance: G Sep 30, 2004

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

Unit 3 High Pressure Coolant Injection System Trip Circuit Wire Not Reinstalled Following Testing

A self-revealing non-cited violation (NCV) of Technical Specification 5.4.1, "Administrative Controls - Procedures," was identified for instrument control technicians not following written procedures during conduct of a surveillance test on the Unit 3 high pressure coolant injection (HPCI) system. The technician's procedure error resulted in the HPCI high reactor vessel water level trip circuit being disabled due to a test wire not being properly reconnected following testing on August 3, 2004. Instrument control technicians identified the disabled trip circuit while performing testing on the opposite trip circuit on September 14, 2004.

The finding is considered more than minor because the issue was associated with the configuration control attribute of the mitigating systems cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating events. HPCI reliability could be impacted if the turbine did not trip on high reactor water level. The finding was determined to be of very low safety significance (Green) because the issue did not result in a loss of the HPCI system automatic injection safety function.

A contributing cause to the HPCI high reactor vessel water level trip being disabled was related to the human performance cross-cutting area. Specifically, instrument control technicians did not follow written instructions to reconnect a wire following planned surveillance testing.

Inspection Report# : [2004004\(pdf\)](#)

Significance: G Jun 30, 2004

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

Unit 2 High Pressure Coolant Injection Turbine Failure During Post-Maintenance Testing Due to Mis-Positioned Oil Supply Valve

A self-revealing non-cited violation (NCV) of Technical Specification 5.4.1, "Administrative Controls - Procedures," was identified for inadequate Unit 2 high pressure coolant injection (HPCI) turbine maintenance procedures. The procedures did not contain adequate controls to

prevent the mis-positioning of the governor bearing oil supply valve during post-maintenance testing. As a result, oil flow to the bearing was interrupted. Damage to the turbine bearing and rotor rendered the machine inoperable and required the bearing and rotor to be replaced, resulting in unplanned HPCI system unavailability.

This finding is more than minor because, if left uncorrected, it would become a more significant safety concern. The finding affected the mitigating systems cornerstone equipment reliability attribute. The failure of HPCI turbine bearing resulted in a loss of high pressure injection system safety function; therefore, a Phase 2 Significance Determination Process (SDP) was required. A Phase 3 SDP was required to assess the increased risk due to large early release frequency. The Phase 3 SDP determined this issue to be of very low safety significance.

A contributing cause to the HPCI turbine failure was related to the problem identification and resolution cross-cutting area. Specifically, Exelon failed to adequately incorporate relevant operating experience into the design, maintenance, and operation of the HPCI lubricating oil system.

Inspection Report# : [2004003\(pdf\)](#)

Significance:  Mar 31, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Maintenance Rule Bases Exceeded on the 2A Reactor Building Closed-Cooling Water Heat Exchanger and E-2 Emergency Diesel Generator

The NRC identified a non-cited violation (NCV) of 10 CFR 50.65, the Maintenance Rule, having very low safety significance (Green). As of December 14, 2003, the 2A reactor building closed cooling water (RBCCW) heat exchanger exceeded the unavailability criteria established by Exelon in its Maintenance Rule scoping document. The RBCCW system was not monitored against Exelon established criteria of two percent unavailability per 24 month period. Additionally, as of February 13, 2004, the E2 emergency diesel generator (EDG) exceeded the reliability criteria established by Exelon in its Maintenance Rule scoping document. The E2 EDG performance was not monitored against Exelon established criteria of one maintenance preventable functional failure (MPFF) per 24 month period. The events determined to be MPFFs on the E2 EDG occurred on March 21, 2003, and September 15, 2003.

The finding is more than minor because the E2 EDG was associated with the Equipment Performance 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. The 2A RBCCW heat exchanger was associated with the Equipment Performance attribute of the Initiating Events cornerstone. Exelon's not analyzing the E2 EDG or the 2A RBCCW heat exchanger performance in accordance with the maintenance rule was determined to have very low safety significance (Green) using Phase 1 of the Significance Determination Process (SDP) for Reactor Inspector Findings for At-Power reactor situations.

Inspection Report# : [2004002\(pdf\)](#)

Significance: N/A Jun 08, 2000

Identified By: NRC

Item Type: AV Apparent Violation

Assoc Circuit - Mechanical Damage from Fire Induced Cable Faults not evaluated.

PECO adopted a licensing position that mechanical damage to alternative shutdown equipment resulting from fire-induced cable faults, as described in Information Notice 92-18, was outside the scope of the licensing and design bases of the facility. As a result, PECO did not evaluate the control circuits of the alternative shutdown equipment to determine if it was susceptible to this problem. Since a detailed review of the alternative shutdown capability at PBAPS was not performed as part of the scope of this inspection, the risk associated with this issue was not established.

This issue is being treated as an apparent violation of Condition 2.C.4 of the operating licenses for both Unit 2 and Unit 3, which requires PECO to implement and maintain the fire protection program described in the NRC Safety Evaluation Reports. PECO has entered this issue into their corrective action program and has implemented reasonable compensatory measures pending final resolution of the issue. However, the issue of mechanical damage to safe shutdown equipment due to fire-induced cable faults is in contention between the NRC and the nuclear industry. As such, any further enforcement action will be deferred pending final resolution of this issue by the Nuclear Energy Institute and the NRC staff, in accordance with Enforcement Guidance Memorandum 98-02, Revision 2, issued February 2, 2000.

Inspection Report# : [2000003\(pdf\)](#)

Significance:  Jun 08, 2000

Identified By: NRC

Item Type: AV Apparent Violation

Assoc Circuit - Reliance on signal spurious assumption of one per system per fire.

PECO's specification for performing circuit analyses of post-fire safe shutdown equipment stipulates that only one spurious actuation for each system affected by any one fire be analyzed. For the areas inspected, the team determined that PECO adequately protected against fire-induced spurious actuations. The team did not identify any additional spurious actuations which would have prevented achieving safe shutdown conditions in the post-fire operating environment.

The assumption that only a single spurious actuation need be considered for any one system for any one fire is an apparent violation of the

requirements of Section III.G. and III.L. of Appendix R to 10 CFR 50. PECO entered this issue into their corrective action program and have implemented reasonable compensatory measures. However, the issue of multiple spurious actuations of equipment in a post-fire environment is in contention between the NRC and the nuclear industry. As such, any further enforcement action will be deferred pending final resolution of this issue by the Nuclear Energy Institute and the NRC staff, in accordance with Enforcement Guidance Memorandum 98-02, Revision 2, issued February 2, 2000.

Inspection Report# : [2000003\(pdf\)](#)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Significance:  Dec 31, 2004

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

Exelon Did Not Adhere to Radiation Protection Procedures for Control of Radioactive Material Within the Radiologically Controlled Area

A self-revealing non-cited violation of Technical Specification 5.4 associated with implementation of Regulatory Guide 1.33 procedures for control of radioactivity was identified. Specifically, positive control was not maintained of an unlabeled bucket containing elevated levels of residual radioactive materials on November 8, 2004. The material was unknowingly spilled in a non-contaminated area resulting in personnel and area contamination. Exelon conducted a clean-up of the contamination, evaluated potential personnel exposures, reviewed extent of condition, and placed this issue into the corrective action program. No significant occupational dose was identified.

The finding was greater than minor because it affected the Occupational Radiation Safety cornerstone attributes of program and processes for exposure control and monitoring in that Exelon did not maintain control of radioactive materials to ensure adequate protection of worker health and safety from exposure to radioactive materials. This finding was determined to be of very low safety significance (Green), in that: 1) it did not involve an ALARA finding, 2) it did not involve an overexposure, 3) there was no substantial potential of an overexposure and, 4) the ability to assess dose was not compromised.

Inspection Report# : [2004005\(pdf\)](#)

Public Radiation Safety

Significance:  Sep 30, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Follow DOT Package Closure Requirements

The NRC identified a non-cited violation (NCV) of 10 CFR 71.5 associated with failure to properly close Type A shipping packages (control rod drive shipping boxes). Specifically, for packages loaded on September 20, 2004, and previous shipments, Exelon did not torque the package closures (T-bolts) to torque values specified in vendor closure procedures as required by 49 CFR 173.475.

The finding was more than minor, in that it is associated with the public radiation safety cornerstone. The cornerstone objective was affected because the issue involved an occurrence in the radioactive material transportation program that was contrary to NRC or Department of Transportation regulations. Specifically, Exelon did not ensure the DOT Type A packages were properly closed. The finding is of very low safety significance (Green), in that it involved a radioactive material control and package procedure compliance issue, but did not involve a radiation limit being exceeded or a package breach. Exelon placed this issue in its corrective action program, had not shipped the specific packages offsite, and verified that previous shipments of this package type had arrived at their destination with no external contamination.

Inspection Report# : [2004004\(pdf\)](#)

Physical Protection

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

Miscellaneous

Last modified : March 09, 2005