June 1, 2006

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 INSPECTION REPORT 05000277/2006009 AND 05000278/2006009

Dear Mr. Crane:

On April 21, 2006, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at the Peach Bottom Atomic Power Station. The enclosed inspection report documents the inspection results, which were discussed on April 21, 2006, 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. In conducting the inspection, the team examined the adequacy of selected components and operator actions to mitigate postulated transients, initiating events, and design basis accidents. The inspection also reviewed Exelon's response to selected operating experience issues. The inspection involved field walkdowns, examination of selected procedures, calculations and records, and interviews with station personnel.

This report documents one NRC-identified finding of very low safety significance (Green). The finding was determined to involve violations of NRC requirements. However, because of the very low safety significance of the finding and because it was entered into your corrective action program, the NRC is treating this finding as non-cited violation (NCV) consistent with Section VI.A of the NRC Enforcement Policy. If you contest the 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 U.S. 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, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001; and the NRC Resident Inspectors at the Peach Bottom Atomic Power Station.

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 NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Lawrence T. Doerflein
Engineering Branch 2
Division of Reactor Safety

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

Enclosure: Inspection Report 05000277 and 05000278/2006009
w/Attachment: Supplemental Information

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Plant Manager, Peach Bottom Atomic Power Station
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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket Nos.	50-277, 50-278
License Nos.	DPR-44, DPR-56
Report Nos.	05000277/2006009, 05000278/2006009
Licensee:	Exelon Nuclear LLC
Facility:	Peach Bottom Atomic Power Station, Units 2 & 3
Location:	Delta, PA
Dates:	March13-17, 2006 (onsite); March 27-31, 2006 (onsite); April 10-14, 2006 (onsite); April 17-21, 2006 (onsite)
Inspectors:	K. Mangan, Senior Reactor Engineer, Team Leader K. Young, Reactor Engineer M. Snell, Reactor Engineer J. Richmond, Reactor Engineer A. Zedonis, Reactor Engineer (trainee) B. Sherbin, NRC Contractor L. Hajos, NRC Contractor
Approved By:	Lawrence T. Doerflein, Chief Engineering Branch 2

Enclosure

SUMMARY OF FINDINGS

IR 05000277/2006009, 05000278/2006009; 03/09/2006 - 04/21/2006; Peach Bottom Atomic Power Station, Units 2 and 3; Component Design Bases Inspection.

This inspection was conducted by a team of five NRC inspectors and two NRC contractors. One finding of very low risk significance (Green) was identified, which was a non-cited violation. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using 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 3, dated July 2000.

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Mitigating Systems

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

The finding was more than minor because it affected the procedure quality attribute associated with the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of the HPCI and RCIC systems, which are both mitigating systems. The team reviewed this finding using the Phase 1 SDP worksheet and determined the finding was of very low safety significance (Green), because subsequent analyses determined that the pumps were capable of meeting the design basis discharge pressures and flows. (Section 1R21)

B. Licensee-identified Violations

None.

REPORT DETAILS

1. **REACTOR SAFETY**

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R21 Component Design Bases Inspection (IP 71111.21)

.1 Inspection Sample Selection Process

The team selected risk significant components and operator actions for review using information contained in the Peach Bottom's (PB) Probabilistic Risk Assessment (PRA) and the U.S. Nuclear Regulatory Commission's (NRC's) Standardized Plant Analysis Risk (SPAR) model. Additionally, the Peach Bottom Significance Determination Process (SDP) Phase 2 Notebook, revision 2, was referenced in the selection of potential components and actions for review. In general, the selection process focused on components and operator actions that had a risk achievement worth (RAW) factor greater than 2.0 or a Risk Reduction Worth (RRW) factor greater than 1.04. The components selected were located within both safety-related and non-safety related systems, and included a variety of components such as turbines, pumps, fans, generators, transformers and valves. The components selected involved 5 different plant systems.

The team initially compiled a list of 60 components based on the risk factors previously mentioned. The team performed a margin assessment to narrow the focus of the inspection to 19 components. The team's evaluation of possible low design margin included consideration of original design issues, margin reductions due to modifications, or margin reductions identified as a result of material condition/equipment reliability issues. The assessment included items such as failed performance test results, significant corrective action history, repeated maintenance, maintenance rule (a)1 status, operability reviews for degraded conditions, NRC resident inspector input of equipment problems, system health reports and industry operating experience. The margin review of operator actions included complexity of the action, time to complete action and extent of training of the action. Consideration was also given to the uniqueness and complexity of the design and the available defense-in-depth margins. The team performed a detailed review of 4 operator actions. The team performed the detailed design review of the components and operator actions as outlined in Inspection Procedure 71111.21. This inspection effort included walk-downs of selected components, interviews with operators, system engineers and design engineers, and reviews of associated design documents and calculations to assess the adequacy of the components to meet both design bases and beyond design basis requirements. A summary of the reviews performed and the specific inspection finding identified are discussed in the following sections of the report.

.2 Results of Detailed Reviews

.2.1 Detailed Component Design Reviews (19 Samples)

.2.1.1 Conowingo Station Blackout (SBO) Line

a. Inspection Scope

The team reviewed the Conowingo SBO line to assess conformance to the design basis, licensing basis and operational readiness. The review included safety evaluation reports (SER), design basis documents (DBD), technical specifications (TS) requirements and the technical requirements manual (TRM) requirements. The team review included cable sizing calculations to ensure adequate voltage and current would be available to support station needs during an SBO event, and protective relaying related to the line and its components to ensure that it was adequately protected. Preventive maintenance procedures, work orders and vendor manuals were reviewed to ensure the line and related components were being properly maintained. Modification Acceptance Testing results were reviewed to determine if the SBO line could successfully start residual heat removal pumps or high pressure service water pumps. Surveillance procedures were reviewed to verify the testing being performed ensured the analyzed accident loads could be supported by the line and to verify that applicable test acceptance criteria and test frequency requirements specified in the TS and TRM ensured availablility of the equipment. The team performed a walkdown of the Conowingo Dam onsite SBO facility to assess the material condition of the SBO line and associated equipment. Documents reviewed are listed in the attachment.

b. Findings

No findings of significance were identified.

.2.1.2 Station 3C Battery, 3C Battery Charger, and 3C 125 Vdc Bus

a. Inspection Scope

The team inspected the 3C station battery, station battery chargers and the 125 Vdc bus train. The inspectors reviewed calculations to verify the equipment sizing would satisfy the requirements at the design basis loads. Specifically, the evaluation focused on verifying the sizing to supply the designed duty cycle of the 125 Vdc system for both the loss-of-offsite power/loss-of-coolant accident (LOOP/LOCA) and SBO events. Additionally the team verified that adequate voltage would remain available for the individual load devices required to operate during PB's SBO 8 hour coping period. The team reviewed calculations to verify adequate fuse coordination of the 125 Vdc bus and related components. A walkdown was performed to visually inspect the physical/material condition of the battery, battery chargers and the 125 Vdc bus, and confirm that the battery room temperatures were within the specified design temperature ranges. Additionally, the team reviewed preventive maintenance procedures and vendor manuals to determine if the licensee was appropriately maintaining the inspected components. The team reviewed heat load calculations for the station battery room and 4160 volts alternating current (Vac) switchgear rooms to verify that the rooms would not reach temperatures that would damage needed equipment during SBO conditions. Surveillance procedures were reviewed to verify that the testing being performed ensured the analyzed accident loads could be supported by the battery train and to verify that applicable test acceptance criteria and test frequency requirements specified in the TS and TRM ensured availability of the equipment. Documents reviewed are listed in the attachment.

b. Findings

No findings of significance were identified.

.2.1.3 4160 Volts Alternating Current Safety Bus E33

a. Inspection Scope

The team reviewed calculations and drawings to determine if the loading of 4160 Vac bus E33 was within equipment ratings. The team reviewed the adequacy and appropriateness of design assumptions and calculations related to motor starting and loading voltages to determine if the voltages across motor terminals, under worse case motor starting and loading conditions, would remain above the minimum acceptable values. On a sample basis, the team reviewed maintenance and test procedures and acceptance criteria to verify that the 4160 Vac bus was capable of supplying the minimum voltage necessary to ensure proper operation of connected equipment during normal and accident conditions. The team reviewed the adequacy of protective device coordination provided for a selected sample of equipment. The team conducted a walkdown of the 4160 Vac safety bus to determine if their material condition, operating environment, and system alignments were consistent with the design basis. The team reviewed calculations, drawings and procedures to determine whether undervoltage relay set points, load shed schemes and load sequencing, were adequate to assure availability of vital loads within the times assumed in DBDs. Documents reviewed are listed in the attachment.

b. Findings

No findings of significance were identified.

.2.1.4 4160 Vac E334 Bus Transformer Breaker

a. Inspection Scope

The team reviewed calculations and drawings to identify downstream equipment to determine if the size of the 4160 Vac breaker was adequate to support the operation of this equipment. The team reviewed the adequacy and appropriateness of design assumptions and calculations related to the transformer breaker protection and relay coordination. On a sample basis, the team reviewed the acceptance criteria of maintenance and test procedures to verify that the 4160 Vac breaker was capable of supplying power necessary to ensure proper operation of connected equipment during normal and accident conditions. Documents reviewed are listed in the attachment.

b. Findings

No findings of significance were identified.

.2.1.5 4160 Vac E33 Emergency Diesel Generator (EDG) Breaker

a. Inspection Scope

The team reviewed calculations and drawings to identify downstream equipment to determine if the size of the 4160 Vac breaker was adequate to support the operation of this equipment. The team reviewed the adequacy and appropriateness of design assumptions and calculations related to EDG breaker protection and relay coordination. On a sample basis, the team reviewed the acceptance criteria of maintenance and test procedures to verify that the 4160 Vac breaker was capable of supplying power necessary to ensure proper operation of connected equipment during normal and accident conditions. Documents reviewed are listed in the attachment.

b. Findings

No findings of significance were identified.

.2.1.6 4160 Vac - 480 V E334 Transformer

a. Inspection Scope

The team reviewed calculations and drawings to identify downstream equipment to determine if the size of the 4160/480V transformer was adequate to support the operation of this equipment. The team reviewed the adequacy and appropriateness of design assumptions for the load flow calculations to determine whether loading of the transformer was within its design rating. The team reviewed the adequacy and appropriateness of design assumptions and calculations related to transformer protection and relay coordination. On a sample basis, the team reviewed the acceptance criteria of maintenance and test procedures to verify that the 4160 Vac transformer was capable of supplying power necessary to ensure proper operation of connected equipment during normal and accident conditions. Documents reviewed are listed in the attachment.

b. Findings

No findings of significance were identified.

.2.1.7 480 Vac E334-R-B Load Center Breaker

a. Inspection Scope

The team reviewed calculations and drawings to identify downstream equipment to determine if the size of the load center breaker was adequate to support the operation of this equipment. The team reviewed the adequacy and appropriateness of design assumptions and calculations related to transformer protection and relay coordination. On a sample basis, the team reviewed the acceptance criteria of maintenance and test procedures to verify that the 480 Vac load center breaker was capable of supplying power necessary to ensure proper operation of connected equipment during normal and accident conditions. Documents reviewed are listed in the attachment.

b. Findings

No findings of significance were identified.

2.1.8 High Pressure Coolant Injection (HPCI) and Reactor Core Isolation Cooling (RCIC) Pumps

a. Inspection Scope

The team reviewed the design and current condition of the pumps to ensure they were capable of meeting the design basis requirements. The team reviewed hydraulic calculations and the Peach Bottom process flow diagrams to determine if the current operating condition of the pumps could meet the design requirements for starting time, pump flow and pressure. The team also verified that the acceptance criteria for pumps in-service testing (IST) were appropriate. Additionally, the team reviewed surveillance tests performed to ensure Technical Specification requirements were met and determine if test acceptance criteria were established to ensure design basis assumptions of the system could be met. The team reviewed calculations related to pump net positive suction head (NPSH), vortexing, and minimum flow requirements to verify the pumps were able to function as designed. HPCI and RCIC system operating procedures were reviewed to ensure the systems were operated in accordance with design assumptions. Finally, the team reviewed flow and speed control logic diagrams and associated calibration procedures to ensure the pumps would operate at or above design basis assumptions. Documents reviewed are listed in the attachment.

b. Findings

Introduction: The team identified a Green non-cited violation of 10 CFR 50, Appendix B, Criterion XI, Test Control, related to the HPCI and RCIC systems' technical bases for pump test acceptance criteria. The inspectors identified the licensee failed to correctly specify the minimum pumps' hydraulic acceptance limits used in surveillance testing of the HPCI and RCIC systems ensured the systems design basis requirements could be met.

Description: The team reviewed recent results from the HPCI system surveillance test and the RCIC system surveillance test. The inspectors determined that the pumps were tested to meet the requirements of ASME Section XI and Technical Specification (TS) Surveillance Requirement (SR) 3.5.1.8 (HPCI pump), and TS SR 3.5.3.3 (RCIC pump). However, the team found there was not a test that demonstrated the pumps met design bases requirements. The inspectors requested that the licensee provide the technical analyses that showed the design bases hydraulic performance requirements for the HPCI and RCIC pumps were met based on the testing conducted. Exelon informed the team that there were no analyses available to verify that the design basis requirements were met based on the pump test results.

The inspectors reviewed the Updated Final Safety Analysis Report (UFSAR) and the Peach Bottom Process Flow Diagrams to determine the required pressure, flow, and speed values for the two systems. The inspectors found the HPCI pump must deliver 5000 gpm against a vessel injection pressure and the RCIC pump must deliver 600 gpm. The inspectors determined the basis for the pumps' required discharge pressure was a combination of the reactor pressure at which the first stage safety relief valve would lift plus a 1% drift error, and the static and dynamic head loss due to the system discharge piping configuration. The team reviewed hydraulic pressure drop and elevation head calculations and determined there was approximately 63 psi pressure loss between the HPCI pump discharge and the vessel inlet, and approximately 53 psi pressure loss for the RCIC pump at design flowrates. The team then calculated the required design basis discharge pressure at the pump outlet of 1218 psig for the HPCI pump, and 1208 psig for the RCIC pump. Finally, the team reviewed the calibration setting of the speed governor circuit to determine the maximum speed of the turbines as allowed by the governor. The HPCI maximum speed was determined to be 4100 rpm and the RCIC maximum speed was determined to be 4550 rpm.

However, the team reviewed the pump IST acceptance limits to determine if the established limits would have ensured the pumps would meet the minimum design basis requirements. The test procedure established initial conditions which held the HPCI pump speed constant at 4000 rpm and discharge flow constant at 5000 gpm. After these conditions were established, the measured differential pressure across the pump is recorded. Exelon used the differential pressure to assess pump degradation. The testing differential pressure low limit acceptable criterion for the Unit 2 HPCI pump was 1052.6 psid, and for the Unit 3 pump was 1119 psid. The team determined that, if the HPCI pump had degraded to this differential pressure acceptance limit, it would not have been able to reach the design basis discharge pressure and flow requirements with the turbine at the maximum speed allowed by the automatic flow controller. The team found that because the RCIC pump had more margin the IST acceptance criteria were adequate to ensure the pump would achieve design basis requirements.

Exelon performed an evaluation of recent HPCI and RCIC pump test results using pump affinity laws. The resulting calculation concluded that the pumps historically had adequate discharge pressure, flow and speed to meet the design basis requirements stated above. The inspectors reviewed the calculation and agreed with Exelon's conclusion.

Analysis: The performance deficiency associated with this finding was that the licensee did not set pump test acceptance criteria for the HPCI and RCIC equipment that ensured they would be capable of providing the required design basis flow during accident conditions. This issue was specifically addressed in NRC Info Notice 97-90, Use of Non Conservative Acceptance Criteria in Safety Related Pump Surveillance Tests, and NUREG-1482, Guidelines for Inservice Testing at Nuclear Power Plants. The finding was more than minor because it affected the procedure quality attribute associated with the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of the HPCI and RCIC systems, which are both mitigating systems. The issue was reviewed using the Phase 1 SDP worksheet and determined to screen to green (very low safety significance). Specifically, under the mitigating systems cornerstone, subsequent calculations and analyses showed that both systems could meet the design basis requirements and remained operable based on the actual results of previously performed surveillance tests. Therefore, there was no loss of safety function. Following the identification of the issue the licensee entered the issue into the corrective action program and verified the operability of the pumps based on actual test results. Additionally, the licensee intends to change the test procedure.

Enforcement: 10 CFR Part 50, Appendix B, Criterion XI, Test Control, states in part that a test program shall be established to assure that all testing required to demonstrate that structures, systems, and components will perform satisfactorily in the service identified and performed in accordance with written test procedures that incorporate the requirements and acceptance limits contained in applicable design documents. Contrary to the above, the licensee failed to include acceptance limits in surveillance testing of the HPCI and RCIC systems that were based on design basis requirements. Because this issue was of very low safety significance, and it was entered into Exelon's corrective action program, this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy. **(NCV 05000277-278/2006009-01, Non-Conservative HPCI and RCIC Pumps Test Acceptance Criteria)**

.2.1.9 Reactor Core Isolation Cooling Turbine

a. Inspection Scope

The team reviewed the design and current condition of the RCIC turbine to ensure the turbine was capable of meeting the design requirements discussed in the DBDs. The reviews included verifying the RCIC start time and any associated trip setpoints for the turbine, including RCIC steam line break isolation differential pressure (DP), high turbine exhaust pressure, turbine over-speed, and high room temperature, were functional for design basis accidents and for all environmental conditions. Turbine lube oil pressure and lube oil temperature alarm setpoints were also reviewed to ensure the oil would not exceed manufacturer temperature limits during SBO events. RCIC system operating procedures were reviewed to ensure the system was operated in accordance with design assumptions. To assess the effectiveness of preventive and corrective maintenance and to evaluate the current conditions of the RCIC turbines, the team reviewed issue reports, system health reports, and maintenance procedures. Finally, the team reviewed RCIC room heatup calculations to determine maximum room temperature during events and assess the operability of the equipment at this temperature. Documents reviewed are listed in the attachment.

b. Findings

No findings of significance were identified.

.2.1.10 RCIC Lube Oil Cooler

a. Inspection Scope

The team reviewed the RCIC lube oil cooler design, maintenance history, and current condition to assess whether it was capable of removing sufficient heat from the RCIC turbine and pump lube oil during normal and accident conditions. To evaluate the adequacy of design, the team reviewed the lube oil cooler and lube oil vendor's data. The team also reviewed calculations to ensure there was sufficient lube oil cooling during a station blackout event. RCIC system operating procedures were reviewed to ensure the system was operated in accordance with design assumptions. To assess the effectiveness of preventive and corrective maintenance and to evaluate the current conditions of the lube oil coolers, the team reviewed issue reports, recurring work orders, system health reports, and maintenance procedures. The team also reviewed oil samples and oil sample acceptance criteria to verify oil samples were within acceptable limits and performance degradation would be identified. Documents reviewed are listed in the attachment.

b. Findings

No findings of significance were identified.

.2.1.11 HPCI Low Pump Suction Pressure Trip

a. Inspection Scope

The team reviewed the design basis setpoint requirements, calibration procedures and alarms for the pumps' low suction pressure trip settings. A walkdown was performed to inspect the condition and layout of the instrumentation and instrument piping. The team reviewed the electrical supply and loop calibration of the instrument to ensure the switches would operate as designed during accident conditions. Documents reviewed are listed in the attachment.

b. Findings

No findings of significance were identified.

.2.2.12 E3 - Emergency Diesel Generator

a. Inspection Scope

The team reviewed two sub-components of the emergency diesel generator to assess whether the EDG would function as required during normal and accident conditions. The two EDG systems inspected were the diesel fuel oil system and the service water heat-exchanger cooling system. The fuel oil system was inspected to ensure a sufficient supply of fuel oil would be available and the system would function as designed, and the cooling system was inspected to ensure the system heat exchangers were capable of removing the EDG heat load produced during a design basis event. The team reviewed calculations regarding fuel oil consumption and vortexing for pump suction from the diesel fuel oil storage tanks. The team also reviewed the emergency service water hydraulic analysis, and the heat exchanger flow testing results for the jacket water, lube oil cooler, and combustion air heat exchangers to verify their capabilities. Additionally, the inspectors reviewed thermal performance calculations, testing results, and trending of data that was performed to verify heat transfer capability. The inspectors reviewed periodic surveillance tests to verify fuel oil levels and coolant temperatures were within acceptable limits. The team performed a review of normal operating and surveillance test procedures to assess whether component operation and alignments were consistent with design and licensing basis assumptions. The inspectors also reviewed inspection and cleaning data to ensure proper acceptance criteria had been defined and the heat exchangers were within their acceptance criteria. Documents reviewed are listed in the attachment.

b. Findings

No findings of significance were identified.

.2.1.13 RCIC Cooling Water Supply Valve to Lube Oil Cooler

a. Inspection Scope

The team reviewed the design and current condition of the lube oil cooler isolation valve to ensure the equipment was capable of meeting the design requirements. The team reviewed calculations including required thrust, degraded voltage, and maximum differential pressure to verify the ability of the motor-operated valve (MOV) to operate during design basis events, transient and accident conditions. Additionally, the team reviewed piping and instrumentation diagrams (P&IDs), IST results, the MOV DBD, and RCIC system health reports to assess the capability of the valves to operate during DBE. Finally, Regulatory Issue Summary (RIS) 2001-15, "Performance of DC-Powered Motor-Operated Valve Actuators," was reviewed to ensure it was properly evaluated and implemented as appropriate. Documents reviewed are listed in the attachment.

b. Findings

No findings of significance were identified.

.2.1.14 HPCI Injection Valve

a. Inspection Scope

The team reviewed the ability of the MOV to operate during design basis events, transient and accident conditions. The MOV has an active safety function in the open position to provide an injection path to the "A" feedwater header, as well as an active safety function in the closed position for outboard containment isolation. The team reviewed calculations including required thrust, degraded voltage, maximum differential pressure, and valve weak link analysis to verify that the valve would operate in both directions as required. Additionally, the team reviewed P&IDs, IST results, the MOV DBDs, and HPCI system health reports to assess the capability of the valves to operate during DBE. RIS 2001-15, "Performance of DC-Powered Motor-Operated Valve Actuators," was reviewed to ensure it was properly evaluated and implemented as appropriate. Documents reviewed are listed in the attachment.

b. Findings

No findings of significance were identified.

.2.1.15 HPCI Minimum Flow Valve

a. Inspection Scope

The team reviewed the ability of the MOV to operate during transient and accident conditions. The team determined that the MOV has an active safety function in the closed position to ensure maximum HPCI injection flow is directed to the reactor vessel when pump discharge flow has reached a predetermined setpoint. The team reviewed calculations including required thrust, degraded voltage, maximum differential pressure, and valve weak link analysis to ensure the valve would operate as required. Additionally, the team reviewed P&IDs, IST results, the MOV DBD, and HPCI system health reports to assess the capability of the valves to operate during DBE. RIS 2001-15, "Performance of DC-Powered Motor-Operated Valve Actuators," was reviewed to ensure it was properly evaluated and implemented as appropriate. Documents reviewed are listed in the attachment.

b. Findings

No findings of significance were identified.

2.1.16 Emergency Service Water Return to Discharge Pond Isolation Valve

a. Inspection Scope

The team reviewed the ability of the manual valve to operate during design basis events, transient and accident conditions. The team determined the valve has an active safety function in the closed position to allow closed loop operation of the emergency heat sink and therefore, verified the valve could be placed in the closed position during DBEs. Additionally, the team reviewed maintenance packages and IST results to determine the material condition of the valve. Documents reviewed are listed in the attachment.

b. Findings

No findings of significance were identified.

.2.2 Review of Low Margin Operator Actions (4 Samples)

2.2.1 Bypass of MSIV Isolation for Low Reactor Vessel Water Level during Anticipated Transient without Scram (ATWS)

a. Inspection Scope

The team selected the manual operator actions to bypass the low reactor vessel water level isolation logic for the main steam isolation valves (MSIVs) during an ATWS event prior to its actuation. Specifically, the actions reviewed were to install jumpers in main control room relay cabinets, as directed by an Emergency Operating Procedure (EOP) implementing trip procedure. This review included ATWS analysis, design basis documents for accidents, transients, and events, and EOP trip procedures and bases documents. The team evaluated the available process margins, based on torus temperature and pressure, and reactor power and water levels. In addition, the team also reviewed the isolation logic circuitry for the MSIVs to verify the technical adequacy of the bypass instructions.

The team observed a simulated ATWS event in the PB simulator to evaluate the time available and the time required to perform the manual actions. The team interviewed licensed and non-licensed operators, simulator instructors, and reviewed operator training, to evaluate the time required to perform the manual actions. In addition, the team performed field and main control room walkdowns, to independently assess the task complexity. Finally, the team compared the available time against the time required to perform the manual actions to verify whether the implemented operator actions would be consistent with design, licensing, and PRA assumptions. Documents reviewed are listed in the attachment.

b. Findings

No findings of significance were identified.

2.2.2 Energize Vital Buses from Conowingo Dam during a Station Blackout

a. Inspection Scope

The team selected the manual operator actions to energize the PB 4-kV vital buses from the Conowingo dam during an SBO event. The actions reviewed included:

- Align a dedicated generator to the Conowingo-PB tie-line (Conowingo Dam operators)
- Divorce off-site loads from the Conowingo-PB tie-line
- Inhibit large 4-kV loads from automatically starting
- Align the SBO bus to the 4-kV vital buses
- Manually sequence loads onto the vital buses
- Control bus loads to avoid over-loading the tie-line

The team reviewed normal, emergency, and special event procedures and bases documents, including Conowingo operating procedures, to evaluate the time required to perform the actions. The team reviewed PB's SBO analysis, DBDs, design calculations, and 4-kV protective relay setpoints to evaluate the available operating limits and design margins.

The team performed walkdowns at the Conowingo dam and PB to identify operator task complexity, and verify procedure adequacy. In addition, the team interviewed Conowingo and PB operators to evaluate the time required to perform the manual actions. The team compared the available time against the time required to perform the manual actions to verify whether the implemented operator actions would be consistent with design, licensing, and PRA assumptions. Documents reviewed are listed in the attachment.

b. Findings

No findings of significance were identified.

2.2.3 Connect Back-up Nitrogen Gas Supply to ADS valves during a LOOP or SBO

a. Inspection Scope

The team selected the manual operator action to connect a back-up nitrogen gas supply to the automatic depressurization system (ADS) valves during a loss of off-site power (LOOP) or SBO event. Specifically, the actions reviewed were to align the ADS valve pneumatic supply header to a back-up nitrogen source from either pressurized nitrogen gas bottles, or from a liquid nitrogen storage tank. The team reviewed normal, abnormal, and emergency operating procedures (EOPs) to evaluate the time required to perform the manual actions. In addition, the team reviewed the PB PRA notebook and human reliability analysis (HRA) for emergency depressurization dependance on ADS valves.

The team interviewed licensed and non-licensed operators, system engineers, and performed field walkdowns with plant operators to assess expected operator response times, task complexity, and personnel safety aspects. The team compared the available time against the time required to perform the manual actions to verify whether the actions could reasonably be performed in the available time, and were consistent with design, licensing, and PRA assumptions. Documents reviewed are listed in the attachment.

b. Findings

No findings of significance were identified.

2.2.4 Operator Response for Loss of Normal Service Water

a. Inspection Scope

The team selected the manual operator actions for a loss of normal service water (NSW). Specifically, the actions reviewed were to mitigate the affects of a loss of cooling to the primary containment and other risk significant components. These actions included:

- Rapid reactor power reduction
- Rapid reactor shutdown
- Primary containment temperature control
- Reactor vessel water level control
- Alternate control rod drive pump cooling from the reactor building closed loop cooling water system (RBCCW)
- Initial actions from multiple off-normal and operational transient operating procedures (e.g., loss of turbine building component cooling water, RBCCW, instrument air, and reactor building chilled water)

The team reviewed the electrical design for the NSW pump motor circuits to assess the likelihood of common cause failures. In addition, the team evaluated the plant heat loads to assess the impact from a partial loss and a total loss of NSW. The projected heat-up rates for selected risk significant components and structures, as well as expected operator response times were assessed to verify whether the actions specified by the associated operating procedures could reasonably be performed in the available time. In addition, the team reviewed the PB PRA notebook for NSW, and the HRA.

The team observed a simulated loss of NSW in the PB simulator, interviewed licensed operators, and reviewed normal, abnormal, and EOPs to evaluate the time required to perform the manual actions. The team compared the available time against the time required to perform the manual actions to verify whether the implemented operator actions would be consistent with design, licensing, and PRA assumptions. Documents reviewed are listed in the attachment.

b. Findings

No findings of significance were identified.

.3 Review of Industry Operating Experience (5 Samples)

a. Inspection Scope

The team reviewed selected operating experience issues that had occurred at nuclear facilities for applicability at PBAPS. The team performed an independent applicability review, and issues that appeared to be applicable to PBAPS were selected for a detailed review. Documents reviewed for these issues are listed in the attachment. The issues that received a detailed review by the team included:

.3.1 NRC Information Notice (IN) 2003-18, General Electric (GE) Single Block Module (SBM) Control Switches with Defective Cam

The team reviewed the licensee's review of IN 2003-18 that identified long-term operating experience (OPEX) regarding control switches and relays incorporating a polycarbonate plastic material (GE material known as Lexan7) in GE Magne-Blast circuit breakers. The material, which is part of the SBM cam follower, could crack causing the circuit breaker not to close. The team reviewed assignment report (AR) 00179572 to evaluate the issue's applicability to PBAPS and the corrective actions implemented as a result of the licensee's review.

.3.2 GE SC05-05 AQM Breaker Bushings Not Tested To American National Standards Institute (ANSI) Standards

The team reviewed the licensee's review of a condition in which GE Safety Information Communication SC05-05 identified that certain required design testing, in accordance with ANSI C37, was not performed prior to implementation of design changes on seven GE Magne-Blast breaker bushings purchased (purchase order number 158497 387839) by PBAPS. The Safety Information Communication recommended that licensees determine what GE Magna-Blast breakers would be affected at their sites and perform ANSI C37 testing on the bushings to qualify them for use in safety-related applications. PBAPS had not installed the breakers pending the required testing. The team reviewed AR 00179572 to evaluate the issue's applicability to PBAPS and the corrective actions implemented as a result of the licensee's review.

.3.3 General Electric Services Information Letter (SIL) 448R2 GE AK/AKR Breaker Lube OPEX

The team reviewed the licensee's review of a condition in which GE SIL 448R2 identified the potential that the use of non GE recommended lubricants could cause degradation of GE Type AK/AKR circuit breaker performance. GE SIL 448R2 updated the maintenance cycle recommendations and lubrication information. The team reviewed AR 00266766 to evaluate the issue's applicability to PBAPS and the corrective actions implemented as a result of the licensee's review.

.3.4 IE Bulletin 80-25, Operating Problems with Target Rock Safety-Relief Valves at BWRs

The team reviewed the potential consequences of overpressurizing the instrument lines to the safety relief valves (SRVs). Peach Bottom performed a modification to provide back-up pneumatic supply using compressed gas. The team determined that appropriate pressure relief devices were installed in the supply piping to the SRVs. The team also reviewed compressed gas bottle sizing calculations, and check valve leakage test acceptance criteria to ensure they met design basis assumptions.

.3.5 Limitorque Motor Degradation Issues - Technical Update 05-05 and Supplement 1.

Limitorque TU 05-05 and Supplement 1 contain inspection procedures for specific models of Peerless D.C. motors with Limitorque actuators. Industry experience has identified susceptibility of these motor models to brush box corrosion. The inspection team reviewed the applicability of the Technical Update and Supplement 1 through interviews with the MOV Engineer, condition reports on the issue, and vendor documentation from Peerless and Limitorque. The vendor recommendation was to conduct motor brush box inspection at the next convenient time (e.g., next rescheduled refueling outage). Nine MOVs at Peach Bottom were identified as potentially susceptible. The team reviewed the PB action plan which included replacing one of the identified MOV motors with a motor that is currently in-warehouse at Peach Bottom, and use the removed motor for inspection training and experience. Additionally, the plan actions include creating an Exelon procedure to perform the inspections, and applying the inspection procedure to the remainder of the MOV motors during next refueling outage.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA2 Problem Identification and Resolution

a. Inspection Scope

The team reviewed a sample of problems that were identified by the licensee and entered into the corrective action program. The team reviewed these issues to verify an appropriate threshold for identifying issues and to evaluate the effectiveness of corrective actions related to design or qualification issues. In addition, action requests written on issues identified during the inspection were reviewed to verify adequate problem identification and incorporation of the problem into the corrective action system. The specific corrective action documents that were sampled and reviewed by the team are listed in the attachment to this report.

b. Findings

No findings of significance were identified.

4AO6 Meetings, Including Exit

On April 21, 2006, the team presented the inspection results to Mr. J. Grimes, Plant Manager – Peach Bottom Atomic Power Station, and other members of Exelon's staff. The team verified that no proprietary information is documented in the report.

ATTACHMENT

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

J. Grimes, Plant Manager
D. Lewis, Director – Operations
C. Behrend, Director – Engineering
P. Rau, Senior Manager – Design Engineering
J. Jordan, Manager – Mechanical Design Engineering
J. Marion, Engineer – Design Engineering
J. Armstrong, Manager - Regulatory Assurance
D. Foss, Senior Regulatory Engineer
A. Knoll, Engineer – Risk Management
C. Anderson, Systems Engineer
J. Coylev, Design Engineer
A. Franchitti, Design Engineer
M. Hochreiter, Systems Engineer
K. Kaufman, Systems Engineer
M. Ariano, SRO - Shift Supervisor
R. Artus, Licensed Operator Simulator Instructor
J. Felice, Licensed Operator Simulator Instructor
J. Fetterman, Conowingo Shift Manager
T. Franchitti, Design Engineer - Electrical
J. Goodbred Sr., SRO - Shift Supervisor
J. Lichtienwalner, System Engineer - Instrument Gas
J. Lyter, Operations Support Engineer - EOP Coordinator
R. Moonitz, SRO - Shift Supervisor
C. Rogers, System Engineer - 4kV
T. Veale, Design Engineer - Electrical

NRC Personnel

F. Bower, Senior Resident Inspector
D. Schroeder, Resident Inspector
J. Caruso, Senior Operations Engineer, Region I DRS
C. Cahill, Senior Reactor Analyst
W. Cook, Senior Reactor Analyst

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None.

Opened and Closed

05000277, 278/2006009-01	NCV	Non-Conservative HPCI and RCIC Pumps Test Acceptance Criteria

LIST OF DOCUMENTS REVIEWED

Calculations

092B-016-PBN, MPR Calc for Evaluation of Stroke Time and Actuator Capability for DC Motor-Operated Valves at Peach Bottom Nuclear, Rev. 0
18247-001, Maximum Torus Temperatures Allowed (Assuming No Torus Backpressure) for the ECCS Systems, Rev. 7
18247-035, CST Minimum Water Level to Prevent Vortex Formation, Rev. 1
E-5290, Cable Sizing Calculation, Marine Section of 35 KV TIE Between Conowingo Dam and PBAPS Units 2 and 3, Rev. 0
EDG Fuel Oil Tank Low Level Alarm Setpoint Calculation, Rev. 0
M1-5-83 (SR-126), MO 23-25 Valve Weak Link Analysis, Rev 0
ME-63, Manual Calc to verify bottled N2 Quantities Sufficient for Damper Operator Actuator with suitable spare supply, Rev 2
ME-21, Nitrogen Capacity for ADS SRVs, Rev. 0
ME-213, ADS Accumulator Sizing for Modification number 1660, Rev. 0
ME-238, MOD 1950A, Heat Gain by Pipe from CAD Room to Containment, Rev. 9
ME-293, Calculate the Pressure Drop for HPCI at a Flow Rate of 5000 gpm, Rev. 0
ME-299, Calculate the Pressure Drop in PSI Between the RCIC Pump Discharge and the RPV for a Flow Rate of 600 gpm, Rev. 0
ME-534, WS 13 (U2), Determination of the Vortex Limits for LPCI, HPCI, CS and RCIC, Rev. 0
ME-537, WS 15 (U2), NPSH for HPCI and RCIC, Rev. 1
ME-693, WS 13 (U3), Determination of the Vortex Limits for LPCI, HPCI, CS and RCIC, Rev. 0
ME-695, WS 15 (U3), NPSH for HPCI and RCIC, Rev. 1
MIDAS Calculation Results for MO-2-23-19, Rev. 0
MIDAS Calculation Results for MO-0-33-0498, Rev. 0
MIDAS Calculation Results for MO-2-13-132, Rev. 2
MIDAS Calculation Results for MO-2-23-25, Rev. 4
PE-0011, Evaluation of Electrical Penetration Circuit Protection, Rev. 13
PE-0017, 125/250V DC Class 1E Battery Analysis & Distribution System Volt. Analysis, Rev. 11
PE-0032, Basis for Undervoltage Relay Settings Associated With 125/250 V Batteries, Rev. 5
PE-0088, Medium Voltage Switchgear Protective Devices Set Points, Rev. 7
PE-0121, Voltage Regulation Study, Rev. 6

PE-0123, Diesel Generator Load Profiles & System Voltage Regulation
PE-0140, Class 1E 125/250VDC System “What If” Cases, Rev. 9
PE-0154, Station Blackout Voltage Regulation Conowingo Source, Rev. 5
PE-0166, Emergency Diesel Generator Loading for cases Defined by UFSAR, Rev. 7
PE-0170, SBO Short Circuit Grounding XFMR Neutral Resister, Rev. 0
PE-0181, Perform 125VDC Voltage Analysis, Rev. 0
PE-0190, Modify SBO Undervoltage Trip Function, Rev. 0
PE-0191, 125/25VDC System Fault Current Calculation, Rev. 2
PE-0192, AC System fault Calculation, Rev. 1
PE-0194, Coordination for 4160 V Class 1E Switchgear, Rev. 3
PE-0196, 125/250VDC System Coordination, Rev. 2
PE-0204, Cable Sizing - 5 & 15KV PBAPS Units 2 & 3, Rev. 4
PE-0225, Degraded Grid Relays Setpoints, Rev. 0
PE-0245, Modify SBO Undervoltage Trip Function, Rev. 0
PI-00034, Level Uncertainty Calculation for LS-3-23-074, Rev. 1
PM-0138, Determine the Dedicated CST Volume for HPCI and RCIC Suction, Rev. 1
PM-046, Diesel Generator Fuel Oil Storage Tank Volume Determinations, Rev. 1
PM-047, Diesel Gen. Fuel Oil Consumption for 7-Days Continuous Operation at Full Load, Rev. 0
PM-0620, Determine Upstream and Downstream Pressures for MOVs within scope GL 89-10 and Summarize the Maximum Design Basis Differential Pressure, Rev. 3
PM-0957, Calculated HPCI/RCIC Room Temperature Profiles for 95 Degree F River Temperature (Small Break LOCA & SBO), Rev. 1
PM-1042, Determination of Diesel Generator Operability with Crossflow, Rev. 2
PM-123, Diesel Gen. Fuel Oil Consumption for 7-Days Operation with LOCA Time Dependent Loads, Rev. 3
PM-440, Minimum Pressure for Short Term Nitrogen Supply for ADS SRVs, Rev. 0
PM-469, Verification of 7-day Operability with 800 CC/min leakage from Emergency and Switchgear and Battery Room Pneumatic Supply, Rev. 1
PM-472, SBO calc to determine if Battery, Emergency Switchgear and other rooms should be considered a dominant area of concern during an SBO, Rev. 1
PM-498, EDG Building Cooling Load and Ventilation Requirements, Rev. 3
PM-502, Determine the Number of Tubes Which Can Be Plugged in the PBAPS Unit 3 HPCI Lube Oil Cooler, Rev. 0
PM-666, Evaluation of the Emergency Ventilation System Serving the Emerg. Switchgear and Battery Rooms Resulting from the Replacement of Safety-Related Battery Chargers, Rev. 2
PM-678, Performance Curves for EDG Heat Exchangers to Support Generic Letter 89-13 Monitoring Programs, Rev. 0
PM-727, Emergency Switchgear & Battery Room Maximum Temperature with Loss of Instrument Air, Rev. 1
PM-760, Power Rerate Evaluation-SBO Analysis, Rev. 1
PM-787, HVAC Analysis for Power Re-rate, Rev. 0
PM-802, Determination of EDG Room Maximum Temperature Following Failure of a Single Steam Heater While the EDG is Running, Rev. 0
PM-824, RCIC Lube Oil, Rev. 1
PM-827, Heating and Cooling Loads, Rev. 5

PM-859, Generic Letter 89-10 (96-05) MOVs Elevated Motor Temperature Source Document, Rev. 3
RCIC Lube Oil Temperature Calc During SBO Conditions, 4/06
VU00020, Orig. Bechtel Corp. —102, MO 33-0498 Weak Link Analysis, Rev. 0,
VU00182, Orig. Bechtel P.O. M-102-BC, MO 23-19 Valve Weak Link Analysis, Rev. 1

Functional, Surveillance and Modification Acceptance Testing

IC-11-00001, Calibration of Plant Instrumentation and Equipment, Rev. 3
IC-11-00361, Calibration of RCIC Turbine Governor Control System for Peach Bottom Atomic Power Station, Rev. 3
IC-11-00388, Calibration of HPCI Turbine Generator Control System for Peach Bottom Atomic Power Station, Rev. 6
IC-C-11-00010, Calibration of Pressure and Vacuum Switches, Rev. 1
M-052-002, Diesel Engine Maintenance, Rev. 26
M-055-010, Indoor Dry Type Load Transformer Inspection and Maint., Rev. 4, Performed 09/28/03
M-055-011, Cal. of 600 Volt Class Draw out Switchgear ITE Type OD-3 and OD-4, Rev. 2
M-057-014, Cybrex 125 Volt Battery Charger Maintenance, Rev. 8, Performed 10/22/04
MAT 1950A, Backup Nitrogen Supply to SRVs, Performed 10/05/89
MAT 5396B, Station Blackout (SBO) Functional Testing, Rev. 0, Performed 9/9/94
MAT 5396C, Station Blackout (SBO) Load Testing, Rev.0, Performed 9/10/94
MAT 5396D, SBO Event Simulation, Rev. 0, Performed 10/14/94 & 10/19/94
M-C-700-220, 480 Volt Load Center Inspection and Cleaning, Rev. 6, Performed 9/28/03
M-C-700-230, 480 Volt ABB/ITE Load Center Breaker Maint., Rev. 11, Performed 7/16/03
M-C-750-003, RCIC Turbine Oil Cooler Maintenance, Rev. 2
RT-M-40W-625-2, Emergency Switchgear and Battery Room Fan Damper Backup N2 Leak Check, Rev. 7, Performed 05/29/03
RT-O-40W-940-2, Emerg Switchgear and Batt Rm Supply Vent Funct Test, Rev. 1, Performed 05/18/98
RT-O-40W-945-2, Emerg Switchgear and Battery Rm Exhaust Vent Funct Test, Rev.1, Performed 05/18/98
RT-O-40W-950-2, Emergency Battery Room Exhaust Vent Functional Test, Rev. 1, Performed 05/18/98
RT-O-505-2, Emergency Operating Procedure Tool Inventory, Rev. 22
RT-O-57F-910-2, Cathodic Protection System Inspection, Rev. 7, Performed 1/11/05
SI2F-13-83-XXCQ, Calibration Check of RCIC Steam Line High Flow Instrument DPIS , Rev. 20, Performed 2/13/83
SI2F-13-84-XXCQ, Calibration Check of RCIC Steam Line High Flow Instrument DPIS, Rev. 18, Performed 2/13/84
SI2M-13-GOV-XXC2, Calibration Check of RCIC Turbine Governor (EG-M, RGSC), Rev. 3
SI2M-23-GOV-XXC2, Calibration Check of HPCI Turbine Governor (EG-M, RGSC), Rev. 5
SI2P-13-72-ABCE, Calibration Check of RCIC Pump and Turbine Pressure Switches PS 2-13-67-1 and PS 2-13-72A/B, Rev. 5
SI2P-13-87-A1CQ, Calibration Check of RCIC Low Steam Pressure Instruments PS 2-13-87A, Rev. 11

SI2P-13-87-B1CQ, Calibration Check of RCIC Low Steam Pressure Instruments PS 2-13-87B, Rev. 11
SI2P-23-97-ABC2, Calibration Check of HPCI Pump and Turbine Pressure Switches PS 2-23-97A and B, PS 2-23-84 and PS 2-23-84-1, Rev. 3
SI2T-MIS-8547-A1CQ, Calibration/Functional Check of Channel A Group 1, 4 and 5 of PCIS Logic for TIS-80547A, Rev. 11
SI2T-MIS-8547-B1CQ, Calibration/Functional Check of Channel B Group 1, 4 and 5 of PCIS Logic for TIS-80547B, Rev. 11
SI2T-MIS-8547-C1CQ, Calibration/Functional Check of Channel B Group 1, 4 and 5 of PCIS Logic for TIS-80547C, Rev. 12
SI2T-MIS-8547-D1CQ, Calibration/Functional Check of Channel B Group 1, 4 and 5 of PCIS Logic for TIS-80547D, Rev. 10
ST-C-095-883-2, Diesel Fuel Oil Storage Tank Sampling and Off-Site Analysis in Response to Unsatisfactory Receipt Analysis, Rev. 2, Performed 1/10/06
ST-C-095-884-2, Sampling Diesel Fuel Prior to Delivery to On-Site Storage Tanks, Rev. 15, Performed 1/6/06 & 2/6/06
ST-C-095-885-2, Diesel Generator Main Fuel Tank Sampling and Analysis, Rev. 11, Performed 1/13/06, & 2/10/06
ST-I-013-100-2, RCIC Logic System Functional Test, Rev. 13
ST-I-023-100-3, HPCI Logic System Functional Test, Rev. 13
ST-M-16B-250-2, Instrument Gas System Functional & Inservice Test, Rev. 9
ST-M-57B-733-3, Unit 3C 125/250 VDC Modified Battery Discharge Perf. Test, Rev. 8, Performed 10/06/05
ST-M-57B-743-3, Unit 3C 125/250 VDC Battery Service Test, Rev. 9, Performed 10/15/03
ST-M-57B-753-3, 3CD001 Battery Yearly Inspection, Rev. 2, Performed 03/23/06
ST-M-57B-763-3, Battery Charger 3CD003-1 and 3-2 Capability Test, Rev. 3, Performed 12/3/04
ST-O-013-301-2, RCIC Pump, Valve, Flow and Unit Cooler Functional and IST, Rev. 29
ST-O-013-301-3, RCIC Pump, Valve, Flow and Unit Cooler Functional and IST, Rev. 26, Performed 7/29/05, 2/5/06, & 1/31/06
ST-O-013-301-3, RCIC Pump, Valve, Flow and Unit Cooler Functional and IST, Rev. 27
ST-O-052-203-2, E3 Diesel Generator Slow Start and Full Load Test, Rev. 18, Performed 2/14/06
ST-O-052-213-2, E3 Diesel Generator Slow Start Full Load and IST Test, Rev. 20, Performed 12/21/05
ST-O-098-00N-2, Common Daily Surveillance Log, Rev. 20, Performed 6/27/04
ST-O-098-00N-2, Common Daily Surveillance Log, Rev. 22, Performed 7/4/04
ST-O-40W-975-2, Battery Room Ventilation Air Flow Detector Functional Test, Rev. 3, Performed 05/28/03
ST-O-51H-200-2, Station Blackout Line Operability Verification, Rev. 9, Performed 02/09/06
ST-O-51H-200-2, Station Blackout Line Operability Verification, Rev. 9
ST-O-51H-900-2, Station Blackout Line Loading Verification, Rev. 0, Performed 6/30/05
ST-O-51H-900-2, Station Blackout Line Loading Verification, Rev. 9
ST-O-52D-201-2, DG Fuel Oil Transfer Pump 0AP060 and Suction Check Valve CHK-0-52D-10099A Inservice Test, Rev. 15, Performed 1/6/06
ST-O-52D-951-2, E1 Diesel Generator Main Fuel Oil Storage Tank Level, Rev. 6

ST-O-57B-710-3, 3AD001 & 3CD001 Station Battery Qtrly Inspection, Rev. 14, 0 Performed 2/17/06
ST-O-57B-750-3, 125/250 VDC Station Battery Weekly Inspection, Rev. 28, Performed 02/11/06

Corrective Action Documents

AR 00111936
AR 00163830
AR 00175881
AR 00177605
AR 00185299
AR 00209837
AR 00216031
AR 00241555
AR 00255722
AR 00266766
AR 00278233
AR 00287815
AR 00303413
AR 00306947
AR 00307110
AR 00308116
AR 00327119
AR 00336393
AR 00353419
AR 00355420
AR 00364389
AR 00379354
AR 00382127
AR 00387523
AR 00390496
AR 00427860
AR 00434487
AR 00445209
AR 00451630
AR 00457600
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AR 00473192*
AR 00473298*
AR 00473337*
AR 00476280*
AR 00477724*
AR 00478003*
AR 00478007*
AR 00478411*
AR 00479574*
AR 00479724*
AR 00479739*
AR 00479782*
AR 00479831*
AR 00479833*
AR 00480288*
AR 00480326*
AR 00480840*
AR 00481326*
AR A0137845
AR A0718988
AR A0744164
AR A0928162
AR A0939920
AR A0952032
AR A1043367
AR A1114525
AR A1114686
AR A1114704
AR A1114906
AR A1115539
AR A1116142
AR A1122382
AR A1128215
AR A1130030
AR A1130981
AR A1131493
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AR A1253851
AR A1303114
AR A1307099
AR A1310212
AR A1311451
AR A1331079
AR A1334149
AR A1353633
AR A1354490
AR A1356943
AR A1375906
AR A1384476
AR A1414992
AR A1415752
AR A1429307
AR A1431225
AR A1436460
AR A1436891
AR A1438198
AR A1441045
AR A1441588
AR A1444185
AR A1471860
AR A1472468
AR A1491001
AR A1491003
AR A1495213
AR A1496936
AR A1512798
AR A1522068
AR A1524782
AR A1529423
AR A1537103
AR A1537695
AR A1544136
AR A1547496
AR A1548601
AR A1549118
AR A1550223
AR A1552731
AR A1554472

* CR written as a result of inspection effort

Design Baseline Documents

P-S-01A, 125/250 VDC and 24/48 VDC System, PBAPS Units 2 and 3, Rev. 14
P-S-03, High Pressure Coolant Injection System, Rev. 20
P-S-05, 4 KV System, PBAPS Units 2 and 3, Rev. 11
P-S-07, Diesel Generator and Auxiliary Systems, Rev. 14
P-S-08A, Emergency Switchgear and Battery Rooms HVAC System, Peach Bottom Atomic Power Station, Units 2 and 3, Rev. 7
P-S-31, Automatic Depressurization System, Rev. 4
P-S-39, Reactor Core Isolation Cooling System, Rev. 14
P-T-12, Design Basis Accidents, Transients, and Events, Rev. 5
P-T-13, Station Blackout, Rev. 7
P-T-15, Motor Operated Valves, Motor Operated Valves, Peach Bottom Atomic Power Station, Units 2 and 3, Rev. 4

Drawings

2-23-4, M.W. Kellogg Co. – Power Piping Dwgs. FW & HPCI, Rev. 1
2-23-5, M.W. Kellogg Co. – Power Piping Dwgs. FW & HPCI, Rev. 11
2-23-8, M.W. Kellogg Co. – Power Piping Dwgs. FW & HPCI, Rev. 2
2-6-17, M.W. Kellogg Co. – Power Piping Dwgs. FW & HPCI, Rev. 4
2-6-19, M.W. Kellogg Co. – Power Piping Dwgs. FW & HPCI, Rev. 5
3-13-1, M.W. Kellogg Co. – Power Piping Dwgs. FW & RCIC, Rev. 6
3-13-13, M.W. Kellogg Co. – Power Piping Dwgs. FW & RCIC, Rev. F-2
3-13-3, M.W. Kellogg Co. – Power Piping Dwgs. FW & RCIC, Rev. 2
3-13-8, M.W. Kellogg Co. – Power Piping Dwgs. FW & RCIC, Rev. F-4
3-6-1, M.W. Kellogg Co. – Power Piping Dwgs. FW & RCIC, Rev. 2
3-6-4, M.W. Kellogg Co. – Power Piping Dwgs. FW & RCIC, Rev. 6
E-1, Sht 3, Station Electrical Single Line Diagram, Rev. 7
E-1, Sht 2, Station Electrical Single Line Diagram, Rev. 10
E-1, Sht 1, Station Electrical Single Line Diagram, Rev.. 42
E-1, Sht 4, Station Electrical Single Line Diagram, Rev. 2
E-12, Single Line Meter & Relay Diagram Standby Diesel Gens. And 4160 Volt Emerg. System Unit 3, Rev. 11
E-1619, Single Line Meter & Relay Diagram E124-D-A, E234-D-A, E324-D-A and E434-D-A Diesel MCC 440 V, Rev. 21
E-1615, Single Line Meter & Relay Diagram E124 & E224 Emerg. L.C., E124-R-G and E224-R-B Reactor MCC & E124-T-B & E224-T-B Turbine MCC, 440 V Unit 2, Rev. 72
E-1717, Single Line Meter & Relay Diagram E334 & E434 Emerg. L.C. and E334-R-B, E434-R-B E334-R-D, and E434-R-D Reactor MCC 440V Unit 3, Rev. 56
E-1617, Single Line Meter & Relay Diagram E324 & E424 Emerg. L.C., E324-R-B, E424-W-A, E-324-R-D & E424-K-D, Reactor MCC 440V Unit 2, Rev. 58
E-1621, Single Line Meter & Relay Diagram E324-T-B & 424-T-B Turbine MCC& E124-P-A & E224-P-A, Pump Structure MCC, E124-O-A, E324-O-A & E424-O-A Off Gas Stack MCC 440 V, Rev. 60
E-183, Electrical Schematic Diagram, Core Spray Pump 4.16KV Circuit Breaker, Rev. 20
E-184, Electrical Schematic Diagram, RHR Pump 4.16KV Circuit Breaker, Rev. 27
E-213, TBCCW & RBCCW Electrical Schematics, Rev. 15
E-26, Sht 3, Single Line Diagram 125/250 VDC System Unit 2, Rev. 4

E-26, Sht 2, Single Line Diagram 125/250 VDC System Unit 2, Rev. 59
E-26, Sht 1, Single Line Diagram 125/250 VDC System Unit 2, Rev. 79
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LIST OF ACRONYMS USED

ADS	Automatic Depressurization System
AR	Assignment Report
ASME	American Society of Mechanical Engineers
ATWS	Anticipated Transient without a Scram
CDBI	[NRC] Component Design Bases Inspection
CFR	Code of Federal Regulations
DBD	Design Baseline Document
DC	Direct Current Volts
DP	Differential Pressure
EDG	Emergency Diesel Generator
EOP	Emergency Operating Procedures
GE	General Electric
gpm	Gallons per Minute
HPCI	High Pressure Coolant Injection
HRA	Human Reliability Analysis
IN	[NRC] Information Notice
IST	In-Service Test
LOCA	Loss of Coolant Accident
LOOP	Loss of Off-site Power
MOV	Motor Operated Valve
MSIV	Main Steam Isolation Valve
NCV	[NRC] Non-cited Violation
NPSH	Net Positive Suction Head
NRC	Nuclear Regulatory Commission
NSW	Normal Service Water
P&ID	Piping and Instrument Diagram
PB	Peach Bottom
PBAPS	Peach Bottom Atomic Power Station
PI&R	Problem Identification and Resolution
PRA	Probabilistic Risk Analysis
RAW	Risk Achievement Worth
RBCCW	Reactor Building Closed Cooling Water
RCIC	Reactor Core Isolation Cooling

RIS	Regulatory Issues Summary
RRW	Risk Reduction Worth
SBO	Station Blackout
SDP	Significance Determination Process
SER	Safety Evaluation Report
SIL	Services Information Letter
SRA	Senior Reactor Analyst
SRV	Safety Relief Valves

TRM	Technical Requirements Manual
TS	Technical Specification
UFSAR	Undated Final Safety Analysis Report
Vac	Volts Alternating Current
Vdc	Volts Direct Current
WO	Work Order