Peach Bottom 2
4Q/2003 Plant Inspection Findings

Initiating Events

Significance: G Jun 27, 2003
Identified By: Self Disclosing
Item Type: FIN Finding
Inadequate Corrective Action for Equipment Performance Problems with a Reactor Feed Pump Turbine Overspeed Solenoid
Green. A self-revealing finding was identified because Exelon did not identify and correct a mis-wired solenoid during troubleshooting and maintenance activities conducted in September 1999 and November 2001. This resulted in a reactor feed pump trip and plant transient following a subsequent solenoid failure on November 4, 2002.

This finding is greater than minor because it was associated with an attribute and affected the objective of the Initiating Events Cornerstone in that the equipment deficiency resulted in a plant transient. The finding is of very low safety significance (Green) because, although it caused a plant perturbation, it did not increase the likelihood of a primary or secondary system loss of coolant accident initiator, did not contribute to a combination of a reactor trip and loss of mitigation equipment functions, and did not increase the likelihood of a fire or internal/external flood
Inspection Report# : 2003012*(pdf)*

Mitigating Systems

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:  Jun 28, 2003
Identified By: Self Disclosing
Item Type: NCV NonCited Violation
Inadequate E2 Emergency Diesel Generator Maintenance Procedure Resulted in a Lube Oil Leak that Caused a Small Fire on the Exhaust Manifold
The inspectors identified a non-cited violation (NCV) of very low safety significance (Green) of Technical Specification 5.4.1 because Exelon did not adequately establish and maintain torque values for the engine top cover flange joint bolts in an emergency diesel generator (EDG) maintenance procedure. The lack of torque values resulted in lube oil leakage from an improperly torqued joint which led to a small fire on the E2 EDG exhaust manifold during surveillance testing.

This finding was considered more than minor, since it was associated with an attribute and affected the objective of the Mitigating System cornerstone. The applicable attribute was maintenance procedure quality and affected the objective of the cornerstone to ensure the reliability of emergency electrical systems to respond to initiating events to prevent undesirable consequences. The finding was determined to be of very low safety significance because all four EDGs remained available with the loose top cover flange bolts.
Inspection Report# : 2003003*(pdf)*

Significance:  Apr 25, 2003
Identified By: NRC
Item Type: NCV NonCited Violation
Failure To Provide Cable Protection in Accordance With 10 CFR Part 50, Appendix R, Section III.G.2
The team identified a non-cited violation of 10 CFR Part 50, Appendix R, Section III.G.2. Exelon included manual actions in Table A-1 of Specification NE-00296, Post-Fire Safe Shutdown Program Requirements, November 23, 1999, to operate equipment necessary for achieving and maintaining hot shutdown. Several of these manual actions did not meet the requirements of Appendix R, Section III.G.2 and the NRC had not granted exemptions to allow these actions.

In accordance with the guidance provided in Inspection Procedure 71111.05, "Fire Protection," (Revision dated 3/6/03) this finding is greater than minor. The finding is of very low safety significance because the manual actions are

reasonable and are expected to meet the criteria outlined in Enclosure 2 of Inspection Procedure 71111.05.
Inspection Report# : 2003009*(pdf)*

Significance: G Mar 29, 2003
Identified By: NRC
Item Type: NCV NonCited Violation
Failure To Adequately Maintain Fire Safe Shutdown Emergency Lighting Units
The inspectors identified a non-cited violation of very low safety significance (Green). The non-cited violation of Condition 2.C.4 of the operating licenses for both Units 2 and 3 was identified because Exelon did not adequately maintain emergency lighting units with at least an 8-hour battery power supply in three areas needed for operation of safe shutdown equipment. The Peach Bottom Fire Protection Plan (FPP) required emergency lighting for safe shutdown and emergency response in the event of fire.

This NCV was determined to be of very low safety significance because the finding did not contribute to a loss of mitigation equipment functions and did not increase the likelihood of a fire event. In addition, during the period that the emergency lights were unavailable, there was no actual loss of lighting and portable seal beamed lights, that could be used as alternative lighting, were staged in three separate areas in the plant.

A contributing cause of the failed emergency lighting in the three areas was related to the Problem Identification and Resolution cross-cutting area. Peach Bottom plant personnel identified in July 1996 that emergency lighting units were failing prematurely (CR # 060005). Although station personnel documented the lighting deficiencies in A/Rs and corrected each of the degraded lighting units until the summer of 2002, plant personnel did not implement effective corrective actions to prevent these problems from reoccurring.

Inspection Report# : 2003002*(pdf)*

Significance: G Mar 29, 2003
Identified By: NRC
Item Type: NCV NonCited Violation
Unexpected Trip of the E2 Emergency Diesel Generator (EDG) Due to the Failure to Identify and Disable the EDG Electrical Trips Associated with the Isolated Cardox Injection Fire Protection System
The inspectors identified a non-cited violation of very low safety significance (Green) of 10 CFR 50, Appendix B, Criterion XVI because Exelon did not adequately correct a condition adverse to quality, namely, emergency diesel generator (EDG) trips caused by electrical trip and lock-out signals from the cardox injection fire protection system due to loose foreign material or failed circuit cards. Specifically, between June 2002 and January 19, 2003, Exelon did not disable the electrical trip and lock-out signals from the cardox injection fire protection system that will trip the EDG. The E2 EDG tripped during a 24-hour endurance run on January 18, 2003, because of an electrical trip signal from the cardox injection fire protection system due to loose foreign material.

This NCV was of very low safety significance because the E1, E3 and E4 EDGs remained operable during the entire time that the E2 EDG was unavailable and the E2 EDG was unavailable for only a short amount of time (less than three days).

A contributing cause of this finding was related to the Problem Identification and Resolution crossing-cutting area. Exelon did not evaluate in a prompt manner whether it was appropriate to disable the electrical trips of the EDGs from the cardox injection fire protection system after NRC inspectors identified that the trips were still active with the EDG cardox system isolated. After station personnel isolated the cardox injection following the inadvertent cardox injection in June 2002, inspectors documented in NRC Inspection Report 50-277/02-04, 50-278/02-04, dated July 23, 2002, that

the electrical portion of the cardox system that generated the EDG trip and lock-outs was not isolated. Although, in response to the NRC inspection, station personnel had generated an assignment in CR # 110334 to evaluate removing the cardox system EDG trips and lock-outs while the cardox system was isolated, plant personnel had not completed this evaluation until after the E2 EDG tripped during the January 2003 endurance test run.
Inspection Report# : 2003002*(pdf)*

Significance: G Jan 31, 2003
Identified By: NRC
Item Type: NCV NonCited Violation
Reactor Core Isolation Cooling Pump Inoperable in the Automatic Flow Control Mode Since 1994
The inspectors identified a non-cited violation (NCV) of very low safety significance (Green). The non-cited violation of Technical Specification (TS) 3.5.3 is due to the inoperability of the Unit 2 reactor core isolation cooling (RCIC) pump in the automatic flow control mode since March 1994. In 1994, a modification to the RCIC pump flow controller was performed involving replacement of the controller and subsequent increase in the controller gain setting. This gain-set adjustment rendered the RCIC pump incapable, in automatic flow control, of delivering 600 gpm at reactor pressure, as required by TS 3.5.3.

This NCV was determined to be of very low safety significance. The flow rate for Unit 2 RCIC pump in the automatic mode, although degraded, was sufficient to meet the reactor decay heat requirements and provide make-up water to the reactor vessel during transient events. Additionally, the RCIC pump met design and licensing flow requirements with the pump flow controller in manual.
Inspection Report# : 2003007*(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

Significance:  Jun 28, 2003
Identified By: Self Disclosing
Item Type: NCV NonCited Violation
"A" Train of Standby Gas Treatment System Inoperable for Greater Than 7 Days
The inspectors identified a non-cited violation (NCV) of very low safety significance (Green) of Technical Specification 3.6.4.3 due to the inoperability of one train of the standby gas treatment (SBGT) for greater than seven days. Around November 2002, the charcoal and HEPA filters on the ‘A' train were sprayed with water from the deluge system. The ‘A' train of SBGT was unable to perform its safety function for greater than seven days, due to the wetting of the charcoal filters.

This finding was considered more than minor since it is associated with the Containment Barrier performance attribute of the Barrier integrity cornerstone. The finding affected the cornerstone objective to provide reasonable assurance that physical design barriers provide protection against a radiological release caused by accidents or events. The finding was determined to be of very low safety significance because the SBGT system was not required to mitigate a radiological release while the ‘A' train was unavailable and the ‘B' train of SBGT was operable while the ‘A' train was unavailable.
Inspection Report# : 2003003*(pdf)*

Emergency Preparedness

Significance: SL-IV Jan 17, 2003
Identified By: NRC
Item Type: NCV NonCited Violation
10 CFR 50.54(q) Violation For Decreasing the Effectiveness of the Plan By Changing EALs that Address Toxic Gas Without Prior NRC Approval
Severity Level IV. The licensee changed its emergency action level schemes such that there would be a reduction in declarable events as the emphasis shifted from personnel safety to equipment status. The changes were determined to be a decrease in the effectiveness of the emergency plans. Decreases in the effectiveness of an emergency plan must

receive NRC review prior to implementation. The changes were implemented without NRC approval.

The finding was determined to be more than minor as its significance was related to the impact it would have on the mobilization of the emergency response organization and preclude offsite agencies from being aware of adverse conditions on site. The licensee accepted the NRC's position and entered this issue into its corrective action program (Condition Report 139997) and will change the emergency action levels back to the original wording. The implementation of the changes which decreased the effectiveness of the emergency plans, without NRC review, is being treated as a non-cited violations consistent with Section VI.A of the Enforcement Policy, issued on May 1, 2000 (65 FR 25388). (NCV 50-277; 50-278/03-008-01 & 50-352; 50-353/03-006)

Inspection Report# : 2003008*(pdf)*

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

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 : March 02, 2004