Peach Bottom 2
2Q/2004 Plant Inspection Findings

Initiating Events

Mitigating Systems

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: G 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: G Dec 31, 2003
Identified By: Self Disclosing
Item Type: NCV NonCited Violation
Inadequate Clearance Restoration Results in Automatic Start of All Four Emergency Diesel Generators
A self revealing non-cited violation (NCV) of Technical Specification 5.4.1 was identified. The NCV is of very low safety significance. The written clearance restoration instructions provided to maintenance technicians to restore Unit 3 reactor vessel water level instruments to service following maintenance were inadequate. The inadequate instructions resulted in the unexpected generation of signals to actuate the Unit 3 emergency core cooling systems (ECCS) and to start the four EDGs. All four EDGs started but were not connected to the Unit 2 or 3 safety buses because normal power was available to these buses. None of the Unit 3 ECCS actuated because Unit-3 was in a refueling outage.

The finding is greater than minor because it is similar to Insignificant Procedure Error Example 5.a in Appendix E of IMC 0612, "Power Reactor Inspection Reports." The reactor vessel instrumentation system was being returned to service after maintenance with an inadequate work instruction and caused automatic start of all four EDGs. The finding is of very low safety significance on both Unit 2 and Unit 3. Unit 3 was assessed using IMC 0609, Appendix G, "Shutdown Operations Significance Determination Process." The reactor coolant system level was maintained greater than 23 feet, the two sources of vessel level instrumentation used by plant operators to monitor reactor coolant system inventory were not affected, and the finding did not represent a loss of control. Unit-2 was assessed using IMC 0609, Appendix A "Significance Determination of Reactor Inspection Findings for At-Power Situations." The finding was not a design deficiency, did not represent an actual loss of safety function, and did not involve the loss of equipment designed to mitigate an external event.

Inspection Report# : 2003005*(pdf)*

Significance: G Dec 31, 2003
Identified By: Self Disclosing
Item Type: NCV NonCited Violation
Inadequate Corrective Actions for High Unit 2 Steam Tunnel Temperature
A self revealing non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion 16 was identified. The NCV is of very low safety significance. During the period of July 2001 through July 2003, Exelon did not adequately correct a condition adverse to quality, specifically a high Unit 2 steam tunnel temperature condition that was not representative of a steam leak. Consequently, on July 22, 2003, following a turbine trip and scram of Unit 2, a high main steam tunnel temperature condition, that was not representative of a steam leak, caused all main steam isolation valves to close resulting in a loss of the normal heat sink and reactor feed water system.

The finding is considered greater than minor in that the issue is associated with the equipment performance attribute of the mitigating systems cornerstone and adversely affects the mitigating systems cornerstone objective to assure availability of systems that respond to initiating events to prevent undesirable consequences. The finding is also associated with the equipment performance attribute of the Initiating Events cornerstone and adversely affects the objective of limiting the likelihood of those events that upset plant stability. A high steam tunnel temperature condition that is not representative of a steam leak due to a Group 3 isolation would remove the normal source of feed water and heat sink and cause a reactor scram.

This finding is specifically related to the cross-cutting area of Problem Identification and Resolution. Although Exelon documented high main steam tunnel temperatures in their corrective action program on July 1, 2001, and again on April 20, 2003, Exelon did not correct the high main steam line tunnel temperature condition that was not representative of a steam leak on Unit 2 to prevent the closure of the main steam isolation valves on July 22, 2003.
Inspection Report# : 2003005*(pdf)*

Significance: W Nov 18, 2003
Identified By: NRC
Item Type: VIO Violation
Failure to Adequately Maintain the E-2 Emergency Diesel Generator
(By letter dated February 3, 2004, Final Significance Determination for a White Finding and Notice of Violation, EA-03-224.)

A self-revealing finding was identified for the failure to adequately maintain the E2 emergency diesel generator (EDG) between July 1992 and September 2003. This finding involved two apparent violations. An apparent violation of Technical Specifications was identified for the failure to maintain the maintenance procedure for installation of EDG adapter gaskets. The procedure did not incorporate certain vendor recommendations intended to provide proper sealing of the gaskets, leading to relaxation over several years that allowed combustion gases to enter the jacket coolant system. An apparent violation of 10 CFR 50 Appendix B, Criterion XVI, "Corrective Actions" was identified because Exelon did not correct a condition adverse to quality following two instances of low jacket water pressure observed on the E2 emergency diesel generator (EDG) in March and April 2003. Subsequently, the EDG failed due to a low jacket water pressure condition.

This finding is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone and adversely affects the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events. The finding was assessed using a Phase 3 evaluation. The finding is of low to moderate safety significance (WHITE) at Unit 2 based on delta core damage frequency (CDF) and delta large early release frequency (LERF). The finding is of very low safety significance (GREEN) at Unit 3 based on CDF and LERF. The difference between the two units is attributable to differences in electrical bus loads.

Inspection Report# : 2003013*(pdf)*

Significance: G Nov 18, 2003
Identified By: Self Disclosing
Item Type: FIN Finding
Inadequate Corrective Actions to Correct a Hotwell Level Controller
A self-revealing finding was identified because Exelon did not correct a previously known equipment deficiency with the Unit 2 "B" condenser hotwell level instrument as required by the corrective action program. The equipment deficiency resulted in draining the condensate storage tank (CST) to the condenser hotwell and automatically transferring the high pressure coolant injection and reactor core isolating cooling systems' suction from the CST to the torus. The automatic transfer of the suction to the torus was unexpected at this point during the event and therefore resulted in an added operational burden for the operators.

This finding is more than minor because it is associated with the Equipment Performance attribute of the Mitigating Systems cornerstone and adversely affects the cornerstone objective to ensure the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. This finding is of very low safety significance (Green) using Phase 1 of the Significance Determination Process for reactor inspection findings for At-Power reactor situations. The finding is of very low safety significance because the finding is not a design or qualification deficiency, does not represent an actual loss of safety function, and does not screen as potentially risk significant due to a seismic, fire, flooding, or severe weather initiating event. (Section 3.3)

Inspection Report# : 2003013*(pdf)*

Significance: G Sep 27, 2003
Identified By: NRC
Item Type: NCV NonCited Violation
Did Not Meet 10 CFR 55.53(f)(2) When Reactivating Senior Operators to Support Fuel Handling
The inspector identified a non-cited violation (NCV) of 10 CFR 55.53(f)(2) regarding the licensee's method used to reactivate senior operator licenses to support refueling. The operators were reactivated without the required direct supervision being present during the shift under-instruction time.

This finding is more than minor but of very low safety significance because it is similar to example 2h in Appendix E of MC 0612. The performance deficiency is related to operator license conditions. The performance deficiency indicates more than 20% of the senior operator license reactivations to support refueling operations did not meet the requirements of 10 CFR 55.53(f)(2). Accordingly, the performance deficiency was determined to be of very low safety significance.
Inspection Report# : 2003004*(pdf)*

Significance: G Sep 27, 2003
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Corrective Actions on Unit 2 Reactor Core Isolation Cooling Pump for Automatic Flow Control
The inspectors identified a non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion XVI, because Exelon did not adequately correct a significant condition adverse to quality, identified during a December 21, 2002 scram, associated with the inoperabiity of the Unit 2 reactor core isolation cooling (RCIC) pump in the automatic flow control mode. As a result of not adequately correcting this significant condition adverse to quality, the Unit 2 RCIC pump was not able to deliver the Technical Specification required 600 gpm flow rate into the reactor vessel in the automatic flow control mode during a July 22, 2003 scram.

This finding is considered more than minor because it is associated with the design control attribute of the Mitigating Systems Cornerstone and adversely affects the objective, in that, the capability of RCIC was degraded to respond to initiating events to prevent undesirable consequences. This finding is of very low safety significance (Green) using Phase 1 of the Significance Determination Process (SDP) for Reactor Inspection Findings for At-Power Situations. This issue is of very low safety significance because there was no loss of safety function for RCIC and the finding is not risk significant because of seismic, flood, fire or severe weather. Unit 2 RCIC pump flow was high enough (i.e., a nominal flow rate of approximately 560 gpm), in the automatic flow control mode to maintain reactor vessel water level. Additionally, RCIC pump flow in the manual flow control mode was able to reach 600 gpm.

Inspection Report# : 2003004*(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: G 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

Public Radiation Safety

Physical Protection

Physical Protection information not publicly available.

Miscellaneous

Significance: SL-IV Sep 27, 2003
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Emergency Plan Change Documentation, 10 CFR 50.54(q)
The inspector identified a Severity Level IV non-cited violation of 10 CFR 50.54(q). During the implementation of a new Standard Emergency Plan, Exelon did not retain a record that determined whether a decrease-in-effectiveness had or had not occurred when Exelon generated the new Standard Emergency Plan that deleted portions of the previous Combined Limerick/Peach Bottom Emergency Plan.

Changing emergency plan commitments without documentation impacts the NRC's ability to perform its regulatory function and is, therefore, processed through traditional enforcement as specified in Section IV.A.3 of the Enforcement Policy, issued May 1, 2000 (65 CFR 25388). According to Supplement VIII of the Enforcement Policy, this finding was determined to be a Severity Level IV because it involved a failure to meet a requirement not directly related to assessment and notification.

Inspection Report# : 2003004*(pdf)*

Last modified : September 08, 2004