

## Peach Bottom 3 1Q/2004 Plant Inspection Findings

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### Initiating Events



**Significance:** 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**

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\(pdf\)](#)

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### Mitigating Systems



**Significance:** 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:** Dec 31, 2003

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

#### **Inadequate Procedure Maintenance Guidance Results in Unit 2 High Pressure Coolant Injection System Check Valve Failure**

A self-revealing non-cited violation (NCV) of Technical Specification 5.4.1 was identified for an inadequate high pressure coolant injection (HPCI) check valve maintenance procedure. The NCV is of very low safety significance. The deficiency resulted in the Unit 2 HPCI system suppression pool suction check valve not fully closing during surveillance testing on December 10, 2003. Since the check valve was not fully closed, approximately 16,000 gallons of water from the condensate storage tank was inadvertently transferred to the suppression pool. In addition, unplanned HPCI system unavailability was needed to facilitate repairs.

The finding is greater than minor because it is associated with the procedure quality attribute and adversely affects the mitigating systems

cornerstone objective. The inconsistent valve performance did not ensure the availability or reliability of HPCI to respond to an initiating event. The finding is of very low safety significance because 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:** Nov 18, 2003

Identified By: NRC

Item Type: VIO Violation

**Failure to Adequately Maintain the E2 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:** Nov 18, 2003

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

**Ineffective Instructions for Installation of SRV Packing**

A non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified because maintenance procedures for the installation of the packing on the safety relief valve (SRV) air operator assembly were inadequate. The packing installation procedures did not assure that the packing was properly installed (packing nuts adequately tightened, etc.) on RV-3-02-071G resulting in hot steam leaking past the packing and damaging the air operator diaphragm during the September 15, 2003, event.

This finding is more than minor because it is associated with the Procedure Quality attribute of the Mitigation 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. The finding was evaluated in accordance with IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," using a Phase 3 significance determination process (SDP) analysis. This issue is of very low safety significance, based on the Phase 3 analysis results, assuming that RV-3-02-071G would not have opened from the control room for one year. The Phase 3 evaluation, using the 3.01 SPAR model for Peach Bottom, indicated a negligible increase in risk of not being able to manually depressurize with the 10 remaining valves.

Inspection Report# : [2003013\(pdf\)](#)



**Significance:** Nov 18, 2003

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

**EOP Support Procedures Not Adequately Established With Steps to Bypass Containment Isolations**

A self-revealing non-cited violation of Technical Specification (TS) 5.4.1, "Administrative Controls - Procedures," was identified. The existing emergency operating support procedures did not have adequate instructions to be used when Group II / III isolation signals were present. This resulted in delaying restoration of torus level and reducing containment pressure for approximately 14 hours while a procedure was developed.

This finding is more than minor because it is associated with the Procedure Quality 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. It delayed the operators in placing Unit 3 into a cold shutdown condition. 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 result in a loss of safety function, and is not potentially risk significant due to seismic, flood, fire, or weather related initiating event.

Inspection Report# : [2003013\(pdf\)](#)



**Significance:** 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:** Sep 27, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

**Deenergized Unit 3 HPCI Alternate Control Station Power Supply**

The inspectors identified a non-cited violation (NCV) of Condition 2.C.4 of the Unit 3 operating license. This finding occurred because Exelon instrumentation and control (I&C) technicians did not follow work order instructions for conducting testing on the Unit 3 high pressure coolant injection (HPCI) alternate control station following maintenance activities. Consequently, the HPCI alternate control station power supply remained de-energized for approximately nine days, resulting in the control station being inoperable for safe shutdown of Unit 3 during specific scenarios, a violation of Condition 2.C.4 of the Unit 3 operating license.

This finding is more than minor because it was associated with the human performance attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective. Operations did not have the ability to use the alternate control station for operation of HPCI and lost the ability to monitor some important reactor parameters. A Phase 3 SDP was performed due to the results of the Phase 2 determination because in case of fire in the control room or emergency shutdown panel, level control using HPCI at the control station was unavailable and the loss of reactor instrumentation at the control station would have affected operators' ability to perform depressurization and containment cooling functions. The Phase 3 SDP determined this issue to be of very low safety significance.

A contributing cause of the Inoperable HPCI alternative control station was related to the Human Performance cross-cutting area. Specifically, I&C technicians did not follow procedures to perform the post-maintenance test specified in a maintenance work order. As a result, the control station was returned to service while in a degraded condition and was unavailable for operation of HPCI and monitoring of important reactor parameters for safe shutdown of Unit 3 in certain fire scenarios.

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:** 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:** G 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\(pdf\)](#)

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## Emergency Preparedness

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## Occupational Radiation Safety



**Significance:** Dec 31, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to Properly Use Respiratory Protective Equipment in Accordance With 10 CFR 20.1703(a)**

The inspector identified a non-cited violation of very low safety significance of 10 CFR20.1703(a). Exelon did not use continuous flow respirator protective equipment (Bullard Series 88 helmets) in accordance with the approval certification of the National Institute for Occupational Safety and Health (NIOSH). Specifically, on September 25 and 29, 2003, an NRC inspector identified that at least one worker on each day used Bullard Series 88 continuous flow airline respirators (NIOSH approval No. TC-19C-293) during blast cleaning of contaminated turbine components, and the respiratory protective equipment was used with breathing air provided at unapproved air pressure settings.

The finding was greater than minor in that it is associated with the occupational radiation safety cornerstone attribute of exposure control and did affect the cornerstone objective. Specifically, Exelon could not ensure adequate protection of worker health and safety from exposure to radiation from radioactive material if respiratory protection equipment is improperly used. The finding is suitable for SDP review in that there was a potential for a significantly greater unplanned, unintended dose if breathing air pressures outside the values specified by NIOSH were used. The finding is of very low safety significance in that, it did not involve an ALARA finding, result in an overexposure, result in a substantial potential for an overexposure, and did not compromise the ability to assess dose.

Inspection Report# : [2003005\(pdf\)](#)

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## Public Radiation Safety

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## Physical Protection

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## 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 : May 05, 2004