

Peach Bottom 2

1Q/2012 Plant Inspection Findings

Initiating Events

Significance:  Mar 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Untimely Corrective Actions Resulted in Spent Fuel Pool Boraflex Degradation Exceeding Design Limits

The inspectors identified a PD that was determined to be a finding of very low safety significance (Green) involving a NCV of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the failure by PBAPS to take timely corrective action to correct a condition adverse to quality and the inability to comply with Design Technical Specification (TS) 4.3.1.1.b which requires, in part, that spent fuel pool (SFP) storage racks are designed and maintained with keff less than or equal to 0.95. Specifically, although PBAPS was aware of degradation of neutron absorbing material (Boraflex) within the SFP storage racks since at least 1996, PBAPS did not take effective measures to adequately monitor or manage the degradation to assure sufficient margin to criticality was maintained. Rather, in 2010, PBAPS deferred corrective actions in the SFPs until 2014 based on an operability determination (OD) that concluded sufficient margin would exist until that time. However, the NRC concluded that the OD did not accurately project the rate of boron degradation, and used several non-conservative assumptions. In June 2011, after addressing the errors in the OD, PBAPS declared 117 spent fuel bundle rack storage cells inoperable since the estimated Boraflex degradation indicated that PBAPS had exceeded design TS 4.3.1.1.b.

The PD was more than minor because it was similar to IMC 0612, Appendix E, "Examples of Minor Issues," Example 3.j, which considers that an issue is more than minor if an engineering calculation error results in a condition where there is now a reasonable doubt on the operability of a system or component, or if significant programmatic deficiencies were identified with the issue that could lead to more significant errors if uncorrected.

Using IMC 0609, Attachment 4, "Phase 1 – Initial Screening and Characterization of Findings," the inspectors attempted to evaluate the risk significance of this issue. Applying the guidance in Table 3b, the inspectors made the assumption that the risk associated with this PD most appropriately impacted the Initiating Events cornerstone. A Region I Senior Reactor Analyst (SRA) determined that there were no probabilistic risk assessment tools currently available to adequately assess the risk of a SFP criticality event. Consequently, the inspectors followed the guidance in the Phase 1 SDP screening worksheet, Table 3b, Step 6, which states, in part, that where the SDP guidance is not adequate to provide reasonable estimates of a finding's significance, use IMC 0609, Appendix M, "SDP Using Qualitative Criteria."

Using Appendix M, the inspectors identified criteria and associated considerations that supported the overall qualitative risk assessment. On April 3, 2012, a Significance and Enforcement Review Panel (SERP) was conducted involving staff from Region I, the Office of Nuclear Reactor Regulation, and the Office of Enforcement to discuss the significance of this event. The SERP determined the PD and subsequent consequences resulted in a condition of very low safety significance (Green), based on an assessment using Appendix M attributes. This finding was also determined to have a cross-cutting aspect in the area of Problem Identification and Resolution - Evaluation [P.1(c)]. Specifically, Exelon did not properly evaluate a condition adverse to quality for operability in that the 2010 OD did not accurately predict the rate of Boraflex degradation and whether the issue challenged current SFP operability [P.1(c)]. (Section 4OA2)

Inspection Report# : [2012002](#) (pdf)

Mitigating Systems

Significance:  Mar 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Corrective Action to Address Emergency Diesel Generator Control Power Circuit Chronic Internal Faults

The inspectors determined that PBAPS did not establish measures to promptly identify and correct a condition adverse to the quality related to the emergency diesel generator (EDG) control power circuit. The performance deficiency (PD) constituted a Green, self-revealing NCV of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action." Specifically, measures established to identify and correct chronic control power light socket assembly internal faults were inadequate. Consequently, on February 18, 2012, the E-1 EDG local control power station experienced a short circuit event during control power indicating light bulb replacement. PBAPS entered into this issue into the corrective action program (CAP) via issue report (IR) 1328736.

This finding was more than minor because it was associated with the equipment performance attribute of the Mitigating System cornerstone, and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events and prevent undesirable consequences. Using IMC 0609, Attachment 4, "Phase 1 – Initial Screening and Characterization of Findings," the inspectors determined that this finding was of very low safety significance (Green) because it did not represent an actual loss of safety function for a single EDG train for a duration greater than its Technical Specification (TS) allowed outage time, and did not screen as potentially risk significant due to an external initiating event.

The inspectors determined that this finding had a cross-cutting aspect in the area of problem identification & resolution (PI&R), CAP, because PBAPS did not take appropriate corrective actions to address the adverse trend associated with chronic EDG control power circuit faults in a timely manner, commensurate with its safety significance [P.1(d)]. (Section 1R19)

Inspection Report# : [2012002](#) (*pdf*)

Significance:  Mar 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Corrective Action to Address Residual Heat Removal Heat Exchanger Graphite Gasket Leaks

The inspectors determined that PBAPS did not promptly identify and correct residual heat removal (RHR) heat exchanger (HX) graphoil gasket leaks. The PD constituted a Green, self-revealing NCV of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action." Specifically, measures established to identify and correct previous graphoil gasket leaks were inadequate to correct the condition adverse to quality. Consequently, on February 16, 2012, the Unit 2 'C' RHRHX shell cover lower flange graphoil gasket failed during testing, rendering the 'C' RHR subsystem inoperable. PBAPS entered this issue into CAP via IR 1327477.

This finding was more than minor because it was associated with the equipment performance attribute of the Mitigating System cornerstone, and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events and prevent undesirable consequences. Using IMC 0609, Attachment 4, "Phase 1 – Initial Screening and Characterization of Findings," the inspectors determined that this finding was of very low safety significance (Green) because it did not represent an actual loss of safety function for a single RHR train for greater than its TS allowed outage time, and did not screen as potentially risk significant due to an external initiating event.

The inspectors determined that this finding had a cross-cutting aspect in the area of PI&R, CAP, because PBAPS did not thoroughly evaluate previous graphoil gasket failures used in RHR HX applications to ensure the resolution addressed the cause and extent of condition [P.1(c)]. (Section 1R19)

Inspection Report# : [2012002](#) (*pdf*)

Significance:  Aug 12, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Corrective Actions Associated with Safety Relief Valve Lift Setpoint Drift.

The inspectors identified a finding of very low safety significance (Green) involving a NCV of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," because Exelon staff did not implement timely corrective action associated with safety relief valve (SRV)/safety valve (SV) lift setpoint drift in excess of Technical Specification (TS) 3.4.3, "Safety Relief Valves and Safety Valves" requirements. Specifically, Exelon staff did not implement timely or adequate actions to correct SRV lift setpoint drift that, on four occasions since 2004, has exceeded TS acceptance criteria and resulted in repeat TS violations. The station entered this issue into their corrective action program (CAP) as issue report (tR) 1250472 to evaluate the corrective actions needed to address this issue including evaluation of the proposed revision to the Peach Bottom licensing basis through a TS amendment.

The inspectors determined that the finding was more than minor because it was associated with the equipment performance attribute of the Mitigating Systems cornerstone and affected the cornerstone objective of ensuring the capability and reliability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, SRVs continue to experience reliability challenges regarding SRV/SV lift setpoint drift and the station remains vulnerable to future TS compliance issues. The inspectors evaluated the significance of this finding using IMC 0609.04, "Phase 1 - Initial Screening and Characterization of Findings." The inspectors determined that this finding was of very low safety significance (Green) because the finding was not a design or qualification deficiency, did not represent a loss of safety system function, and did not screen as potentially risk-significant due to external initiating events. The inspectors' review did not identify a loss of SRV/SV safety function with regard to SRVs/SVs being able to lift within the necessary pressure range to maintain margin to design pressure and stress limits. The finding has a cross-cutting aspect in the area of problem identification and resolution, corrective action program, because Exelon personnel did not implement timely corrective actions to address a longstanding SRV tolerance setpoint condition that has resulted in multiple TS compliance violations. [P. 1 . (d)] [Section 4OAZ. 1 .c.(1)]

Inspection Report# : [2011010](#) (*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*)

Inspection Report# : [2007002](#) (*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)

Inspection Report# : [2007002](#) (pdf)

Barrier Integrity

Significance:  Dec 31, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

Untimely Corrective Action to Correct MOV Degraded Stem Lubrication

The inspectors determined that PBAPS's failure to promptly correct a condition adverse to quality associated with a safety-related MOV constituted a Green, self-revealing NCV of 10 CFR, Appendix B, Criterion XVI, "Corrective Action." Specifically, corrective actions to prevent recurrence of MOV program testing failures due to degraded stem lubrication in 2009 were not performed in a timely manner to prevent the inoperability of a safety-related MOV due to degraded lubrication, as identified on September 22. [P.1(d)]

10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," states, in part, that measures shall be established to assure that conditions adverse to quality are promptly identified and corrected. Contrary to the above, Exelon failed to promptly correct a condition adverse to quality associated with degraded stem lubrication on RWCU outboard isolation valve MO-3-12-018. Specifically, root cause evaluation 892191-08 required Exelon to change MOV stem lubrication from Exxon Nebula EP-1 to MOV Long Life, as a corrective action to prevent recurrence of multiple MOV program testing failures due to degraded stem lubrication identified in 2009. As a consequence of Exelon's failure to promptly correct this condition adverse to quality, MO-3-12-018 failed diagnostic testing due to degraded Exxon Nebula EP-1 stem lubrication on September 22, 2011. Because this finding is of very low safety significance and has been entered into Exelon's CAP under IRs 1266600 and 1266604, this violation is being treated as a Green NCV consistent with the NRC Enforcement Policy. (NCV 05000277/2011005-01 and NCV 05000278/2011005-01, Untimely Corrective Action to Correct MOV Degraded Stem Lubrication)

Inspection Report# : [2011005](#) (pdf)

Emergency Preparedness

Significance: SL-IV Aug 31, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

(Traditional Enforcement) Changes to EAL Basis Decreased the Effectiveness of the Plan without Prior NRC approval

Severity Level IV/Green: The inspector identified a finding of very low safety significance involving a Severity Level IV NCV of 10 CFR 50.5a(q) for failing to obtain prior approval for an emergency plan change which decreased the effectiveness of the plan. Specifically, the licensee modified the Emergency Action Level (EAL) Basis in EAL HU6 which indefinitely extended the start of the 15-minute emergency classification clock beyond a credible notification that a fire is occurring or indication of a valid fire detection system alarm. This change decreased the effectiveness of the emergency plan by reducing the capability to perform a risk significant planning function in a timely manner. The violation affected the NRC's ability to perform its regulatory function because it involved implementing a change that decreased the effectiveness of the emergency plan without NRC approval. Therefore, this issue was evaluated using Traditional Enforcement. The NRC determined that a Severity Level IV violation was appropriate due to the reduction of the capability to perform a risk significant planning standard function in a timely manner. The licensee entered this issue into its corrective action program and revised the EAL basis to restore compliance. The finding was more than minor using IMC 0612, because it is associated with the emergency preparedness cornerstone attribute of procedure quality for EAL and emergency plan changes, and it adversely affected the cornerstone objective of ensuring 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. Therefore, the performance deficiency was a finding. Using IMC 0609, Appendix B, the inspector determined that the finding had a very low safety significance because the finding is a failure to comply with 10 CFR 50.5a(q) involving the risk significant planning standard 50.47(bX4), which, in this case, met the example of a Green finding because it involved one Unusual Event classification (EAL HU6). Due to the age of this issue, it was not determined to be reflective of current licensee performance and therefore a cross-cutting aspect was not assigned to this finding. (Section 1EP4)
Inspection Report# : [2011502](#) (*pdf*)

Significance: SL-IV Aug 31, 2011

Identified By: NRC

Item Type: FIN Finding

Changes to EAL Basis Decreased the Effectiveness of the Plan without Prior NRC Approval

Severity Level IV/Green: The inspector identified a finding of very low safety significance involving a Severity Level IV NCV of 10 CFR 50.5a(q) for failing to obtain prior approval for an emergency plan change which decreased the effectiveness of the plan. Specifically, the licensee modified the Emergency Action Level (EAL) Basis in EAL HU6 which indefinitely extended the start of the 15-minute emergency classification clock beyond a credible notification that a fire is occurring or indication of a valid fire detection system alarm. This change decreased the effectiveness of the emergency plan by reducing the capability to perform a risk significant planning function in a timely manner.

The violation affected the NRC's ability to perform its regulatory function because it involved implementing a change that decreased the effectiveness of the emergency plan without NRC approval. Therefore, this issue was evaluated using Traditional Enforcement. The NRC determined that a Severity Level IV violation was appropriate due to the reduction of the capability to perform a risk significant planning standard function in a timely manner. The licensee entered this issue into its corrective action program and revised the EAL basis to restore compliance. The finding was more than minor using IMC 0612, because it is associated with the emergency preparedness cornerstone attribute of procedure quality for EAL and emergency plan changes, and it adversely affected the cornerstone objective of ensuring 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. Therefore, the performance deficiency was a finding. Using IMC 0609, Appendix B, the inspector determined that the finding had a very low safety significance because the finding is a failure to comply with 10 CFR 50.5a(q) involving the risk significant planning standard 50.47(bX4), which, in this case, met the example of a Green finding because it involved one Unusual Event classification (EAL HU6). Due to the age of this issue, it was not determined to be reflective of current licensee performance and therefore a cross-cutting aspect was not assigned to this finding. (Section 1EP4)
Inspection Report# : [2011502](#) (*pdf*)

Public Radiation Safety

Significance: **G** Dec 31, 2011

Identified By: NRC

Item Type: FIN Finding

Failure to Establish, Implement, and Maintain Adequate Quality Assurance for Effluent and Environmental Monitoring

The inspector identified a Green finding associated with failure to establish, implement, and maintain adequate quality assurance program elements in the area of effluent and environmental monitoring as required by Peach Bottom Unit 2 and 3 TS Section 5.4.1. Specifically, Exelon's quality assurance program for effluent and environmental monitoring was not sufficient to ensure: 1) that both adequate and timely evaluation and assessment of changes described in the Public Land Use Census were conducted for purposes of dose validation and sampling program modification; 2) that changes in meteorological parameters, used for public dose projections and assessment, were promptly and adequately evaluated; and 3) that laboratory quality assurance programs for effluent and environmental sample analysis measurement systems were adequate and implemented.

Inspection Report# : [2011005](#) (*pdf*)

Physical Protection

Although the NRC is actively overseeing the Security cornerstone, the Commission has decided that certain findings pertaining to security cornerstone will not be publicly available to ensure that potentially useful information is not provided to a possible adversary. Therefore, the [cover letters](#) to security inspection reports may be viewed.

Miscellaneous

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