

May 15, 2007

Mr. Christopher M. Crane
President and CNO
Exelon Nuclear
Exelon Generation Company, LLC
200 Exelon Way
Kennett Square, PA 19348

SUBJECT: PEACH BOTTOM ATOMIC POWER STATION - NRC INTEGRATED
INSPECTION REPORT 05000277/2007002 AND 05000278/2007002

Dear Mr. Crane:

On March 31, 2007, the United States Nuclear Regulatory Commission (NRC) completed an inspection at your Peach Bottom Atomic Power Station (PBAPS) Units 2 and 3. The enclosed integrated inspection report documents the inspection results, which were discussed on April 20, 2007, with Mr. J. Grimes and other members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

The report documents two NRC-identified findings and one self-revealing finding of very low safety significance (Green). These findings were determined to involve violations of NRC requirements. Additionally, one licensee-identified violation which was determined to be of very low safety significance is listed in this report. However, because of the very low safety significance and because they are entered into your corrective action program (CAP), the NRC is treating these findings as non-cited violations (NCVs) consistent with Section VI.A.1 of the NRC Enforcement Policy. If you contest any NCV in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN.: Document Control Desk, Washington, D.C. 20555-0001; with copies to the Regional Administrator, Region I; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, D.C. 20555-0001; and the NRC Resident Inspector at Peach Bottom.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of the

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Sincerely,

/RA/

Paul G. Krohn, Chief
Reactor Projects Branch 4
Division of Reactor Projects

Docket Nos.: 50-277, 50-278
License Nos.: DPR-44, DPR-56

Enclosures: Inspection Report 05000277/2007002 and 05000278/2007002
w/Attachment: Supplemental Information

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w/Attachment: Supplemental Information

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U. S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket Nos.: 50-277, 50-278

License Nos.: DPR-44, DPR-56

Report No.: 05000277/2007002 and 05000278/2007002

Licensee: Exelon Generation Company, LLC

Facility: Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3

Location: Delta, Pennsylvania

Dates: January 1, 2007 through March 31, 2007

Inspectors: F. Bower, Senior Resident Inspector
M. Brown, Resident Inspector
J. Caruso, Senior Operations Engineer
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Approved by: Paul G. Krohn, Chief
Reactor Projects Branch 4
Division of Reactor Projects

Enclosure

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SUMMARY OF FINDINGS

IR 05000277/2007-002, 05000278/2007-002; 01/01/2007 - 03/31/2007; Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3; Licensed Operator Requalification Program, Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems, and Event Followup.

The report covered a 3-month period of inspection by resident inspectors and announced inspections by a senior health physicist and six regional specialist inspectors. Three Green findings, all of which were NCVs, were identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Mitigating Systems and Barrier Integrity

- Green. The inspectors identified a non-cited violation (NCV) of Title 10 of the Code of Federal Regulations (CFR) Part 55.53(e), "Conditions of Licenses," because Peach Bottom Atomic Power Station (PBAPS) incorrectly credited individuals with actively performing the functions of a senior operator (SO) while those individuals staffed a position that was not specified in PBAPS's Technical Specifications (TS). Specifically, PBAPS incorrectly credited individuals with performing the functions of a SO while those individuals staffed the work execution control supervisor (WECS) position. The WECS position is not required by PBAPS's TS. Corrective actions included issuing a cease and desist order to licensed operators to stop crediting time in the WECS position as active time for maintaining licenses.

The finding is more than minor because it impacted the human performance attribute of the Mitigating Systems cornerstone. In addition, the finding is more than minor because if left uncorrected, it would become a more safety significant safety concern. Specifically, although the WECS performs activities important to safety, the active time credited is not in a position defined by TS that involved directing the licensed activities of licensed operators. This finding is related to operator license conditions and was determined to be of very low safety significance (Green) because more than 20 percent of the records reviewed had deficiencies. (Section 1R11.1)

- Green. A self-revealing NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified for inadequate surveillance procedure development that changed the use of a common high pressure coolant injection (HPCI)/reactor core isolation cooling (RCIC) line to the torus from its original design purpose as a partial-flow flush line, to a full-flow test

line. The cracked piping to the torus was replaced and this issue was placed into the corrective action program (CAP) for resolution.

This finding is more than minor because it is associated with the design control attribute of the Barrier Integrity Cornerstone and it affected the objective to provide reasonable assurance that physical design barriers (primary containment) protect the public from radionuclide releases caused by accidents or events. The Significance Determination Process (SDP) Phase 1 screening identified that a Phase 2 analysis was needed because the finding affected two cornerstones, specifically the Mitigating Systems and Barrier Integrity cornerstones. However, the senior reactor analysts (SRAs) conducted a Phase 3 evaluation because the issue was too complex to evaluate using the Plant Specific Phase 2 Notebook. For events (large or medium break loss-of-coolant accidents) with the greatest potential consequence, the SRAs determined that the probability of a large early release remained very low because existing emergency operating procedures direct reactor operators to maintain torus level and prevent an increase in core damage frequency by injecting high pressure service water (HPSW) through the residual heat removal (RHR) system. The Phase 3 SDP evaluation concluded that this finding was of very low safety significance (Green). (Section 4OA3.2)

Cornerstone: Public Radiation Safety

- Green. The inspectors identified a NCV of TS 5.4.1.C because procedures for effluent monitoring were inadequately established and maintained. Specifically, the Quality Assurance required procedures for effluent monitoring were inadequate to detect non-representative sampling of the 'B' train of the main stack particulate effluents sampling system. This issue was placed in the CAP for resolution.

This finding is more than minor because it affected the Public Radiation Safety Cornerstone objective to ensure adequate protection of public health and safety. This finding was determined to be of very low safety significance because: 1) it was not a radioactive material control issue; 2) it did involve the effluent release program; 3) there was an impaired ability to assess dose; and 4) public radiation doses did not exceed 10 CFR Part 50, Appendix I values. This finding has a cross-cutting aspect in the human performance area, resources component because the procedures and training of personnel were inadequate to detect the sample bypass. (Section 2PS1)

B. Licensee-Identified Violation

A violation of very low safety significance, that was identified by the licensee, has been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's CAP. The violation and corrective actions are listed in Section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status

Unit 2 began the inspection period at 100 percent full rated thermal power (RTP). On February 16, 2007, power was reduced to approximately 58 percent for maintenance on the 2 'B' reactor feed pump, control rod timing, water box cleaning, and other planned maintenance and testing. The unit was returned to full power on February 17, 2007, where it remained except for brief periods to support planned testing and rod pattern adjustments. On February 28, 2007, an unplanned power reduction to approximately 76 percent was performed to maintain main condenser vacuum when the 2 'C' circulating water pump tripped. Later on February 28, 2007, the unit returned to full power where it remained until the end of the inspection period.

Unit 3 began the period at 100 percent RTP. On January 12, 2007, power was reduced to approximately 58 percent for maintenance on the 3 'C' reactor feed pump, control rod timing, and other planned maintenance and testing. The unit returned to full power on January 13, 2007, where it remained except for brief periods to support planned testing and rod pattern adjustments. On February 27, 2007, an unusual event (UE) was declared in response to a fire in non-safety-related switchgear located in the turbine building. Consequently, an unplanned power reduction to approximately 55 percent was performed due to the fire-induced loss of isophase bus duct cooling. Subsequently, power was further reduced to 50 percent following an unplanned trip of the 3 'B' reactor feed pump. On February 28, 2007, power was increased to 90 percent following the return of isophase bus duct cooling. On March 2, 2007, the unit was returned to full power where it remained until the end of the inspection period.

1. **REACTOR SAFETY**

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01 - 1 Sample)

a. Inspection Scope

The inspectors reviewed one sample of PBAPS's preparation for frazzle ice conditions. The inspectors reviewed abnormal operations procedure (AO)-29.2, "Discharge Canal to Intake Pond Cross-Tie Gate Operation and Frazzle Ice Mitigation," Revision 12, to ensure PBAPS appropriately prepared for environmental conditions conducive to the formation of frazzle ice. The inspectors discussed PBAPS's actions with maintenance and engineering personnel. Documents reviewed during this inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

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1R02 Evaluations of Changes, Tests, or Experiments (71111.02 - 20 Samples: 4 Safety Evaluations; 16 Screening Evaluations)

a. Inspection Scope

The inspectors reviewed four safety evaluations (SEs) completed during the past two years. The SEs reviewed were in the Initiating Events and Mitigating Systems cornerstones. The selected SEs were reviewed to verify that changes to the facility or procedures as described in the Updated Final Safety Analysis Reports (UFSAR) were reviewed and documented in accordance with 10 CFR Part 50.59, and that the safety issues pertinent to the changes were properly resolved or adequately addressed. The reviews included the verification that PBAPS had appropriately concluded that the changes could be accomplished without obtaining license amendments.

The inspectors also reviewed 16 screening evaluations for changes, tests and experiments for which PBAPS determined that SEs were not required. This review was performed to verify that the threshold for performing SEs was consistent with 10 CFR Part 50.59. The documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04Q - 4 Partial Walkdown Samples)

Partial Walkdown

a. Inspection Scope

The inspectors performed a partial walkdown of four systems to verify the operability of redundant or diverse trains and components when safety-related equipment was inoperable. The inspectors performed walkdowns to identify any discrepancies that could impact the function of the system and potentially increase risk. The inspectors reviewed applicable operating procedures, walked down system components, and verified that selected breakers, valves, and support equipment were in the correct position to support system operation. The inspectors also verified that PBAPS had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the CAP. The four systems reviewed were:

- Unit 3 'B' Core Spray Pump with the 3 'A' Core Spray Pump Out-of-Service;
- 'B' Emergency Service Water (ESW) Pump with the 'A' ESW Pump Out-of-Service for Breaker Maintenance;
- Unit 2 'A' RHR Loop With the Unit 2 'B' RHR Loop Out-of-Service; and
- Standby Gas Treatment System with secondary containment breached for Unit 2 and Unit 3.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05Q - 9 Samples)

.1 Fire Protection - Tours

a. Inspection Scope

The inspectors reviewed PBAPS's Fire Protection Plan, Technical Requirements Manual (TRM), and the respective pre-fire action plan procedures to determine the required fire protection design features, fire area boundaries, and combustible loading requirements for the areas examined during this inspection. The fire risk analysis was reviewed to gain risk insights regarding the areas selected for inspection. The inspectors performed walkdowns of nine areas to assess the material condition of active and passive fire protection systems and features. The inspection was also performed to verify the adequacy of the control of transient combustible material and ignition sources, the condition of manual firefighting equipment, fire barriers, and the status of any related compensatory measures. The following nine fire areas were reviewed for impaired fire protection features:

- Unit 3 Service Water Screen Wash Pump (Fire Zone 144);
- Radwaste Building, Elevations 150' & 165' (Fire Zone 72J);
- Unit 2 Reactor Recirculation Pump Motor Generator Set Room (Fire Zone 4C);
- Emergency Cooling Tower (Fire Zone 136);
- Unit 2 HPCI Pump Room (Fire Zone 59);
- Unit 2 'A' & 'C' RHR Pump and heat exchanger (HX) Room (Fire Zone PF-1);
- Unit 2 'A' & 'C' Core Spray Rooms (Fire Zone PF-5A);
- Unit 3 'A' & 'C' RHR Pump and HX Rooms (PF-11); and
- Unit 3 Reactor Building Closed Cooling Water Room (Fire Zone PF-12B).

b. Findings

No findings of significance were identified.

.2 Fire Protection - Drill Observation (71111.05A - 1 Sample)

a. Inspection Scope

The inspectors observed a Unit 3 HPCI pump room fire drill on January 10, 2007. The drill simulated a Class B fire (lubricating oil) at the bearings of the Unit 3 HPCI pump due to a bearing failure. The inspectors evaluated the fire brigade performance during the drill to assess the readiness of station personnel to fight fires. Specifically, the inspectors verified that:

- The fire brigade (FB) leader responded to the fire area to begin assessing the simulated fire and establishing a command post;
- Security radiation protection personnel and a licensed senior reactor operator (SRO) (floor supervisor) responded and were available to support the FB leader;
- The four FB members donned the applicable turnout gear and responded to the fire area;
- Self-contained breathing apparatuses were available and properly worn by the four FB members;
- FB leader maintained command and control of the fire brigade and had a copy of the pre-fire plan;
- The fire hoses were capable of reaching the fire hazard and were laid appropriately;
- The FB used the "two person rule" for personnel safety;
- The FB brought sufficient fire fighting equipment to the scene;
- Drill personnel followed the scenario and all drill objectives were met; and
- The FB and the evaluators performed a post-drill critique and validated that the drill objectives were met.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06 - 2 Internal Samples)

Internal Flooding

a. Inspection Scope

The inspectors reviewed PBAPS's internal flooding analysis contained in the Individual Plant Examination (IPE) for the Unit 2 and Unit 3 'A' and 'C' RHR pump rooms. The inspectors also reviewed Design Basis Document (DBD) P-T-09, Revision 8, "Internal Hazards." The inspectors walked down Unit 2 and Unit 3 RHR pump rooms to verify internal flooding design features were as described in the IPE. The inspectors also inspected floor plugs to verify that they were installed in the Unit 2 and Unit 3 'A' and 'C' RHR pump room drains to prevent multiple RHR pumps from being affected by a flood.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07 - 1 Sample)

a. Inspection Scope

Based on a plant specific risk assessment and past inspection results, the inspectors selected the following heat exchanger for review:

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- RT-O-010-660-2, RHR HX Performance Test, Revision 7, completed March 10, 2007.

The inspectors reviewed one sample of safety-related HX testing to identify any degraded performance or potential for common cause problems that could increase plant risk. The inspectors reviewed the results of testing performed in accordance with PBAPS's procedures. The inspectors reviewed test results and compared them with acceptance criteria contained within the procedure to verify that all acceptance criteria had been satisfied. The inspectors also reviewed the UFSAR to ensure that HX inspection results were consistent with the design basis.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11B - 1 Sample)

.1 Biennial Review of Licensed Operator Requalification Program

a. Inspection Scope

The inspectors reviewed documentation of operating history since the last requalification program inspection. The inspectors also discussed facility operating events with the resident staff. Documents reviewed included NRC inspection reports, plant performance insights, licensee event reports (LERs), and licensee issue reports (IRs) that involved human performance issues for licensed operators to ensure that operational events were not indicative of possible training deficiencies.

The inspectors reviewed three examination sets (weeks 1, 2, and 3) for both the comprehensive RO and SRO biennial written examinations administered in 2006, as well as scenarios and job performance measures (JPMs) administered during this current examination cycle to ensure the quality of these examinations met or exceeded the criteria established in the Examination Standards and 10 CFR Part 55.59. During the onsite weeks of this inspection, the inspectors observed the administration of operating examinations to operating crews (PS-1 and 2). The operating examinations consisted of two or three simulator scenarios for each crew and one set of five JPMs administered to each individual.

For the site specific simulator, the inspectors observed simulator performance during the conduct of the examinations, and discrepancy reports to verify compliance with the requirements of 10 CFR Part 55.46. The inspectors reviewed simulator maintenance, testing, and control procedures. Simulator maintenance, testing, configuration control, and machine operation were discussed with members of the simulator maintenance staff. A sample of simulator tests including transients, normal, steady state, and malfunction tests as well as plant event data comparison tests, were reviewed.

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Conformance with operator license conditions was verified by reviewing the following records:

- Remediation training records for two individual operating examination failures;
- Simulator and classroom training attendance records for two training cycles;
- Six licensed operator medical records;
- Proficiency watch-standing and reactivation records; and
- A sample of licensed operator reactivation records.

The inspectors interviewed Instructors, training/operations management personnel, and two operators for feedback regarding the implementation of the licensed operator requalification program to ensure the requalification program was meeting their needs and responsive to their noted deficiencies/recommended changes.

The inspectors reviewed a potential examination compromise issue that Exelon self-identified based on a review of recent licensed operator requalification program operating experience. This item was entered into PBAPS's CAP (IR 545351).

On April 13, 2007, the inspectors conducted an in-office review of PBAPS's requalification examination results. These results included the annual operating tests administered in 2007. The inspection assessed whether pass rates were consistent with the guidance of NRC IMC 0609, Appendix I. The inspectors verified that:

- Crew failure rate on the dynamic simulator was less than 20 percent. (Failure rate was 0.0 percent);
- Individual failure rate on the dynamic simulator test was less than or equal to 20 percent. (Failure rate was 0.0 percent);
- Individual failure rate on the walkthrough test (JPMs) was less than or equal to 20 percent. (Failure rate was 0.0 percent);
- Individual failure rate on the comprehensive biennial written examination was less than or equal to 20 percent. (N/A - biennial written examinations were not administered this examination cycle); and
- More than 75 percent of the individuals passed all portions of the examination (100.0 percent of the individuals passed all portions of the examination).

The inspectors used the following references as acceptance criteria for the inspection:

- NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 9;
- Inspection Procedure Attachment 71111.11, "Licensed Operator Requalification Program;"
- NRC Inspection Manual Chapter (IMC) 0609, Appendix I, "Operator Requalification Human Performance SDP;" and
- 10 CFR Part 55.46, "Simulation Facilities."

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b. Findings and Observations

Introduction: The inspectors identified a non-cited violation (NCV) of Title 10 of the Code of Federal Regulations (CFR) Part 55.53(e), "Conditions of Licenses," because Peach Bottom Atomic Power Station (PBAPS) incorrectly credited individuals with actively performing the functions of a senior operator (SO) while those individuals staffed a position that was not specified in PBAPS's Technical Specifications (TS). Specifically, PBAPS incorrectly credited individuals with performing the functions of a SO while those individuals staffed the work execution control supervisor (WECS) position.

Description: During discussions with licensed senior reactor operators (SROs), the inspectors discovered that the SROs were taking credit for maintaining their license active while standing the WECS position. The inspectors determined that Exelon Procedure OP-AA-105-102, "NRC Active License Maintenance," Revision 8, Section 4.1.1.1, states that, "The WECS position may also be used to satisfy active license requirements, provided at least one shift each quarter is performed in the unit supervisor position." A review of OP-AA-105-102, "NRC Active License Maintenance," Attachment 1, "Active License Tracking Log," found numerous SROs that were incorrectly taking credit for standing the WECS position; a position that is not required to be licensed per PBAPS's TS. The inspectors reviewed PBAPS's TS and determined from section 5.3.2 that PBAPS has only committed to have the minimum on-site staffing required by 10 CFR Part 50.54(m).

For a two unit facility with one control room, 10 CFR Part 50.54(m) requires a minimum of two SROs. 10 CFR Part 50.54(m)(ii) requires that one of the SROs be assigned responsibility for overall plant operation. At PBAPS, that position is held by the shift manager. 10 CFR Part 50.54(m)(iii) requires that a person holding a SO license be in the control room at all times. At PBAPS, that position is held by the unit supervisor (previously the control room supervisor position). Therefore, per 10 CFR Part 50.54(m), PBAPS is only required to have a unit supervisor and a shift manager.

10 CFR Part 55.53(e) states, in part, that to maintain active status, the licensee shall actively perform the functions of an operator or SO. 10 CFR Part 55.4 defines "actively performing the functions of an operator or SO" as an individual that has a position on the shift crew that requires the individual to be licensed as defined in the facility's TS, and that individual carries out and is responsible for duties covered by that position. At PBAPS, the only two positions that are required to be licensed per PBAPS's TS are the unit supervisor and the shift manager. Therefore, the only two positions that should be credited with active license time are the unit supervisor and the shift manager.

The performance deficiency is that PBAPS incorrectly credited individuals with performing the functions of a SO while those individuals staffed the work execution control supervisor (WECS) position.

Analysis: The finding is more than minor because it impacted the human performance attribute of the Mitigating Systems cornerstone. In addition, the finding is more than

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minor because if left uncorrected, it would become a more safety significant safety concern. Specifically, although the WECS performs activities important to safety, the active time credited was not in a position defined by TS that involved directing the licensed activities of licensed operators. Traditional enforcement does not apply because there were no actual safety consequences, impacts on the NRC's ability to perform its regulatory function, or will aspects to the violation. The finding was evaluated using the NRC IMC 0609, Appendix I. The SDP, Appendix I, Block 24 applies since the issue is related to the licensee's program for maintaining active operator licenses and ensuring the medical fitness of its licensed operators. Since the WECS position is not required to be licensed by the facility's TS, giving SRO credit for actively performing the functions of the WECS would impact the licensee's program for maintaining active operator licenses. Since more than 20 percent of the records reviewed indicated deficiencies (Block 27), this finding is of very low safety significance (Green).

Enforcement: 10 CFR Part 55.53(e), "Conditions of Licenses," requires, in part, that to maintain an operator license active, the licensee shall actively perform the functions of an operator or SO on a minimum of seven 8-hour or five 12-hour shifts per calendar quarter. 10 CFR Part 55.4, "Definitions," states, in part, that actively performing the functions of an operator or SO means that an individual has a position on the shift crew that requires the individual to be licensed as defined in the facility's TS and that the individual is responsible for the duties covered by that position. Contrary to the above, the inspectors identified that prior to January 27, 2007, PBAPS personnel were improperly maintaining operator licenses active by incorrectly crediting individuals with actively performing the functions of a SO while manning a position that was not defined in the facility's TS. Specifically, active time was credited for the WECS position and this position is not required to be licensed as defined in PBAPS's TS. Corrective actions included PBAPS issuing a cease and desist order to licensed operators to stop crediting time in the WECS position as active time for maintaining their licenses. Because this finding was of very low safety significance and was entered into PBAPS's CAP (IR 00592412), this violation is being treated as an NCV, consistent with section VI.A.1 of the NRC Enforcement Policy: **NCV 05000277/2007002-01; 05000278/2007002-01, Non-Technical Specifications Position Incorrectly Credited for Active License Maintenance.**

.2 Resident Inspector Quarterly Review (71111.11Q - 1 Sample)

a. Inspection Scope

On March 6, 2007, the inspectors observed operators in the plant's simulator during licensed operator requalification training to verify that operators' performance was adequate and that evaluators were identifying and documenting crew performance issues. The inspectors verified that performance issues were discussed in the crew's post-scenario critiques. The inspectors also observed the operators' implementation of operating procedures. The inspectors discussed the training, simulator scenarios, and

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critiques with the operators, shift supervision, and the training instructors. The evaluated scenarios observed for this one sample are listed below:

- PSEG0731R, Low Torus Level Condition Requires Emergency Blowdown; and
- PSEG0715R, Hydraulic Anticipated Transient Without Scram.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12Q - 2 Samples)

Routine Maintenance Effectiveness Issues

a. Inspection Scope

The inspectors reviewed two samples of PBAPS's evaluation of degraded conditions involving safety-related structures, systems, and/or components for maintenance effectiveness during this inspection period. The inspectors reviewed PBAPS's implementation of the Maintenance Rule (MR), and verified that the conditions associated with the referenced CRs were evaluated against applicable MR functional failure criteria as found in licensee scoping documents and procedures. The inspectors also discussed these issues with system engineers and MR coordinators to verify that they were tracked against each systems' performance criteria and that the systems were classified in accordance with MR implementation guidance. Documents reviewed during the inspection are listed in the Attachment. The following conditions were reviewed:

- IR 579872, E-1 Emergency Diesel Generator (EDG) Fuel Oil Leaks; and
- IR 554132, Replace 3 'D' RHR HX Floating Head Assembly.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 - 7 Samples)

a. Inspection Scope

The inspectors reviewed PBAPS's planning and risk management actions for planned and emergent work activities to assess their management of overall plant risk. The activities selected were based on plant maintenance schedules and systems that contributed to risk. The inspectors reviewed PBAPS's probabilistic safety assessment risk evaluation results forms. The inspectors compared the risk assessment results and the risk management actions to the requirements of 10 CFR Part 50.65(a)(4), Regulatory Guide (RG) 1.182, "Assessing and Managing Risk Before Maintenance Activities at Nuclear Power Plants," and procedure WC-AA-101, "On-line Work Control

Process.” The inspectors also reviewed selected control room operating logs, walked down protected equipment and maintenance locations, and interviewed personnel. These reviews were performed to determine whether PBAPS properly assessed and managed plant risk and performed activities in accordance with applicable TS and work control requirements. The following seven planned and emergent work order (WO) and action request (AR) activities were reviewed:

- WO C0219775, Remove Foreign Material (Garlock Gasket Tool) from the Unit 2 Generator Brush Rigging;
- WO C0219963, Repair Hydrogen Leak on Unit 2 ‘D’ Main Generator Hydrogen Cooler;
- WO C0219318-26 & -29, Remove and Reinstall Hatch Above 3 ‘D’ RHR at Reactor Building, 135' Elevation;
- WO C0219318-35 & -36, Remove and Reinstall 3 ‘D’ RHR HX Floating Head;
- WO C0220444, 4T4 Bus, Inspect, Rework as Required;
- WO C0220652, E-3 EDG Inspections Following Overload Event; and
- AR A1607626, Unit 2 HPCI Inoperable Due to AO-2-23-042 Failing Closed.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15 - 6 Samples)

a. Inspection Scope

The inspectors reviewed six issues to assess the technical adequacy of the evaluations, the use and control of compensatory measures, and compliance with the licensing and design bases. Associated adverse condition monitoring plans, engineering technical evaluations, and operational and technical decision making documents were also reviewed. The inspectors verified these processes were performed in accordance with the applicable procedures. The inspectors used TS, TRM, the UFSAR, and associated DBDs as references during these reviews. The issues reviewed included:

- 3 ‘D’ RHR HX Leak (IR 514302);
- Emergency cooling Tower (ECT) Freezing Issue (AR A1044572);
- Lost Part - 2 ‘C’ RHR HX Plug Insertion Tooling Failed, (AR A1546765);
- 2 ‘C’ RHR HX Leakage to HPSW Greater than Acceptance Criteria, (AR A1604675);
- Unit 2 HPCI Inoperable Due to AO-2-23-042 Failing Closed (AR A1607626); and
- 2 ‘D’ RHR Room Cooler 2DE058 Heat Transfer Test Unsat (IR 608000).

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications (71111.17B - 8 Samples)a. Inspection Scope

The inspectors reviewed eight design changes that were completed within the past two years. The review was performed to verify that the design bases, licensing bases, and performance capability of risk significant structures, systems, and components (SSCs) had not been degraded as a result of the modifications.

The inspectors walked down systems to detect possible abnormal installation conditions. The inspectors reviewed the design inputs, assumptions, and design calculations to determine the design adequacy. For the replacement components, the inspectors verified material compatibility and seismic qualification. In addition, the inspectors reviewed the post-modification testing to determine readiness for operations. The 10 CFR Part 50.59 screenings and evaluations for the modifications were reviewed to verify that the plant changes were reviewed and documented in accordance with 10 CFR Part 50.59. Finally, the inspectors reviewed the procedures, drawings, DBDs, and UFSAR sections to verify that the documents were appropriately updated. The modifications reviewed are listed in Attachment 1.

The inspectors reviewed IRs associated with 10 CFR Part 50.59 issues and plant modification issues to ensure that PBAPS was identifying, evaluating, and correcting problems associated with these areas, and that the planned or completed corrective actions for the issues were appropriate.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19 - 7 Samples)a. Inspection Scope

The inspectors observed selected portions of post-maintenance testing (PMT) activities and reviewed completed test records. The inspectors observed whether the tests were performed in accordance with the approved procedures and assessed the adequacy of the test methodology based on the scope of maintenance work performed. In addition, the inspectors assessed the test acceptance criteria to verify whether the test demonstrated that the tested components satisfied the applicable design and licensing bases and the TS requirements. The inspectors reviewed the recorded test data to evaluate whether the acceptance criteria were satisfied. The inspectors reviewed seven PMTs performed in conjunction with the following maintenance activities:

- WO C0220132, 2-5A-K003A Replace Relay and Perform PMT;
- WO R0810095, E124-P-A (6244) Perform MCU Inspection;
- WO R1011869, CHK-O-33-515A; Disassemble Inspect/Rework;
- WO C0219318-19 & -23, Perform 3 'D' RHR HX Leak Repairs;

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- WO C0219643, 2AP040 Clean/Inspect/Repack Cylinders (2 'A' SLC Pump);
- WO C0220652, 0CG012-DR Inspections on the E-3 Diesel Generator Due to Incomplete Procedure Performance During Testing Results in E-3 Generator Trip; and
- WO C0220288, Recal/Rework/Replace LS-2-23-090 As Required (U2 HPCI Steam Supply Drain Pot Level).

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22 - 7 Samples)

a. Inspection Scope

The inspectors reviewed and observed portions of selected surveillance tests (STs), and compared test data with established acceptance criteria to verify the systems demonstrated the capability of performing the intended safety functions. The inspectors also verified that the systems and components maintained operational readiness, met applicable TS requirements, and were capable of performing the design basis functions. The seven STs reviewed and observed included:

- ST-O-020-560-2, Reactor Coolant Leakage Test [Reactor Coolant System (RCS) Leakage Sample];
- ST-O-010-301-3, 'A' RHR Loop Pump, Valve, Flow and Unit Cooler Functional and Inservice Test (IST) [IST Sample];
- ST-O-052-701-2, E-1 Diesel Generator 24-hour Endurance Test;
- SI3F-13-83-XXCQ, Calibration Check of RCIC Steam Line High Flow Instrument DPIS 3-13-83;
- ST-O-033-300-2, ESW, Valve, Unit Cooler, and ECT Fans Functional IST;
- ST-O-052-212-2, E-2 Diesel Generator Slow Start Full Load and IST Test; and
- SI3F-23-82-XXC2, Calibration Check of HPCI Flow Instruments FT 3-23-082, FI/FC 3-23-108, E/S 3-23-143, XS 3-23-144 and FS 3-23-078.

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23 - 2 Samples)

a. Inspection Scope

The inspectors reviewed two temporary modifications to verify that implementation of the modifications did not place the plant in an unsafe condition. The review was also conducted to verify that the design bases, licensing bases, and performance capability of risk significant SSCs had not been degraded as a result of these modifications. The inspectors verified the modified equipment alignment through control room

instrumentation observations: UFSAR, drawings, procedures, and WO reviews; and plant walkdowns of accessible equipment. The following temporary modifications were reviewed:

- TCCP 07-00080, Temporary Power for 30Y023; and
- TCCP 07-00081, Temporary Power for 4-T-4-T-C.

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation (71114.06 - 1 Sample)

Simulated Training Exercise

a. Inspection Scope

On January 10, 2007, the inspectors observed one emergency plan training exercise that simulated control of the Emergency Response Organization by the emergency director in the technical support center prior to the emergency operations center accepting control. The inspection was conducted to assess personnel performance. The training exercise was performed to provide drill and exercise performance (DEP) opportunities for the DEP performance indicator (PI). The review was conducted to identify any weaknesses and deficiencies in protective action recommendation (PAR) development and simulated notification activities. The inspectors verified that PAR development was performed in accordance with EP-AA-111, "Emergency Classification and Protective Action Recommendations," and EP-AA-111-F-08, "Limerick/Peach Bottom Plant Based PAR." Event classification and notifications were done in accordance with EP-AA-1007, "Exelon Nuclear Radiological Emergency Plan Annex for Peach Bottom Atomic Power Station." The inspectors verified that training exercise evaluators captured the results for calculation of the DEP PI. The inspectors also verified that weaknesses or deficiencies were captured for the critique of the training exercise. The following simulated events were classified during this one training exercise:

- FG1 - General Emergency, Fission Product Barrier Status; and
- MG1 - General Emergency, Loss of Alternating Current Power.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety [OS]

2OS1 Access Control to Radiologically-Significant Areas (71121.01 - 1 Sample)

a. Inspection Scope

The inspectors reviewed selected activities and associated documentation in the areas listed below. The criteria used for the evaluation of PBAPS's performance in these areas was 10 CFR Part 20, TS, and Exelon procedures. The selected areas were:

- Plant Walkdowns;
- Radiation Work Permit Reviews; and
- Jobs in Progress Reviews.

The inspectors walked down selected radiological controlled areas and reviewed housekeeping, material conditions, posting, barricading, and access controls to radiological areas. The inspectors observed and reviewed ongoing work activities associated with packaging of irradiated hardware for disposal.

b. Findings

No findings of significance were identified.

Cornerstone: Public Radiation Safety [PS]

2PS1 Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems (71122.01 - 10 Samples)

a. Inspection Scope

Inspection Planning and In-office Inspection

The inspectors reviewed the 2004 and 2005 Radiological Effluent Release Reports and Radiological Dose Assessment Reports to verify that the program was implemented as described in the Radiological Effluents TS (RETS) and the Offsite Dose Calculation Manual (ODCM). The inspectors also reviewed estimated radiological effluents released and projected dose results for 2006. The inspectors reviewed the reports for significant changes to the ODCM and to radioactive waste system design and operation. The inspectors determined whether changes to the ODCM were technically justified and documented. Technical justifications were reviewed during the onsite inspection.

The inspectors evaluated PBAPS's analysis for any additional discharge pathways as a result of a spill, leak, routine, normal, abnormal, or unexpected liquid discharge or gaseous discharges, which may have developed since the previous inspection. The

inspectors verified that PBAPS had records on sampling locations, type of monitoring, and frequency of sampling to meet 10 CFR Part 20.1501 requirements.

The inspectors determined whether modifications made to radioactive waste system design and operation changed the dose consequence to the public. The inspectors verified that technical reviews and 10 CFR Part 50.59 reviews were performed. The inspectors determined whether radioactive liquid and gaseous effluent radiation monitor setpoint calculation methodology changed since completion of the modifications, and that PBAPS had set and adjusted its radioactive effluent alarm setpoints in accordance with the methodology and parameters specified within the current ODCM.

The inspectors also reviewed PBAPS's actions to resolve any out-of-specification inter-laboratory cross-check analysis data for the effluent monitoring program and to determine if remedial action had been taken for the out-of-specification data.

The inspectors reviewed the RETS/ODCM to identify the effluent radiation monitoring systems and applicable flow measurement devices. The inspectors reviewed any effluent radiological occurrence performance indicator incidents for onsite follow-up and reviewed PBAPS self-assessments, audits, and event reports that involved unanticipated offsite releases of radioactive material. The inspectors reviewed the UFSAR description of all radioactive effluent monitoring and radioactive gaseous and liquid processing systems.

The inspectors reviewed the RETS/ODCM to identify the programs for identifying potential contaminated spills and leakage, and PBAPS's process for control and assessment. The inspectors determined if any licensee procedures and surveillance activities address the ability to identify onsite spills and leaks of contaminated fluids.

Problem Identification and Resolution

The inspectors reviewed PBAPS's self-assessments, audits, licensee event reports, and special reports related to the radioactive effluent treatment and monitoring program since the last inspection to determine if identified problems were entered into the CAP for resolution. The inspectors interviewed staff and reviewed documents to determine if follow-up activities were being conducted in an effective and timely manner commensurate with their importance to safety and risk. The inspectors also reviewed self-assessments, audits, and LERs that may have involved unanticipated offsite releases of radioactive material. For repetitive deficiencies or significant individual deficiencies in problem identification and resolution, the inspectors determined if PBAPS's self-assessment activities were identifying and addressing these deficiencies.

The inspectors reviewed a selection of corrective action documents since the previous inspection:

- NOS Audit NOSA-PEA-03-08, Radiological Environmental Monitoring Program (REMP), ODCM, Non-radiological Effluent Monitoring, October 2003;

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- NOS Audit NOSA-PEA-06-04, Chemistry, Radiological Effluent and Environmental Monitoring, May 2006;
- NOS Audit PEA-05-08, ODCM, REMP, Effluent and Environmental Monitoring; and
- IRs: 196314, 253869, 279624, 1499640, 293360, 319434, 339837, 346400, 352961, 353353, 35483356601, 386618, 394522, 363933, 394580, 394604, 398636, 454242, 467543, 489045, and 569284.

The criteria used in this review is contained in 10 CFR Part 20, TS, and station procedures.

Onsite Inspection

The inspectors walked down components of the gaseous and liquid release systems (e.g., radiation and flow monitors, filters, tanks, and vessels) to observe current system configuration with respect to the description in the UFSAR. The inspectors observed equipment material condition. The inspectors verified that system components were as described in the ODCM and were used for reduction of activity levels in accordance with the RETS/ODCM.

The inspectors observed routine sample collections from the Unit 2 and Unit 3 plant vents and observed analysis of these samples, and samples of particulate and charcoal cartridges from the main stack. The inspectors reviewed use of radioactive gaseous effluent treatment equipment in accordance with RETS/ODCM requirements, and reviewed use of systems per ODCM guidance. The inspectors reviewed several radioactive liquid waste release permits, including projected doses to members of the public.

The inspectors reviewed records of releases made with out-of-service effluent radiation monitors, and PBAPS's actions for these releases, to ensure an adequate defense-in-depth was maintained against an unmonitored, unanticipated release of radioactive material to the environment. The inspectors determined compensatory sampling and radiological analyses were conducted at the RETS/ODCM required frequency when effluent monitors were declared out-of-service. For unmonitored releases, the inspectors determined if PBAPS performed an evaluation of the type and amount of radioactive material that was released, and the associated projected doses to members of the public. The inspectors also determined if PBAPS placed information on leaks or spills into its 10 CFR Part 50.75(g) decommissioning file.

The inspectors assessed PBAPS's understanding of the location and construction of underground pipes and tanks, and storage pools (spent fuel pool) that contain radioactive contaminated liquids. The inspectors evaluated if PBAPS may have potential unmonitored leakage of contaminated fluids to the groundwater as a result of degrading material conditions or aging of facilities. The inspectors evaluated PBAPS's capabilities (such as monitoring wells) of detecting spills or leaks and of identifying groundwater radiological contamination both onsite and beyond the owner controlled area. The inspectors reviewed PBAPS's technical bases for its onsite groundwater

monitoring program. The inspectors discussed with PBAPS its understanding of groundwater flow patterns for the site, and in the event of a spill or leak of radioactive material, if PBAPS's staff can estimate the pathway of a plume of contaminated fluid both onsite and beyond the owner controlled area. The inspectors reviewed the Peach Bottom Station Hydro-geologic Investigation Report dated September 1, 2006.

The inspectors reviewed changes to the ODCM as well as to the liquid or gaseous radioactive waste system design, procedures, or operation since the last inspection. For each system modification and each ODCM revision that impacted effluent monitoring or release controls, the inspectors reviewed PBAPS's technical justification to determine whether the changes affected PBAPS's ability to maintain effluents as low as reasonably achievable (ALARA) and whether changes made to monitoring instrumentation resulted in a non-representative monitoring of effluents.

For significant changes to dose values reported in the Radiological Effluent Release Report from the previous report (2004 versus 2005), the inspectors evaluated the factors which may have resulted in the change. The inspectors evaluated if the change was influenced by an operational issue (e.g., fuel integrity, extended outage, or major decontamination efforts).

The inspectors reviewed a selection of 2004, 2005, and 2006 monthly, quarterly, and annual dose calculations to ensure that PBAPS properly calculated the offsite dose (both cumulative and projected) from radiological effluent releases and to determine if any annual TS/ODCM (i.e., Appendix I to 10 CFR Part 50 values) were exceeded and, if appropriate, issued a PI report if any quarterly values were exceeded. The inspectors evaluated the source term used by PBAPS to ensure all applicable radionuclides discharged, within detectability standards, were included.

The inspectors reviewed air cleaning system ST results (standby gas treatment system, control room) to ensure that system operations were within applicable acceptance criteria specified in the TS. The inspectors reviewed ST results or the methodology PBAPS used to determine the stack and vent flow rates. The inspectors verified that the flow rates are consistent with RETS/ODCM or FSAR values.

The inspectors reviewed records of instrument calibrations performed since the last inspection for each point of discharge effluent radiation monitor and flow measurement device; reviewed completed system modifications; and reviewed the current effluent radiation monitor alarm setpoint value for agreement with RETS/ODCM requirements.

The inspectors reviewed calibration records of radiation measurement (i.e., counting room) instrumentation associated with effluent monitoring and release activities. The inspectors reviewed quality control records for the radiation measurement instruments, and looked for indications of degraded instrument performance and the corrective actions taken.

The inspectors reviewed the results of the inter-laboratory comparison program to verify the quality of radioactive effluent sample analyses performed by PBAPS. The

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inspectors reviewed PBAPS's quality control evaluation of the inter-laboratory comparison test and associated corrective actions for any deficiencies identified. The inspectors also reviewed PBAPS's assessment of any identified bias in the sample analysis results and the overall effect on calculated projected doses to members of the public.

The inspectors reviewed the results from Exelon's QA audits to determine whether PBAPS met the requirements of the RETS/ODCM.

b. Findings

Introduction: An NRC-identified Green non-cited violation of TS 5.4.1, "Procedures," was identified associated with inadequately establishing, implementing and maintaining written procedures for QA of effluent monitoring. Specifically, procedures for QA of effluent monitoring were inadequate to detect non-representative sampling of the 'B' train of the main stack particulate effluents sampling system.

Description: TS, Section 5.4.1.C requires that written procedures for QA of effluent monitoring be established, implemented, and maintained. PBAPS collects weekly particulate samples of its main stack for use in public dose assessment in accordance with its ODCM. On March 7, 2007, the NRC inspectors identified that non-representative samples of main stack 'B' train particulate effluents were collected for the week of February 28, 2007.

Regulatory Guide (RG) 4.15, "QA for Radiological Monitoring Programs (Normal Operations) - Effluent Streams and Environmental Monitoring," Revision 1, provides the NRC regulatory position on an acceptable QA Program. RG 4.15 identifies the need for QA procedures for continuous sampling systems, including the need for representative sampling. Exelon committed to implement RG 4.15, in accordance with its Station QA Program, Revision 71.

The NRC identified non-representative sampling of the 'B' train particulate sampler for the week of February 28, 2007. Subsequently, PBAPS reviewed its main stack sampling results and determined that the main stack 'B' particulate effluent sampler train also likely exhibited non-representative sampling during the weeks of November 22, 2006; December 6, 2006; December 20, 2006; and February 21, 2007. Effective August 1, 2006, PBAPS had selected the 'B' train effluent measurements sample data for use in determination of dose to the public. Prior to August 1, 2006, PBAPS relied on a combination of data from both the 'A' and 'B' train effluents sampling systems in that maximum values of releases were used. The 'A' channel did not exhibit bypass. The 'A' and 'B' trains each sample the main stack effluent releases and conservative results were used. PBAPS conducted preliminary re-evaluation of projected radiation doses to members of the public for 2006 and concluded that no doses in excess of 10 CFR 50, Appendix I, had occurred. PBAPS also re-evaluated the year-to-date projected doses to members of the public for calendar year 2007. This re-evaluation also did not identify any projected doses in excess of 10 CFR 50, Appendix I. In addition, to evaluate extent-of-condition, PBAPS evaluated potential sample bypass, and non-representative

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sampling, for both the Unit 2 and Unit 3 plant vent stack 'B' train sampling systems. These vents use the same sampling arrangement as the main stack. PBAPS did not identify sample bypass for these systems or any apparent dose projection issues since samples were also collected from both the 'A' and 'B' trains of these systems for review and dose assessment. Since August 1, 2006, PBAPS's procedures specified using the 'B' train effluent sample analysis results in the assessment of dose to members of the public.

Failure to implement adequate QA procedures, as specified in TS for effluent monitoring, is a performance deficiency in that non-representative sampling of effluents occurred for the 'B' train radioactive effluents which was reasonably within PBAPS's ability to foresee and correct, and which should have been prevented.

Analysis: The finding is not subject to traditional enforcement in that the finding did not have any actual safety consequence, did not have the potential for impacting the NRC's ability to perform its regulatory function, and there were no willful aspects.

The finding was greater than minor because failure to implement adequate QA for effluent monitoring affected the Public Radiation Safety Cornerstone objective to ensure adequate protection of public health and safety. Specifically, the NRC identified, on March 7, 2007, that non-representative sampling of main stack particulate effluents had occurred for the week beginning February 28, 2007. Using NRC IMC 0609, Appendix D, this finding was determined to be of very low safety significance (Green), in that: 1) it was not a radioactive material control issue, 2) it did involve the effluent release program, 3) there was an impaired ability to assess dose, and 4) public radiation doses did not exceed 10 CFR 50, Appendix I values.

The inspectors determined that the cause of this finding was related to the resources aspect of the human performance cross-cutting area.

The above example of failure to establish and implement adequate procedures for QA of effluent monitoring reflects a finding in the cross-cutting area of human performance. Specifically, procedures and training of personnel were not adequate to detect this sample bypass. Exelon placed this issue into its CAP (IR 600686).

Enforcement: TS 5.4.1.C requires that procedures for QA of effluent monitoring be established, implemented, and maintained. Contrary to this requirement, prior to March 7, 2007, the written procedures for QA of effluent monitoring were inadequate to detect non-representative sampling of the 'B' train of the main stack particulate effluents sampling system. Since August 1, 2006, the 'B' train effluent measurements data were used for public dose assessment. Because this finding was of very low safety significance (Green), and PBAPS entered this finding into its CAP (AR 600686), this violation is being treated as a NCV consistent with Section VI.A of the NRC Enforcement Policy, NUREG-1600: **NCV 05000277/2007002-02; 05000278/2007002-02, Exelon Did Not Establish and Implement Adequate procedures for QA of Effluent Monitoring as Required by TS 5.4.1.**

2PS2 Radioactive Material Processing and Transportation (71122.02)a. Inspection Scope

The inspectors observed the packaging and preparation of a Type B shipping cask for shipment (PW-07-003). The inspectors visually inspected the loaded cask in preparation for shipment. The inspectors selectively reviewed conformance with the applicable NRC licensed cask Certificate of Compliance (Certificate No. 5805, Revision 23).

b. Findings

No findings of significance were identified.

4. **OTHER ACTIVITIES****Cornerstones: Initiating Events, Mitigating Systems, and Barrier integrity**4OA1 Performance Indicator (PI) Verification (71151 - 6 Samples)a. Inspection Scope

The inspectors reviewed a sample of PBAPS's submittals for the PIs listed below to verify the accuracy of the data reported. The PI definitions and the guidance contained in Nuclear Energy Institute (NEI) 99-02, "Regulatory Assessment Indicator Guideline," Revision 4, and licensee procedure LS-AA-2001, "Collecting and Reporting of NRC Performance Indicator Data," were used to verify procedure and reporting requirements were met. The inspectors reviewed raw PI data collected since October 2006 and compared graphical representations from the most recent PI report to the raw data to verify the data was included in the report. The inspectors also examined a selected sample of operators' logs, LERs, CAP records and procedures to verify the PI data was appropriately captured for inclusion into the PI report and the individual PIs were correctly calculated. The inspectors verified that PBAPS initiated an IR (IR 588926) to correct a reporting error regarding the unplanned transients PI. The PIs reviewed were:

- Unplanned Scrams per 7,000 Critical Hours (Unit 2 and 3);
- Scrams with Loss of Normal Heat Removal (Unit 2 and 3); and
- Unplanned Power Changes per 7,000 Critical Hours (Unit 2 and 3).

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152).1 Routine Review of Items Entered Into the CAPa. Inspection Scope

As required by IP 71152, "Identification and Resolution of Problems," and in order to help identify repetitive equipment failures, human performance issues or program issues for follow-up, the inspectors performed routine screening of issues entered into PBAPS's CAP. This review was accomplished by selectively reviewing copies of IRs, attending daily screening meetings, and accessing PBAPS's computerized database.

b. Findings

No findings of significance were identified.

4OA3 Event Followup (71153 - 5 Samples).1 (CLOSED) LER 05000277/2006003-00, Elbow Leak on Piping Attached to Suppression Pool Results in Loss of Containment Integrity

On October 7, 2006, an Unusual Event was declared for Unit 2 due to a loss of primary containment. The loss of primary containment was a result of the discovery of a leak in a 4 inch diameter pipe in a location external to the pipe's penetration of the primary containment suppression pool (i.e., torus). The leaking elbow was replaced and the similar pipe on Unit 3 was examined. Walkdowns and ultrasonic testing were performed on similar Unit 2 and 3 torus attached piping. These examinations did not identify similar concerns. The corrective actions to resolve the underlying causes of this event were entered into the CAP (IR 541265). Additional details regarding this event were previously documented in NRC Inspection Report 05000277,278/2006-005. The enforcement aspects of this finding are discussed in Section 4OA3.2 of this report. This LER is closed.

.2 (CLOSED) Unresolved Item (URI) 05000277/20060005-02, Loss of Primary Containment Integrity

URI 05000277/20060005-02 was opened in NRC Inspection Report 050000277; 05000278/2006005, pending the NRC staffs' characterization of this issue following the review of PBAPS's technical analyses and other documents. The characterization of this issue as a finding and its risk significance are discussed below. This URI is closed.

b. Findings

Introduction: A self-revealing, Green NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified for inadequate surveillance procedure development that changed the use of a common HPCI/RCIC line to the torus from its original design purpose as a partial-flow flush line, to a full-flow test line.

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Description: As previously discussed, on October 7, 2006, PBAPS personnel discovered a leak in piping attached to the Unit 2 suppression pool that resulted in a loss of primary containment integrity. The leaking piping was the HPCI/RCIC torus flush line. The leak occurred on the intrados of a 45 degree elbow in the 4 inch nominal piping and was located approximately one foot above the torus penetration (i.e., the leak was outside of primary containment). The cracks in the elbow resulted from excessively high flow rates, cavitation, and turbulence.

The inspectors reviewed LER 05000277/2006003-00 and PBAPS's root cause investigation report (IR 541265-29) to understand the underlying causes for this event. The inspectors noted that the licensee-identified root cause for this self-revealing event was inadequate surveillance procedure development and approval that changed the use of this common HPCI/RCIC line to the torus from its original design purpose as a partial-flow flush line, to a full-flow test line. Operation of this piping at flow velocities higher than intended was not identified when the ST frequency was increased.

The inspectors noted that the vendor instructions for HPCI system operation and maintenance were provided to PBAPS in GEK-9682, "Operations and Maintenance Instructions, High Pressure Coolant Injection System for Peach Bottom Atomic Power Station, Units 2 and 3," dated February 1971. GEK-9682, Section IV, Maintenance Instructions, Subsection 4-4, "Flow Test," provides a procedure for full flow testing of the HPCI system. The procedure provides direction to operate the HPCI turbine at reduced speed (1000-1500 rpm) to limit flow while flushing water to the suppression pool through both the minimum flow bypass line and the torus flush line. Subsequently, the procedure directs isolation of the torus flush line to the suppression pool and opening of the test bypass return line to the condensate storage tank before turbine speed is increased to achieve the full pump flow rate of 5000 gpm.

PBAPS's ST procedure, ST-O-023-301-2, "HPCI Pump, Valve, Flow and Unit Cooler Functional and In-Service Test," steps 6.5.23 to 6.5.26, provided instructions for aligning the HPCI pump to discharge to the suppression pool at reduced speed and flow through both the minimum flow bypass line and the flush line. However, subsequent steps 6.5.27 to 6.5.31 did not direct isolation of the torus flush line to the suppression pool before turbine speed was increased to achieve full rated pump flow of 5000 gpm. The ST did not limit the flow rate through the flush line to the torus as intended by GEK-9682.

The inspectors reviewed a technical evaluation (IR 541265-61) that identified initiating events where the existing through-wall cracks in the common HPCI/RCIC line would fail and provide a flow path from inside the torus to outside the torus. The evaluation assumed that flow through the drywell to torus downcomers or through the safety relief valve (SRV) tailpipes would cause sufficient hydrodynamic load to result in the failure of this pipe. The inspectors also reviewed a technical evaluation (IR 541265-62) that determined the amount of time required to lower suppression pool level and uncover the common HPCI/RCIC line, assuming no inventory make-up.

The performance deficiency was inadequate surveillance procedure development and approval that changed the use of a common HPCI/RCIC line to the torus from its original design purpose as a partial-flow flush line, to a full-flow test line.

Analysis: The finding is not subject to traditional enforcement in that the finding did not have any actual safety consequence, did not have the potential for impacting the NRC's ability to perform its regulatory function, and there were no willful aspects. The finding is more than minor because it is associated with the design control attribute of the Barrier Integrity Cornerstone and affected the objective to provide reasonable assurance that physical design barriers (primary containment) protect the public from radio nuclide releases caused by accidents or events.

The inspectors evaluated the finding in accordance with IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations." The SDP Phase 1 screening identified that a Phase 2 analysis was needed because the finding affected two Cornerstones, specifically the Mitigating Systems cornerstone and the Barrier Integrity cornerstone. However, the SRA conducted a Phase 3 evaluation because the issue was too complex to evaluate using the Plant Specific Phase 2 Notebook.

Using the site-specific Peach Bottom Standardized Plant Analysis Risk Model, Revision 3.21, the SRA made the following assumptions to evaluate this finding:

- The exposure time of one-year was used in conducting the evaluation;
- A hydrodynamic load (greater than 6 psig) in the torus would occur from a large or medium break loss-of-coolant accident (LOCA) or a SRV actuation. This load would be sufficient to cause torus water level to decrease, uncovering the downcomer from the drywell and HPCI/RCIC pipe;
- Operator action, directed in the emergency operating procedures (EOPs), would recover torus level. If low torus level is indicated in the main control room, then ROs would be directed by the EOPs to maintain torus level using the HPSW system through the RHR system and/or to cease injecting to the RCS from the torus to prevent damaging the injection pumps due to the low level. The failure of operators to perform these actions would cause an increase in CDF and increase the probability of post vessel breach release from containment (LERF);
- For non-LOCA initiating events - if power conversion systems fail or were assumed to fail due to the initiating event, an SRV would lift. The containment would pressurize if suppression pool cooling failed. This would increase the probability of a containment release (delta LERF) through the pipe break if containment venting was successful (i.e., containment did not fail, prior to core damage) and torus water level was lower than the pipe at the time of reactor vessel breach. This event does not cause an increase in delta CDF because the mitigating systems rely on the condensate storage tank as the primary source of water for RCS injection.

The SRA developed a HPSW/torus fill fault tree to model the torus pipe failure. The fault tree included a basic event that would question the tree if only the torus pipe was

assumed to fail and modeled human action and motor operated valves with their electric dependency.

The SRA determined that this finding was of very low safety significance (Green), represented a very low change in delta CDF (low to mid 1×10^{-8}), and a very low change of high 1×10^{-8} in LERF (delta LERF). The most dominant Phase 3 core damage sequences involved the initiating events of large and medium LOCAs, and the failure of the operators to recover torus level. For large and medium LOCA scenarios, the HPSW/torus fill fault tree indicated that success in torus makeup would prevent loss of torus level; however, failing to refill the torus would cause an increase in delta CDF and would result in an increase in delta LERF. For other LERF sequences that did not increase CDF, the core damage sequences that included SPC failures, successful containment venting (CV), and failure of late injection were identified. These sequences were then transferred to the torus fill event tree which included the HPSW/torus fill fault tree and resulted in core damage occurring if the torus pipe retained its integrity (base case). However, if the pipe was assumed to fail, the event tree would calculate the probability of a release using the delta CDF and assuming that the release factor of 1.0 (for Mark I containment). Accident sequences with suppression pool cooling failure and CV failure were not included in the analysis because the containment was assumed to fail if CV failed, thereby, no benefit would result by refilling the torus. A release would occur if the RCS was breached post-core damage.

Enforcement: 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," states, that activities affecting quality shall be prescribed by documented procedures and shall be accomplished in accordance with these procedures. The procedures shall include appropriate acceptance criteria for determining that important activities have been satisfactorily accomplished. Vendor document, GEK-9682, provides a procedure for full-flow testing of the HPCI system. However, this procedure provides direction to operate the HPCI turbine at reduced speed (1000-1500 rpm) to limit flow while flushing water to the suppression pool through both the minimum flow bypass line and the torus flush line. Subsequently, the procedure directs isolation of the torus flush line to the suppression pool and opening of the test bypass return line to the condensate storage tank before turbine speed is increased to achieve the full pump flow rate of 5000 gpm.

Contrary to the above, Exelon procedure ST-O-023-301-2 provided instructions for aligning the HPCI pump to discharge through the torus flush line to the suppression pool at full rated pump flow of 5000 gpm. Specifically, not limiting the flow rate through the torus flush line to the torus as directed by GEK-9682 resulted in excessively high flow rates and cavitation that led to piping erosion and the resultant through-wall leak in the partial flow flush line to the torus. Because this finding is of very low safety significance and has been entered into the CAP (IR 5584677), this violation is being treated as a NCV consistent with Section VI.A of the NRC Enforcement Policy:

NCV 05000277/2007002-03, Failure to Develop and Implement HPCI Surveillance Testing in a Manner Consistent with Vendor Specified Test Instructions.

Enclosure

.3 Unit 2 - Fire in 480 Volt Non-Vital Load Center - February 27, 2007

a. Inspection Scope

At approximately 9:16 a.m. on February 27, 2007, a fire was suspected to have started based on the receipt of numerous secondary plant alarms in the main control room (MCR) and the report of smoke near the '4T4' 480 Volt load center. The inspectors responded to the MCR following a site announcement for the fire brigade to respond to a suspected fire in the Unit 3 turbine building. The inspectors monitored the operators' response to the event and the status of plant equipment. The observations were primarily focused on the nuclear safety aspects of the plant's and operators' responses. The inspectors also monitored the response of PBAPS's emergency response organization to the declaration of an UE.

Subsequent to the fire, the inspectors discussed the fire with operations, engineering and PBAPS management personnel to gain an understanding of the event and to assess their followup actions. The inspectors reviewed operator logs and operators' actions taken in accordance with licensee procedures. Based on the operators' narrative logs, the fire brigade was dispatched to the Unit 3 turbine building at approximately 9:20 a.m. Fire personnel investigated and notified the MCR that an actual fire existed at 9:38 a.m. An Unusual Event for a fire not extinguished within 15 minutes (emergency action level (EAL) HU6) was declared at 9:41 a.m. All state and local government notifications were completed by 9:59 a.m. and the NRC Headquarters Operations Officer was notified of the event at 10:36 a.m. The fire was considered to be extinguished at approximately 10:32 a.m. At 11:37 a.m., the Unusual Event was terminated.

Prior to the report of the potential fire, Unit 3 was operating at full power. As a result of fire and the associated response actions, numerous non-safety-related loads powered by the '4T4' 480 Volt load center were de-energized. Equipment that was de-energized included: the 'B' isophase bus cooler fan, the 'B' drywell chiller, the 'B' recirculation pump speed controller, the leading edge flow meters and the 'B' reactor feed pump. Plant operators took the required TS actions and responded to the equipment losses by performing controlled reactor power reductions and stabilized the plant at approximately 50 percent of rated power.

The inspectors verified that the required reports were made during the event and that no further reports are planned. The inspectors also verified that this issue (IR 569889) was placed into the CAP. Preliminarily, PBAPS has determined that the fire resulted from an apparent mismatch between the ratings of one breaker and its cubicle in the '4T4' 480 volt load center. A root cause investigation was ongoing at the end of the inspection period and will be reviewed by the inspectors during a future inspection period.

b. Findings

At the close of this inspection period, the inspectors were reviewing the event and awaiting the results of the root cause evaluation to understand the potential performance deficiencies. This issue is unresolved pending review of PBAPS's causal evaluation and corrective actions by the inspectors to characterize the issue.

URI 05000277/2007002-04, Incorrect Size Breaker Resulted in a Fire in the '4T4' 480 Volt Load Center.

.4 Personnel Performance - Missed Procedure Step Resulted in Unplanned Overloading of the E-3 EDG

a. Inspection Scope

The inspectors reviewed selected applicable plant records, correction action documents and approved procedures while evaluating the performance of operations personnel in response to non-routine evolutions. The inspectors assessed personnel performance to determine what occurred and how the operators responded, and to determine if plant personnel's response was in accordance with plant procedures and training. The following non-routine evolution was reviewed:

- During the conduct of surveillance testing of the E-3 EDG on March 15, 2007, a licensed operator missed the performance of a required step in a supporting system operating procedure. The omission of the procedure step placed the E-3 EDG in the isochronous mode while synchronized with offsite power through a 4 kilovolt (kV) vital bus. This condition resulted in unexpectedly loading the E-3 EDG beyond its 30-minute load rating. The ST and supporting procedures directed the synchronization of the E-3 EDG to a selected 4 kV bus to pick up the bus loads. The procedure subsequently directed opening the offsite power feeder breaker to the 4 kV vital bus (the missed step) before placing the EDG in the isochronous mode. PBAPS placed this issue in the CAP by initiating IR 604364. Prompt corrective actions included the selected implementation of additional peer checking of procedure performance place-keeping. The E-3 EDG was inspected for potential damage and tested before being returned to an operable condition in accordance with TS on March 17, 2007. The causal evaluation of this event was ongoing at the end of the inspection period.

b. Findings

At the close of this inspection period, the inspectors were reviewing the event and awaiting the results of the causal evaluation to understand the potential performance deficiencies. This issue is unresolved pending review of PBAPS's causal evaluation and corrective actions by the inspectors to characterize the issue.

URI 05000277/2007002-05, Missed Procedure Step Resulted in Unplanned Overloading of the E-3 EDG.

.5 (CLOSED) LER 05000277/2006001-00, Main Steam Isolation Valves Exceeded Their Allowable Leakage Limits

On September 22, 2006, engineering personnel determined that there were multiple leak rate test failures involving the main steam isolation valves (MSIVs). This determination was based on local leak rate testing performed during the P2R16 Refueling Outage. Four of the eight MSIVs were found to be leaking in excess of their allowable leakage limits, including both the inboard and the outboard MSIVs for the 'D' main steam line. This condition resulted in a degraded plant safety barrier, a condition prohibited by TSs and a condition that resulted in multiple trains being inoperable in a safety system. The MSIVs were repaired and returned to an operable status. The as-left leakage rates were restored below the TS allowable limits. The corrective actions to resolve the underlying causes of this event are in the CAP (IR 534622) and include planned actions to minimize the number of times that the valves are stroked for maintenance and testing in a dry condition to minimize accelerated wear of the internals.

This finding is more than minor because it had a credible impact on safety, in that, if the 'D' main steam line was required to isolate on a containment isolation signal, the penetration leakage would be greater than the TS allowable limits. Also, for the 'A' and 'C' penetrations, if the redundant valve in the penetration did not close on a containment isolation signal, containment integrity would not be ensured. The finding affects the Barrier Integrity Cornerstone and was considered to have very low safety significance (Green) using Appendix H of the SDP because the likelihood of an accident leading to core damage was not affected, the probability of early primary containment failure and therefore a large early release was small. This licensee-identified finding involved a violation of TS 3.6.1.3, Primary Containment Isolation Valves. The enforcement aspects of the violation are discussed in Section 4OA7 of this report. This LER is closed.

4OA6 Meetings, Including Exit

Exit Meeting Summary

On April 20, 2007, the resident inspectors presented the inspection results to Mr. J. Grimes and other PBAPS staff, who acknowledged the findings. The inspectors asked the licensee whether any of the material examined during the inspection should be considered proprietary. No proprietary information was identified.

4OA7 Licensee-Identified Violation

The following violation of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements which meet the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned a NCV.

- TS 3.6.1.3 requires that penetration flow paths with one or more MSIVs not within MSIV leakage rate limits be isolated within eight hours. Contrary to this, for an indeterminate period during the two-year operating cycle before September 18, 2006, four MSIVs were not within MSIV leakage rate limits and

the penetrations were not isolated within eight hours. This was identified in the licensee's CAP as IR 534622. This finding is of very low safety significance because it does not represent an open pathway in the physical integrity of the reactor containment greater than that assumed in the UFSAR, Chapter 14, "Plant Safety Analysis," for radiological consequences.

ATTACHMENT: SUPPLEMENTAL INFORMATION

Enclosure

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Exelon Generation Company personnel

J. Grimes, Site Vice President
 M. Massaro, Plant Manager
 N. Alexakos, Manager, Engineering-Programs
 J. Armstrong, Regulatory Assurance Manager
 C. Behrend, Engineering Director
 C. Jordan, Chemistry Manager
 D. Lewis, Operations Director
 G. Stathes, Maintenance Director
 S. Taylor, Manager, Radiation Protection
 A. Wasong, Training Director
 T. VanWyen, Operations Training Manager
 B. Artus, Principal Requal Training Instructor
 R. Tyler, Simulator Supervisor
 W. Pilkey, Physician Assistant
 J. Verbillis, Examination Developer
 J. Chizever, Mechanical Design Engineering
 D. Foss, Sr. Regulatory Engineer
 A. Franchitti, Electrical Design Engineering

NRC personnel

Mel Gray, DRP, Branch 4, Branch Chief
 J. Caruso, Senior Operations Engineer
 J. D'Antonio, Senior Operations Engineer
 M. Brown, Resident Inspector
 F. Bower, Senior Resident Inspector

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

05000277/2007002-04	URI	Incorrect Size Breaker Resulted in a Fire in the '4T4' 480 Volt Load Center (Section 4OA3.3)
05000277/2007002-05	URI	Missed Procedure Step Resulted in Unplanned Overloading of the E-3 EDG (Section 4OA3.4)

Opened and Closed

05000277, 278/2007002-01	NCV	Non-Technical Specifications Position Incorrectly Credited for Active License Maintenance (Section 1R11.1)
05000277, 278/2007002-02	NCV	Exelon Did Not Establish and Implement Adequate Procedures for QA of Effluent Monitoring as Required by TS 5.4.1 (Section 2PS1)
05000277/2007002-03	NCV	Failure to Develop and Implement HPCI Surveillance Testing in a Manner Consistent with Vendor Specified Test Instructions (Section 4OA3.2)

Closed

05000277/2006001-00	LER	Main Steam Isolation Valves Exceeded Their Allowable Leakage Limits (Section 4OA3.5)
05000277/2006003-00	LER	Elbow Leak on Piping Attached to Suppression Pool Results in Loss of Containment Integrity (Section 4OA3.1)
05000277/2006005-02	URI	Loss of Primary Containment Integrity (Section 4OA3.2)

Discussed

None.

LIST OF DOCUMENTS REVIEWED**Section 1R01: Adverse Weather**

IR 568034, Evaluate Cross Tie Gate Removal
 IR 584869, Station Critique for Discharge Canal Cross-Tie Gate Removal
 AR A1596763, Evaluate Cross Tie Gate Removal
 RT-O-28B-800-2, River Temperature and Flow Monitoring
 M-028-001, Discharge Canal to Intake Pond Gate Operation
 ST-C-095-805-2, Liquid Radwaste Discharge

Section 1R02: Evaluation of Changes, Tests, or Experiments

10 CFR 50.59 Safety Evaluations

PB-2004-002-E, Installation and Use of the Reactor Cavity Work Platform (RCWP) During Outage, Revision 1
 PB-2005-01-E, Use of GNF2 Lead Use Fuel Assemblies in PB Unit 3 Cycle 16, Revision 0
 PB-2005-003-E, Adopt SQUG Methodology for Seismic Qualification of Equipment, Revision 0
 PB-2006-01-E, Application of TRACG04 for Stability Analysis, Revision 0

10 CFR 50.59 Screens

PB-2004-022-S, ECR PB-00119 (U3 MPT and UAT SPR Logic Upgrade), Revision 0
 PB-2005-007-S, HPCI Turbine Vibration, Revision 0
 PB-2005-009-S, Core Spray Line Break Detection Setpoint Change, Revision 0
 PB-2005-027-S, Provide OPRM Clarifications in Tech Spec Bases Section 3.3, Revision 0
 PB-2005-031-S, Restoration of SBO Test Circuit Due to Duct Bank Damage During BRE #3 Rock Anchor Drilling, Revision 0
 PB-2005-033-S, Revise HPSW System Design Press by RO-2(3)-801 or 2(3) 789, Revision 0
 PB-2005-042-S, Install Temperature Monitoring in SRV Pilot Valves, Revision 0
 PB-2005-046-S, Support Replacement of ESW Valve HV-3-33-518, Revision 0
 PB-2005-065-S, PBAPS EDG Keep Warm Modifications, Revision 3
 PB-2005-067-S, RWM Operability Check, Revision 0
 PB-2005-078-S, Installation of Restricting Orifices in the HPCI Lube Oil System, Revision 0
 PB-2006-001-S, SE-10 Procedure Revision, Revision 0
 PB-2006-006-S, Procedure Creation AO6F-2-2(3), Revision 0
 PB-2006-018-S, RCWP Jib Crane, Revision 0
 PB-2006-029-S, Closing Torque Switch Bypass MO-2-02-053A, Revision 0
 PB-2006-055-S, E-1 Diesel Aux Pump Abandonment, Revision 0

Calculations

86-5049524, Summary Report for Peach Bottom BWR RCWP Framing Design, Revision 2

Corrective Action Reports

340404	492097	598300*	600094*
490304	513278	599323*	490319

*NRC Identified During Inspection

Drawings

6280-M-37, Diesel Generator Auxiliary Systems (Lube Oil System), Sheet 3, Revision 40

Surveillance Procedures

ST-O-62A-210-2, RWM Operability Check, Revision 13

Miscellaneous

GE Letter, Analysis of Postulated Collision between NF400 Mast 762E974G002 and Low Profile Jib Hoist 124D1815G001, dated 3/4/06

GE Letter, Lead Test Assembly Licensing, dated 8/24/81

GE-NE-0000-003909767-00, Technical Evaluation to Support Introduction of GNF2 Lead Use Assemblies (LUA) in Peach Bottom Atomic Power Station Unit 3, Revision 0

GE-NE-0000-0052-5690-R0, TRACG04 DIVOM 10 CFR 50.59 Evaluation Basis, 4/06

NEDC-33144P, GNF2 Lead Use Assembly (LUA) for PBAPS Unit 3, Revision 1

NEDE-24011-P-A-15, General Electric Standard Application for Reactor Fuel, 9/05

NEDO-32465-A, Reactor Stability Detect and Suppress Solutions Licensing Basis Methodology for Reload Applications, 8/96

PM L-200-VC-4, Limitorque Valve Operator Engineering Reference Manual, Revision 0

PM-1076, Impact of RCWP Jib Crane Failure on Fuel Handling Accident Analysis, Revision 0

Supporting Information for 50-59 Evaluation No. PB-2005-01-E

Updated Final Safety Analysis Report, Peach Bottom Atomic Power Station, Revision 20

Section 1R04: Equipment Alignment

SO 14.1.A-3, Revision 3, Core Spray System Alignment for Automatic or Manual Operation

COL 14.1.A-3B, Revision 9, Core Spray System Loop B

COL 9A.1.A, Revision 9, Standby Gas Treatment System Automatic Operation

P&ID M-362, Sheet 2, Revision 60, Core Spray Cooling System

Protected Equipment Tracking Sheet, PBAPS Unit 2 & Common, dated January 22, 2007

Protected Equipment Tracking Sheet, PBAPS Unit 2 & Common, dated January 31, 2007

IR 584836, NOS ID: Protected Equipment List Discrepancies

Section 1R05: Fire Protection

OP-AA-201-003, Revision 8, Fire Drill Performance

RT-F-101-922-2, Revision 3, Fire Drill, completed 1/10/07

PF-4C, Revision 5, Prefire Strategy Plan Unit 2 Rx Recirc Pump MG Set Room, Radwaste Building, 135' Elevation

PF-72J, Revision 1, Prefire Strategy Plan Radwaste Building, 150' & 165' Elevation

PF-136, Prefire Strategy Plan, Emergency Cooling Tower, Fire Zone 136

PF-59, Revision 4, Prefire Strategy Plan Unit 2 Reactor Building HPCI Room, 88' Elevation

Prefire Strategy Plan U/3 RBCCW Room Radwaste Bldg. 116' Elevation, Fire Zone 12B, Revision 3

Prefire Strategy Plan 2 'A' & 2 'C' Core Spray Room, RX Building 91' 6" Elevation, Fire Zones 5A & 5B, Revision 1

Prefire Strategy Plan 2 'A' & 2 'C' RHR Pump and HX Rooms RB2 - 91' 6" Elevation, Revision 2

Prefire Strategy Plan 3 'A' & 3 'C' RHR Pump and HX Rooms RB2 - 91' 6" Elevation,
Revision 2

Section 1R06: Flood Protection Measures

DBD P-T-09, Revision 8, Internal Hazards
IPE Section 3.3.8.2.3, "Reactor Building"

Section 1R07: Heat Sink Performance

RT-O-010-660-2, RHR Heat Exchanger Performance Test, Revision 7, completed 3/10/07
NRC Generic Letter 89-13, Service Water System Problems affecting safety-related equipment

Section 1R11: Licensed Operator Regualification Program

PSEG0731R, Low Torus Level Condition Requires Emergency Blowdown
PSEG0715R, Hydraulic ATWS

Regualification Program Procedures

HR-AA-07-101, Revision 4, "Licensed Operator Medical Examination"
OP-AA-105-101, Revision 10, "Administrative Process for NRC License and Medical
Requirements"
TQ-AA-106, Revision 8, "Licensed Operator Requal Training Program"
TQ-AA-106-304, Revision 7, "Licensed Operator Requal Training Examination Development
Job Aid"
TQ-AA-106-305, Revision 3, "Licensed Operator Requal Training Examination Administration
Job Aid"
OP-AA-105-102, Revision 8, "NRC Active License Maintenance"

Simulator Baseline Review of Documentation for Transient Tests

STRB 05-3 Exelon Nuclear Simulator Testing Review, 6/9/2005
STRB 05-6 Exelon Nuclear Simulator Testing Review, undated

Simulator Transient Tests

B.1.2.8 Maximum Recirculation Suction Break with Loss of Offsite Power STPT-RRS20 & MAP02, Revision 3, 10/25/2006.

B.1.2.6 Turbine Trip Within Bypass Valve Capacity STPT-MTA04, Revision 2, 10/20/2006

B.1.2.5 STPT - Single Recirc Pump Trip, Revision 3, 10/4/2006

B.1.2.1 STPT - Manual Scram, Revision 1, 10/04/2006

B.1.2.10 SMPT IPM02 MSIV Closure with Failed Open SRV and No High Pressure ECCS, Revision 1, 10/24/2006

Simulator Normal Evolution Tests

SNOT NOROP 1 Cold S/D to 100% Power, 12/15/2004

SNOT NOROP 4 Scram and Restart to 100% Power, 12/15/2005

SNOT NOROP 2 Plant S/D and Cooldown, 12/22/03

SNOT NOROP 3 no title (includes reactor startup plus ST surveillance procedures for HPCI, RCIC, RHR, CS), 2/7/2007

Simulator Steady State Tests

SSPT-Heat Bal Simulator Heat Balance Test, Revision 1, 9/11/2006

Simulator Malfunction Tests

SMPT RHR04 RHR Pump Discharge Line Break, Revision 6, 11/28/2006

SMPT VAC01 480VAC Bus Fault, Revision 5, 11/21/2006

SMPT VAC03 480VAC MCC Fault, Revision 5, 10/10/2006

SMPT RPS05 Automatic Scram Circuit Failure, Revision 3, 11/21/2006

SMPT RRS07A Recirc Pump Shaft Seizure, Revision 6, 2/07/07

Plant Event Data Comparison with Simulator

PDRP 04007 Low Pressure Group 1 Unit 2, 2/24/2005

PDRP 04009 Condensate Pump Trip, 12/28/2004

Open SWRs

SWR# 5654 PMS Digital Displays Do Not Work, 12/15/2003

SWR# 6550 MS/OG Numac Rad Monitors Screen Broke on a Total of 3, 7/26/2004

SWR# 8014 Core Model Issues

Closed Simulator Work Requests (SWRs)

SWR# 9272 Rod position indication is blank after a scram

SWR# 9632 AO-8098 and 8099 A & C stroke too fast

SWR# 9695 ST-R-002-910-2 step 6.1.8 was unsat

SWR# 9381 Problems with E324-O-A, VAC03W

SWR# 7412 RCIC operates erratically

SWR# 7259 Problems noted with loss of Y-34
SWR# 6194 Condenser not working correctly
SWR# 7736 'A' Condensate string flow drops after FW heater leak

Section 1R12: Maintenance Effectiveness

IR 00579872, E-1 EDG Fuel Oil Leaks
Red/Yellow Maintenance Rule (a)(1) Systems - System 52 - EDG Improvement Plan
AR A1424883, General Purpose AR for Misc Evals for System 52 Issues
IR 00207837, PBAPS EDG Action Plan
IR 00495141, Exhaust System Bolting Disassembly Results in a Large Percentage of the Bolts Breaking
AR A1592701, Examine Lower Support Bolting for RHR HX 3 'D'
AR A1591784, Replace 3 'D' RHR Heat Exchanger Floating Head Assembly
AR A1558090, Disassemble, Bubble Test, Repair 3 'D' RHR Heat Exchanger
AR A1578288, Increased Leak Rate for 3 'D' RHR Heat Exchanger
IR 579005, RIS-9081 Causing HPSW High Rad Alarm
IR 578998, RIS-9082 Causing HPSW High Rad Alarm
IR 583564, Unit 2 'B' Loop HPSW High Rad Alarm
IR 606881, 3 'D' Train of RHR Has Exceeded MR (A)(1) Performance Criteria

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

C0219963, 2 'D' E001 Heat Exchanger Leak Repair
HU-AA-1211, Pre-job Briefing Checklist for Unit 2 Generator Hydrogen Cooler Repair
SA-AA-116-2124, Attachments 2 and 3, Job Hazard Analysis Form for Tightening of Hydrogen Flange
On-Line Maintenance Approval Form, 3 'D' RHR Secondary Containment Breach, dated January 23, 2007
Barrier Breach Permit 07-6, Hatch 24, dated January 25, 2007
IR 199380-37 & 38, PORC 07-02 Action Items
GP-16, Breaching and Establishing Secondary Containment, Revision 28
Pre-Job Briefing Checklist
HLA/IPA Briefing Worksheet
Evaluation of Voluntary Entry into Tech Spec Action Statements for Secondary Containment to Support RHR Heat Exchanger Corrective Maintenance Work, Revision 0, dated 1/19/07
IR 579658, Floating Head Removal from 3 'D' RHR Room
IR 579005, RIS-9081 Causing HPSW Hi Rad Alarm
AR A1599678, RIS-9081 Causing HPSW Hi Rad Alarm
AR A1599677, RIS-9082 Causing HPSW Hi Rad Alarm
C0220444 - '4T4' Bus; Inspect, Rework as Required
A1605389 - '4T4' Bus Fault, Inspect, Rework as Required
A1605391 - 3 'B' RFPT Tripped
A1605414 - Loss of 30Y022-18
A1605422 - 3 'A' Isophase Bus Cooling Fan Breaker Tripped
A1605436 - MO 3149B temporary power
A1605437 - 3 'B' D/W Chiller Trip

A1605471 - 3 'B' Isophase Bus FME Inspection
AR A1607626 - AO-2-23-042 Would Not Reopen During the Performance of ST
ST-O-023-301-2 - HPCI Pump, Valve, Flow and Unit Cooler Functional and In-service Test,
Revision 47, completed 3/14/07
Peach Bottom Operator Narrative Logs 3/14/07
IR 604364, Human Error Results in E-3 EDG Overload & E-33 Breaker Trip
AR A1607776, Incomplete Procedure Performance During E-3 EDG Testing

Section 1R15: Operability Evaluations

IR 453260, RHR to HPSW Leak - HPSW Sample Shows Radiological Contamination in 3 'B'
Loop
IR 583564, Unit 2 'B' Loop HPSW High Radiation Alarm
IR 584041, RHR 3 'D' Heat Exchanger Lower Support Gap and Missing Bolt
IR 584070, Near Miss Opportunity for Potential 3.0.3 Inoperability
AR A1551497-01, Assess Leak Rate Identified Via Bottom Head Sampling
AR A1578288, Increased Leak Rate for 3 'D' RHR Heat Exchanger
AR A1592631, 3 'D' RHR Exchanger/3 'B' RHR Loop Discharge Pipe Flush
TRT 06-47, 3 'D' RHR Exchanger/3 'B' RHR Loop Discharge Pipe Flush
ECR PB 96-03159-000, Emergency Cooling Tower Freezing Issue
ECR PB 96-03159-000, Attachment 1, Evaluation of Icing Conditions in the Emergency
Cooling Tower Reservoir
IR 593397, 2 'C' RHR Heat Exchanger Plug Insertion Tooling Failed
AR A1546765-20, Evaluate Leaving Pop-A-Plug Tooling Inside Plugged Tube
Peach Bottom Lost Parts Database
ER-AA-2006, Lost Parts Evaluations
MA-AA-716-008, Attachment 9, Loss of Integrity Actions, Recovery from a Loss of FME
Integrity
MA-AA-716-008, Attachment 10, Loss of Integrity Notification and Recovery Plan
IR 594481, RHR to HPSW Leakage Greater Than Acceptance Criteria
IR 148870, RHR Heat Exchanger Leak: Evaluate per CFRs and ODCM
IR 372040, Suspected 2B RHR/HPSW Heat Exchanger HPSW In-Leakage
AR A1607626 - AO-2-23-042, Would not Reopen During the Performance of ST
ST-O-023-301-2, HPCI Pump, Valve, Flow and Unit Cooler Functional and In-service Test,
Revision 47, completed 3/14/07
Peach Bottom Operator Narrative Logs 3/14/07
IR 00608000, Heat Transfer Test Unsat. Update PTRM Entry
IR 513038, 3DE058 Requires Cleaning (Micro-fouling)
IR 516995, 2DE058 Heat Transfer Test Unsat. Revise PTRM Entry
A1577785, 3DE058 Requires Cleaning (Micro-fouling)
RT-O-033-600-2, Revision 14, Flow Test of ESW to ECCS Coolers and Diesel Generator
Coolers
TRM 3.11 and Bases

Section 1R17: Permanent Plant ModificationsModifications

PB 02-00758, Add SQUG Method for Seismic Qualification into UFSAR, Etc., Revision 0
 PB 03-00119, U3 Main and Unit Aux SPR Mod – Installation and Testing ECR, Revision 2
 PB-05-00068, E324 480V LV Bkrs - Replace OD Trip Devices with Solid State, Revision 0
 PB 05-00140, Replace Bearing Lube Oil Supply Ball Valves with Orifices, Revision 3
 PB 05-00155, Core Spray Line Break Detection Vulnerability, Revision 0
 PB-05-00159, Install Line Stop Hdwr to Replace ESW 518 Valve, Revision 5
 PB 05-00195, P00507 U2 Power Range Neutron Monitoring Mod - Reactor Stability, Revision 0
 PB 05-00236, Revise HPSW Design Pressure in M-30, Issue calc PM-1071, Revision 0

Calculations

PM-1071, Calculation of Pressure Drop through HPSW System, Revision 0
 PM-1075, HPCI Lube Oil System Orifice Sizing, Revision 0
 23-15SP, Pipe Stress Analysis and Support Evaluation for HPCI Lube Oil Line From Lube Oil Cooler 20E105, Revision 0

Corrective Action Reports

221323	485619	600116*
279193	487311	600132*
294570	558911	
309624	599882*	

*NRC Identified During Inspection

Drawings

E-911, Electrical Secondary and Control Conn MOV, Sheet 1, Revision 52
 E-359, Recirculation Pump Suction and Discharge Valve, Sheet 1, Revision 29
 E-1617, Single Line Meter and Relay diagram, Sheet 1, Revision 63

Miscellaneous

DPIS-2-14-043B Instrument Calibration Sheet, Revision 2
 Midas Calc Results, MOV MO-2-02-053A, 10/2/06
 NE-164, Specification for Environmental Service Conditions Peach Bottom Atomic Power Station Units 2 and 3, Revision 5
 P-T-17, Dynamic Qualification Program, Revision 4
 SQUG Letter, Revision 3A to the Generic Implementation Procedure for Seismic Verification of Nuclear Power Plant Equipment, dated 2/16/04
 SQUG Memorandum, Use of GIP Revision 3A, dated 6/14/05
 33-55045-QS, Class 1E Electrical Equipment Environmental Qualification Report, Revision 2
 6280-M1JJ-97, Instruction Manual Motor Operated Gate Valves, Revision 0

11187-G-14, General Project Requirements for Seismic Design and Analysis of Equipment and Equipment Supports for Peach Bottom Atomic Power Station Units 2 & 3, Revision 0

Procedures

AO 10.8-2, Placing Torus Cooling in Service with LOCA Signal Present or Has Occurred, Revision 8

CC-AA-320-002, Use of SQUG Methodology for the Seismic Qualification of New and Replacement Items, Revision 0

CC-AA-320-1004, Guidance for the Use of SQUG Methodology for the Seismic Qualification of New and Replacement Items, Revision 1

M-055-005, 480 Volt I-T-E Solid State Breaker Trip Device Testing, Revision 1

NE-C-420-04, Setpoint Methodology, Revision 1

SE-10, Alternate Shutdown Procedure, Attachments 1-4, 7, Revision 14

S0 48.1.B, Emergency Cooling Water System Startup, Revision 11

Surveillance Procedures

ST-O-054-753-2, E32 4KV Bus Undervoltage Relays and LOCA Loop Functional Test, Revision 17

Work Orders

A1188670

C0216690

Section 1R19: Post-Maintenance Testing

A1602476, ESW Pump 0AP057 Discharge Check Valve

R1049544, ESW, Valve Unit Clr and ECT Fans IST

ST-O-033-300-2, Revision 31, ESW, Valve, Unit Cooler and ECT Fans Functional IST, performed 2/3/07

ST-O-033-300-2, Revision 31, ESW, Valve, Unit Cooler and ECT Fans Functional IST, performed 2/4/07

C0220132, 2-5A-K003A: Replace Relay and Perform PMT

IR 00585972, 2-5A-K003A Relay Failed

SI2M-60F-RT7-A4M2, Revision 4, Response Time Test of MSIV Closure Scram Channel A

A1225120, Intake Struct Vent Exh 3AV83

R0810095, E124-P-A (6244) Perform MCU Inspection

AO 56.1, Revision 4, Removing and Installing a 480 VAC Motor Control Center Bucket

ST-O-010-640-3, 3 'D' RHR Heat Exchanger Leak Test

ST-O-010-306-3, 'B' RHR Loop Pump, Valve, Flow and Unit Cooler Functional and Inservice Test

A1607776, E-3 Diesel Generator, Incomplete Procedure Performance During Testing Results in E-3 Generator Trip

C0219643, 2AP040 Clean/Inspect/Repack Cylinders (2 'A' SLC Pump)

ST-O-011-301-2, Standby Liquid Control Pump Functional Test for IST, completed 3/27/07

IR 0604364, E-3 Diesel Trip During Testing
ST-O-052-123-2, Diesel Generator RHR Pump Reject Test
ST-O-052-213-2, E3 Diesel Generator Slow Start Full Load and IST Test
A1603535, U2 HPCI ST-003 Modification PMT Unexpected Result
IR 00590626, U2 HPCI ST-003 Modification PMT Unexpected Result
C0220288, Recal/Rework/Replace LS-2-23-090 as Required (U2 HPCI Steam Supply Drain Pot Level)
WO C0220652, OCG012-DR Inspections
WO R1011869, CHK-O-33-515A; Disassemble Inspect/Rework
WO R0810095, E124-P-A (6244) Perform MCU Inspection
590973, Steam Leak through HV-2-23C-21173

Section 1R22: Surveillance Testing

ST-O-052-701-2, Rev 16, E-1 Diesel Generator 24-Hour Endurance Test, completed 1/18/07
SI3F-13-84-XXCQ, Revision 18, Calibration Check of RCIC Steam Line High Flow Instrument DPIS, 3-13-84, completed 1/22/07
SI3F-13-83-XXCQ, Revision 21, Calibration Check of RCIC Steam Line High Flow Instrument DPIS, 3-13-83, completed 1/22/07
ST-O-020-560-2, Reactor Coolant Leakage Test, Performed 1/27/07
ST-O-033-300-2, Revision 31, ESW, Valve, Unit Cooler, and ECT Fans Functional IST, performed 2/4/07
ST-O-010-301-3, 'A' RHR Loop Pump, Valve, Flow and Unit Cooler Functional and Inservice Test, performed 1/12/07
ST-O-052-212-2, Revision 26, E-2 Diesel Generator Slow Start Full Load and IST Test, completed 1/24/07
*IR 586970, UFSAR Table 4.8.1 Update on RHR Flow not Fully Encompassing
*IR581062, DBD P-S-09 Not Updated for 3 'A' RHR Pump Motor Replacement
IR 559583, Apparent Conservative Error in Calc ME-507
IR 540115, Request for Engineering to Review Margin for 2 'D' RHR Pump Pressure/Flow Design Basis Document (DBD) P-S-09, Residual Heat Removal System
Design Calculation Number ME-0171, RHR Pump Discharge Pressure for Rated Condition
Design Calculation Number ME-0507, Acceptance Criteria for RHR Pumps Flow Test
Amendment No. 27 to Facility Operating License No. DPR-56, Docket 50-278, dated November 15, 1976
ECR No. PB-99-00079-000, Discrepancy Identified During Review of UFSAR Section 4.4 & 6.3
Engineering Work Request (EWR) P-51688, ST Requirements for RHR Pumps
EWR P-51497, Unit 3 RHR System Calculations
EWR P-50900, ST Requirements for RHR Pumps
SI3F-23-82-XXC2, Calibration Check of HPCI Flow Instruments FT 3-23-082, FI/FC 3-23-108, E/S 3-23-143, XS 3-23-144 and FS 3-23-078, Revision 3, performed 3/20/07
Technical Specifications 3.3.5.1.4, 3.3.5.1.5 and 3.5.1

*Identified as a result of this inspection

Section 1R23: Temporary Plant Modifications

ECR PB 07-00080, Temporary Power for 30Y023
Drawing E-1700, Revision 38, sheet 1
IR 00596812, Both LEFM Computers De-energized Due to Loss of 30Y023
IR 00596818, Temporary Power for 30Y023
ECR PB 07-00081, Temp Power for 4-T-4-T-C
Drawing E-1700, Revision 38, sheet 1
WO C0220453, Provide Temp Power to MO-3-06C-3149B
WO C0220454, Provide Temp Power to 30Y022

Section 1EP6: Drill Evaluation

IR 580462, DEP PAR Failure

Section 2PS1: Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems

Documents

2005 Radioactive Effluent Release Report No. 48, dated April 25, 2006, (including Projected Public Dose Assessments);
2004 Radioactive Effluent Release Report No. 47, dated April 27, 2005, (including Projected Public Dose Assessments);
2005 Radiation Dose Assessment Report No. 21, dated April 25, 2006
2004 Radiation Dose Assessment Report No. 20, dated April 29, 2005
Changes to Offsite Dose Calculation Manual and Technical Justifications for ODCM Changes
Selected 2004, 2005, 2006 Analytical Results for Radioactive Liquid, Charcoal Cartridge, Particulate Filter, and Noble Gas Samples
Implementation Records for the Compensatory Sampling and Analysis Program when the Effluent Radiation Monitoring System (RMS) is Out-of-Service
Calibration Records for Chemistry Laboratory Measurements Equipment (Gamma)
Implementation Records of the Measurement Laboratory Quality Control Program, Including Control Charts
Implementation Records of the Intra-laboratory Comparisons by the Licensee and the Contractor Laboratory

Section 4OA3: Event Followup

IR 554800, Potential External Flood Vulnerability Found for EDG Building
IR 558326, Diesel Building's Oil Separator Pit Check Valve Needs Inspection
IR 570723, Circulating Water Pump Structure Flood Program Vulnerability
IR 522005, Inspect EDG Room Equipment Drain Backwater Valves
IR 523285, Improvements to Plant Response to External Flood (RE: EDGS)
IR 505423, Emergency Diesel Building Flooding - Check Valve and IPE Issues
IR 534622, Multiple MSIV LLRT Failures: P2R16

A-13

IR 539591, Review/Approval of FMCT for 80D Inboard MSIV not Documented
IR 539594, New Main Poppet Used for MSIV-80D Dimensionally Different
IR 539633, AO-2-01A-080D Had Unsat Blue Check After Poppet Replacement
IR 539186, Temporary Change to MSIV LLRT Procedure Inadequate
IR 538998, AO-2-01A-08D Failed AS-left LLRT, Rework Required
IR 534610, Discrepancies in U2 MSIV (86A, 86B & 86D) LLRT Results
IR 539527, NOS ID - MSIV Hit Not IAW Troubleshooting Procedure
IR 540128, Seat Polishing of MSIVs - Improvement Opportunity
IR 563253, External Flood Vulnerability - Circulating Water Pump Structure
IR 554800, External Flood Vulnerability Found for EDG Building
IR 520322, E-3 EDG Fire at Roof Exhaust Penetration
IR 604364, Incomplete Procedure Performance During E-3 Diesel Testing
ST/LLRT 20.01A.02, Revision 6, Main Steam Isolation Valve Local Leak Rate Test
Special Event Procedure (SE)-4, Flood, Revision 21
ST-O-052-123-2, E-3 Diesel Generator RHR Pump Reject Test, Revision 4
ST-O-054-951-2, Offsite and Onsite Electrical Power Breaker Alignment and Power Availability
Check with a Start-up Source and/or EDG Inoperable, Revision 6
SO 52A.1.B, Diesel Generator Operations, Revision 38
Quick Human Performance Investigation, Missed Procedure Step Results in Unplanned E-3
EDG Load Change and E-33 Breaker Trip
AR 1607776, Incomplete Procedure Performance During E-3 EDG Testing
PBAPS Operations Standing Order, 07-01, Peer Check Standards Clarifications and
Expectations, 3/22/2007
IR 596616, Fault AT PB 3 50D E CBM '4T4' (0264) 3 'B' Iso-Phase Cooler Fan
IR 596767, Fire Brigade Critique Following U3 Breaker Fire
IR 597185, Drywell Chilled Water Not Modeled in PRA, Nor in Paragon
IR 597214, LTA Guidance to Determine High Risk Evolution (HRE) in Paragon
IR 597308, Security Critique Enhancement from 02/27/07 UE Event
IR 597381, Nos ID: Opportunity for Improved '4T4' Quarantine
IR 597402, Evaluate Recirc Pump Mismatch
IR 596889, UE Declared for Unit 3 Due to a Fire in the '4T4' LC
IR 598869, Hole on the Side of Breaker Cubical (FME)
IR 599184, Extend of Condition Walkdown of U2 480L LC Bus
IR 601094, Failure to Contact OEM to Repair '4T4' 480V Load Center
IR 601326, 30Y022 Panel Circuit 20 Won't Stay Energized
IR 606397, Perform ITE Rejection Tab Walkdown
IR 521321, ENS Communicator Issues During 8/15/06 EDG UE
Fire Event Report, Peach Bottom/Unit 3, 02/27/2007
Event Number: 43189, UE Fire Inside the Unit 3 Turbine Area Load Center, 02/27/2007
Preliminary Notification of Event or Unusual Occurrence - PNO-I-07-002, Notification of
Unusual Event (NOUE) Declared Due to Fire in Turbine Building Load Center at Peach Bottom
Unit 3, February 27, 2007

LIST OF ACRONYMS

ADAMS	Agency-wide Documents Access and Management System
ALARA	as low as reasonably achievable
AR	action request
AV	apparent violation
CAP	corrective action program
CDF	core damage frequency
CFR	Code of Federal Regulations
CV	containment venting
DBD	Design Basis Document
DEP	drill & exercise performance
DRP	Division of Reactor Projects
EAL	emergency action level
ECT	emergency cooling tower
EDG	emergency diesel generator
EOPs	emergency operating procedures
ESW	emergency service water
FB	fire brigade
HX	heat exchanger
HPCI	high pressure coolant injection
HPSW	high pressure service water
IMC	Inspection Manual Chapter
IN	Information Notice
IP	Inspection Procedure
IPE	Individual Plant Examination
IR	issue report
IST	inservice test
JPMs	job performance measures
kV	kilovolt
LERs	licensee event reports
LERF	large early release frequency
LOCA	loss-of-coolant accident
MCR	main control room
MR	Maintenance Rule
MSIVs	main steam isolation valves
NCV	noncited violation
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
NRR	Nuclear Reactor Regulation
ODCM	Offsite Dose Calculation Manual
PAR	protective action recommendation
PARS	Publicly Available Records
PBAPS	Peach Bottom Atomic Power Station
PI	performance indicator

PMT	post-maintenance testing
QA	quality assurance
RCIC	reactor core isolation coolant
RCS	reactor coolant system
RCWP	reactor cavity work platform
REMP	radiological environmental monitoring program
RETS	Radiological Effluent Technical Specifications
RG	Regulatory Guide
RHR	residual heat removal
ROs	reactor operators
RTP	rated thermal power
SDP	significance determination process
SEs	safety evaluations
SO	senior operator
SPC	suppression pool cooling
SRA	senior reactor analyst
SRO	senior reactor operator
SRV	safety relief valve
SSC	structure, system, and component
ST	surveillance test
SWRs	simulator work requests
TRM	Technical Requirements Manual
TS	Technical Specification
UE	unusual event
URI	unresolved item
UFSAR	Updated Final Safety Analysis Report
WECS	work execution control supervisor
WO	work order