

Peach Bottom 3 2Q/2006 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance:  Apr 21, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Non-Conservative High Pressure Coolant Injection (HPCI) and Reactor Core Isolation Cooling (RCIC) Pumps Test Acceptance Criteria

The team identified a finding of very low safety significance involving a non-cited violation of 10 CFR 50, Appendix B, Criterion XI, Test Control. The team determined that the licensee had failed to ensure that the high pressure coolant injection (HPCI) and reactor core isolation cooling (RCIC) pump hydraulic performance test procedures had acceptance criteria that incorporated the limits from applicable design documents. If the HPCI pump had degraded to the lower limit of the test acceptance criteria, it would not have been able to meet the design basis discharge pressure and flow requirements. Following the identification of the issue the licensee entered the issue into the corrective action program and verified the operability of the pumps based on actual test results. Additionally, the licensee intends to change the test procedures.

The finding was more than minor because it affected the procedure quality attribute associated with the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of the HPCI and RCIC systems, which are both mitigating systems. The team reviewed this finding using the Phase 1 SDP worksheet and determined the finding was of very low safety significance (Green), because subsequent analyses determined that the pumps were capable of meeting the design basis discharge pressures and flows.

Inspection Report# : [2006009\(pdf\)](#)

Significance:  Apr 02, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

inadequate Post-Maintenance Testing of the E-2 EDG Air Coolant Auxiliary Pump

The inspectors identified a Green non-cited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," for not adequately testing the E-2 emergency diesel generator (EDG) air coolant auxiliary pump following shaft packing replacement. The post-maintenance test did not account for the higher pressure that occurs in the EDG cooling subsystem when the EDG is operating and the cooling system is pressurized by the attached cooling pump. PBAPS entered this performance deficiency into their corrective action program (CAP). Planned corrective actions include developing appropriate post-maintenance testing (PMT) prior to returning the air coolant auxiliary pump to service and developing human performance work practices for minor emergent maintenance activities.

The inspectors identified that a contributing cause of the finding was related to the human performance cross-cutting area. Specifically, the personnel specifying the PMT had an inadequate understanding of the air coolant auxiliary pump design and the pump's interrelationship with the EDG operation, although this information was available in the organization. Also, the inadequate review of previous testing of the pump packing replacements led to the development of an inadequate post-maintenance test for this instance of the E-2 EDG air coolant auxiliary pump shaft packing replacement.

This finding is greater than minor because it is associated with the procedure quality attribute of the Mitigating Systems cornerstone and affects the cornerstone objective to ensure the capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). This finding was determined to be of very low safety significance (Green) using Phase 1 of the SDP, since this condition prohibited by Technical Specifications (TS) was a finding that involved a loss of safety function for a safety system train that did not exceed the TS allowed outage time.

Inspection Report# : [2006002\(pdf\)](#)

Significance:  Dec 31, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

Post-Maintenance Testing did not Identify Restricted HPSW Flow on Residual Heat Removal Heat Exchanger

The inspectors identified a Green non-cited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion XI, Test Control, for not adequately testing the high pressure service water (HPSW) sub-system following a valve replacement. The post-maintenance test did not account for the known degraded condition of the 3B residual heat removal (RHR) heat exchanger HPSW outlet throttle valve. The leaking valve allowed unmeasured bypassing flow to occur while recording the sub-system flow of the 3D HPSW loop. PBAPS entered this performance deficiency into their corrective action program (CAP). Planned corrective actions include revising the surveillance test procedure and re-sizing the orifice plate that is

located downstream of the 3D RHR HX.

The finding is greater than minor because it is associated with the procedure quality attribute of the Mitigating Systems Cornerstone and affects the cornerstone objective to ensure the capability of systems that respond to initiating events to prevent undesirable consequences. Improper test control on two occasions following the design change to MO-3-10-89D and the downstream orifice plates, did not identify that HPSW flow through this loop was below the design basis flow of 4500 gpm. The finding was determined to be a Green finding of very low safety significance using Phase 1 of the SDP, since the finding is a qualification deficiency confirmed not to result in a loss of function. The cause of this finding is related to the cross-cutting element of problem identification and resolution.

Inspection Report# : [2005005\(pdf\)](#)

G

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\(pdf\)](#)

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\(pdf\)](#)

Barrier Integrity

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Significance: Jun 30, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Foreign Material Exclusion Controls for the HPCI Turbine Exhaust Drain Inboard Isolation Valve.

The inspectors identified a Green NCV of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," when PBAPS personnel inadequately accomplished foreign material exclusion (FME) recovery procedures for the Unit 3 high pressure coolant injection (HPCI) turbine exhaust drain piping. The failure to properly implement this procedure prevented a HPCI primary containment isolation valve closure on April 5, 2006. PBAPS entered this procedure adherence issue into their CAP for resolution.

The finding is more than minor because the failure of a containment isolation valve to close is associated with the Barrier Integrity Cornerstone attribute of systems and component performance and affected the objective to provide reasonable assurance that physical design barrier (containment) to protect the public from radionuclide releases caused by accident or events. The finding was determined to be of very low safety significance since the finding did not represent an actual open pathway in the physical integrity of reactor containment. A contributing cause of the finding has a cross-cutting aspect in the area of problem identification and resolution because PBAPS did not thoroughly evaluate a similar October 2005 loss of FME integrity in the same piping such that the extent of debris intrusion was determined and the cause was resolved to preclude recurrence.

Inspection Report# : [2006003\(pdf\)](#)

G

Significance: Jun 30, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Annual Operating Test Administered at Limerick

The inspectors identified a finding of very low safety significance (Green) non-cited violation (NCV) of 10 CFR 55.59(a)(2)(ii) for an inadequate annual operating test that was administered at Limerick for Peach Bottom and Limerick Senior Reactor Operators Limited to Fuel Handling (LSROs). Exelon procedures and commitments made by the licensee in 1991 require questions on job performance measures (JPMs) to explore the differences, if any, in task performance between Limerick and Peach Bottom. Three of the five JPMs had significant differences in the way the task is performed at Limerick versus the same task at Peach Bottom. These three JPMs should have had questions to explore these differences, but did not. Exelon has entered this issue into their corrective action program (CAP) for resolution.

The inspectors determined that the inadequate annual operating test administered at Limerick for Peach Bottom and Limerick LSROs was more than minor because it was associated with the human performance attribute and affected the Barrier Integrity cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. The finding is Green because the inadequate annual operating test did not have an adverse impact on operator actions such that safety related equipment was made inoperable during normal operations or in response to a plant transient.

Inspection Report# : [2006003\(pdf\)](#)

Emergency Preparedness

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Significance: Sep 30, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Maintain Respiratory Equipment Qualifications Current

The inspectors identified an NCV of 10 CFR 50.47(b)(10) because emergency workers required to use respiratory equipment had not maintained their qualifications. The licensee entered the deficiency of not having at least half the operations support center respirator qualified into the corrective action program.

This finding is greater than minor because it affects the readiness attribute of the Emergency Preparedness (EP) Cornerstone. Not maintaining respiratory qualifications current for emergency response organization personnel could impact the EP Cornerstone objective of ensuring that the licensee is capable of implementing adequate measures to protect the public health and safety during a radiological emergency. This finding was determined to be of very low safety significance because it did not constitute a failure to meet a risk significant planning standard.

Inspection Report# : [2005004\(pdf\)](#)

Occupational Radiation Safety

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Significance: Dec 31, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Implement Radiation Protection Procedures for Drywell Initial Entry in Accordance with TS 5.4.

The inspectors identified an NCV of Technical Specification 5.4 and Regulatory Guide 1.33, 1972, associated with failure to follow initial containment access radiation protection program procedures. Specifically, on September 19, 2005, personnel made an initial entry into the Unit 3 reactor drywell, after reactor shut down, and did not collect and analyze a drywell radiation monitoring system (RMS) sample for airborne particulate and iodine, prior to the entry, as required by Radiation Protection Program Procedure HP-315, Initial Drywell Entry, Rev. 12. PBAPS entered this performance deficiency into their CAP to develop corrective actions for resolution.

The finding is greater than minor, in that, it is associated with the Occupational Radiation Safety Cornerstone attribute of exposure control and affects the cornerstone objective. Specifically, PBAPS could not ensure adequate protection of worker health and safety from exposure to airborne radioactive material. The finding is suitable for SDP review, in that there was a potential for a significantly greater unplanned, unintended dose if airborne radioactivity concentrations had been significantly elevated. Using the Occupational Radiation Safety Significance Determination Process, the finding is of very low safety significance (Green), in that it did not involve an ALARA finding, did not result in an overexposure, did not result in a substantial potential for an overexposure, and did not compromise the ability to assess dose. The two individuals who made the initial entry did not sustain any significant dose.

Inspection Report# : [2005005\(pdf\)](#)

Public Radiation Safety

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Significance: Sep 30, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

The Licensee Did Not Implement Certain Aspects of its Offsite Dose Calculation Manual Associated with Airborne Radioactivity Sampling and Broad Leaf Vegetation Sampling

The inspectors identified a NCV of TS 5.5.1 for inadequate implementation of provisions in the Offsite Dose Calculation Manual (ODCM).

Specifically, one of three airborne radioiodine and particulate samplers, required to be in one of the three highest annual average ground level D/Q areas, in accordance with the ODCM, was not sampling correctly. Alternatively, Exelon did not conduct vegetation or milk sampling at the nearest offsite garden of highest calculated annual average ground level D/Q in accordance with the ODCM. The finding was entered into the licensee's corrective action program.

This finding is greater than minor because it affects the Public Radiation Safety Cornerstone objective to ensure adequate protection of public health and safety from exposure to radioactive materials released into the public domain. Specifically, these conditions resulted in an impaired ability to assess environmental impact. This finding was determined to be of very low safety significance because calculations of public dose commitments did not identify any significant public dose or environment impacts.

Inspection Report# : [2005004\(pdf\)](#)

Physical Protection

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

Miscellaneous

Significance: N/A Jul 29, 2005

Identified By: NRC

Item Type: FIN Finding

Identification and Resolution of Problems

The team determined that the corrective action program at Peach Bottom was adequate. The team determined that Exelon was effective at identifying problems and entering them into the corrective action program (CAP). Once entered into the system, the items were generally screened and prioritized in a timely manner using established criteria. Items entered into the CAP were properly evaluated commensurate with their safety significance. The causal evaluations for equipment issues and events reasonably identified the causes of the problem and developed appropriate corrective actions. However, for some of the issues affecting human performance, the evaluations were not of sufficient depth to identify the base root cause; therefore, the corrective actions did not prevent further human performance errors of a similar nature. In two cases, operability determinations did not consider all the applicable information to support the final conclusion that the equipment was operable. Corrective actions were typically implemented in a timely manner, but the team found that in one case, corrective actions were not adequate to correct the problem, and did not prevent recurrence. Many of the problems the team reviewed were long standing and had been previously identified by internal and external organizations.

Inspection Report# : [2005006\(pdf\)](#)

Last modified : August 25, 2006