



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION I
2100 RENAISSANCE BLVD., SUITE 100
KING OF PRUSSIA, PA 19406-2713

August 3, 2015

Mr. Bryan Hanson
Senior Vice President, Exelon Generation Company, LLC
President and Chief Nuclear Officer, Exelon Nuclear
4300 Winfield Road
Warrenville, IL 60555

**SUBJECT: PEACH BOTTOM ATOMIC POWER STATION – INTEGRATED INSPECTION
REPORT 05000277/2015002 AND 05000278/2015002**

Dear Mr. Hanson:

On June 30, 2015, the U.S. Nuclear Regulatory Commission (NRC) completed an integrated inspection at Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3. The enclosed inspection report documents the inspection results, which were discussed on July 10, 2015, with Mr. Pat Navin, Peach Bottom Plant Manager, and other members of your staff.

NRC Inspectors 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.

No NRC-identified or self-revealing findings were identified during this inspection.

In accordance with Title 10 of the *Code of Federal Regulations* (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's Public Document Room or from the Publicly Available Records component of the NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC website at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Fred L. Bower III, Chief
Reactor Projects Branch 4
Division of Reactor Projects

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

Enclosure:

Inspection Report 05000277/2015002

and 05000278/2015002

w/Attachment: Supplementary Information

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Document Name: G:\DRP\BRANCH4\Inspection Reports\Peach Bottom\2015\2Q\PB IR 2015-002 Final.docx
 ADAMS Accession No. **ML 15215A527**

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U. S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket Nos. 50-277 and 50-278

License Nos. DPR-44 and DPR-56

Report No. 05000277/2015002 and 05000278/2015002

Licensee: Exelon Generation Company, LLC

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

Location: Delta, Pennsylvania

Dates: April 1, 2015 through June 30, 2015

Inspectors: B. Smith, (Acting) Senior Resident Inspector
J. Brand, Reactor Engineer
B. Lin, Project Engineer
D. Orr, Senior Reactor Inspector

Approved by: Fred L. Bower III, Chief
Reactor Projects Branch 4
Division of Reactor Projects

Enclosure

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SUMMARY

IR 05000277/2015002 and 05000278/2015002, 04/01/2015 – 06/30/2015; Peach Bottom Atomic Power Station (PBAPS) Units 2 and 3; Integrated Inspection Report.

This report covered a three-month period of inspection by resident inspectors and announced baseline inspections performed by regional inspectors. The Nuclear Regulatory Commission's (NRC) program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 5.

Cornerstone: Initiating Events, Mitigating Systems, and Barrier Integrity

No NRC-identified or self-revealing findings were identified during this inspection.

Other Findings

None.

REPORT DETAILS

Summary of Plant Status

Unit 2 began the inspection period at 92 percent rated thermal power (RTP) (the pre-extended power uprate 104 percent power limit). On April 11, 2015, Unit 2 raised power to 96 percent RTP after NRC approval to continue power ascension to the next extended power uprate (EPU) hold point. On May 15, 2015, Unit 2 raised power to the full 100 percent RTP EPU limit after NRC approval to continue power ascension. Following the power ascension, Unit 2 down powered from 100 percent to 53 percent for a rod sequence exchange. The unit was returned to 100 percent RTP on May 17, 2015. On June 26, 2015, the Unit 2 'C' condensate pump tripped from an actuated neutral over-current relay resulting in a reactor recirculating pump runback and down power to 58 percent RTP. The neutral over-current relay was replaced and the unit returned to 100 percent RTP on June 28, 2015, and remained at 100 percent through the end of the inspection period.

Unit 3 began the inspection period at 100 percent RTP. On April 25, 2015, Unit 3 down powered from 100 percent to 85 percent for a rod sequence exchange. The unit was returned to 100 percent RTP later that day. On May 29, 2015, Unit 3 down powered from 100 percent to 60 percent for a rod sequence exchange. The unit was returned to 100 percent RTP on May 30, 2015. Unit 3 remained at 100 percent power until the end of the inspection period, except for brief periods to support planned testing and control rod pattern adjustments.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01 – 2 samples)

.1 Summer Readiness of Offsite and Alternate Alternating Current (AC Power Systems)

a. Inspection Scope

The inspectors performed a review of plant features and procedures for the operation and continued availability of the offsite and alternate AC power system to evaluate readiness of the systems prior to seasonal high grid loading. The inspectors reviewed PBAPS' procedures affecting these areas and the communications protocols between the transmission operator and PBAPS. The review focused on changes to the established program and material condition of the offsite and alternate AC power equipment. The inspectors assessed whether PBAPS established and implemented appropriate procedures and protocols to monitor and maintain availability and reliability of both the offsite AC power system and the onsite alternate AC power system. The inspectors evaluated the material condition of the associated equipment by interviewing the responsible program manager, reviewing condition reports (CRs) and open work orders (WOs), and walking down portions of the offsite and AC power systems during the week of May 18, 2015, including the emergency diesel generators (EDGs), station blackout (SBO) switchgear building, and north and south substations. Documents reviewed for each section of this inspection report are listed in the Attachment.

b. Findings

No findings were identified.

.2 Readiness for Impending Adverse Weather Conditions

a. Inspection Scope

The inspectors reviewed PBAPS' preparations for the onset of a thunderstorm on June 23, 2015. The inspectors reviewed the implementation of adverse weather preparation procedures before the onset of and during this adverse weather condition. The inspectors walked down the north substation, inner intake structure, and south substation to ensure system availability. The inspectors verified that operator actions defined in PBAPS' adverse weather procedure maintained the readiness of essential systems. The inspectors discussed readiness and staff availability for adverse weather response with operations and work control personnel.

b. Findings

No findings were identified.

1R04 Equipment Alignment (5 samples)

.1 Partial System Walkdowns (71111.04Q – 4 samples)

a. Inspection Scope

The inspectors performed partial walkdowns of the following systems:

- SBO transformer and switchgear building during the SU2 transformer outage on May 19, 2015
- E-2, E-3, and E-4 EDGs following SU2 transformer post-maintenance testing (PMT) on May 21, 2015
- Unit 3 'A', 'C', and 'D' high pressure service water (HPSW) pumps during Unit 3 'B' HPSW outage on June 1, 2015
- Unit 2 'A', 'B' and 'D' HPSW pumps during Unit 2 'C' HPSW motor inspection on June 22, 2015

The inspectors selected these systems based on their risk-significance relative to the reactor safety cornerstones at the time they were inspected. The inspectors reviewed applicable operating procedures, system diagrams, the Updated Final Safety Analysis Report (UFSAR), technical specifications (TSs), WOs, issue reports (IRs), and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have impacted the system's performance of its intended safety functions. The inspectors also performed field walkdowns of accessible portions of the systems to verify system components and support equipment were aligned correctly and were operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no deficiencies. The inspectors also reviewed whether PBAPS staff had properly identified equipment issues and entered them into the corrective action program (CAP) for resolution with the appropriate significance characterization.

b. Findings

No findings were identified.

.2 Full System Walkdown (71111.04S – 1 sample)

a. Inspection Scope

On June 22 through 26, 2015, the inspectors performed a complete system walkdown of accessible portions of the Unit 2 and Unit 3 standby liquid control (SBLC) systems to verify the existing equipment lineup was correct. The inspectors reviewed operating procedures, surveillance tests (STs), drawings, equipment line-up check-off lists, and the UFSAR to verify the system was aligned to perform its required safety functions. The inspectors also reviewed electrical power availability, component lubrication and equipment cooling, hanger and support functionality, and operability of support systems. The inspectors performed field walkdowns of accessible portions of the system to verify as-built system configuration matched plant documentation, and that system components and support equipment remained operable. The inspectors confirmed that systems and components were aligned correctly, free from interference from temporary services or isolation boundaries, environmentally qualified, and protected from external threats. The inspectors also examined the material condition of the components for degradation and observed operating parameters of equipment to verify that there were no deficiencies. Additionally, the inspectors reviewed a sample of related IRs and WOs to ensure PBAPS appropriately evaluated and resolved any deficiencies.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05Q – 5 samples)

Resident Inspector Quarterly Walkdowns

a. Inspection Scope

The inspectors conducted tours of the areas listed below to assess the material condition and operational status of fire protection features. The inspectors verified that PBAPS controlled combustible materials and ignition sources were controlled in accordance with administrative procedures. The inspectors verified that fire protection and suppression equipment was available for use as specified in the area pre-fire plan, and passive fire barriers were maintained in good material condition. The inspectors also verified that station personnel implemented compensatory measures for out of service (OOS), degraded or inoperable fire protection equipment, as applicable, in accordance with procedures.

- Inner intake structure on June 1, 2015
- E-2 EDG room on June 24, 2015
- E-4 EDG room on June 24, 2015
- Unit 2 high pressure coolant injection (HPCI) room on June 25, 2015
- Standby gas treatment room on June 29, 2015

b. Findings

No findings were identified.

1R07 Heat Sink Performance (71111.07 – 1 sample)

Inspection Scope

The inspectors reviewed the Unit 3 'D' residual heat removal (RHR)/HPSW heat exchanger (HX) during the week of June 26 through June 30, 2015, to determine its readiness and availability to perform its safety functions. The inspectors reviewed the design basis for the component and verified PBAPS' commitments to NRC Generic Letter 89-13, "Service Water System Requirements Affecting Safety-Related Equipment." The inspectors reviewed the results of previous inspections and performance tests of the Unit 3 'D' RHR/HPSW HX. The inspectors discussed the results of the most recent inspection with engineering staff and reviewed pictures of the as-found and as-left conditions. The inspectors verified that PBAPS initiated appropriate corrective actions for identified deficiencies. The inspectors also verified that the number of tubes plugged within the HX did not exceed the maximum amount allowed.

a. Findings

No findings were identified.

1R11 Licensed Operator Regualification Program and Licensed Operator Performance (71111.11Q – 2 samples)

.1 Quarterly Review of Licensed Operator Regualification Testing and Training

a. Inspection Scope

The inspectors observed licensed operator simulator training on April 20, 2015, as part of an emergency preparedness (EP) drill. The inspectors evaluated operator performance during the simulated event and verified completion of risk significant operator actions, including the use of abnormal and emergency operating procedures. The inspectors assessed the clarity and effectiveness of communications, implementation of actions in response to alarms and degrading plant conditions, and the oversight and direction provided by the control room supervisor. The inspectors verified the accuracy and timeliness of the emergency classifications made by the shift manager and the TS action statements entered by the shift technical advisor. Additionally, the inspectors assessed the ability of the crew and training staff to identify and document crew performance problems.

b. Findings

No findings were identified.

.2 Quarterly Review of Licensed Operator Performance in the Main Control Room

a. Inspection Scope

The inspectors observed and reviewed the licensed operator performance from the main control room in response to a trip of the Unit 2 'C' condensate pump and resulting in a reactor recirculation runback to 58 percent RTP on June 26, 2015. The inspectors observed control room briefings and power manipulations to verify that PBAPS met stability criteria specified in the GP-9-2 procedure, "Fast Reactor Power Reduction," Revision 36. Additionally, the inspectors observed power ascension to verify that procedure use, crew communications, and coordination of activities between work groups similarly met established expectations and standards.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12 – 3 samples)

a. Inspection Scope

The inspectors reviewed the samples listed below to assess the effectiveness of maintenance activities on structures, systems, and components (SSCs) performance and reliability. The inspectors reviewed system health reports, CAP documents, maintenance WOs, and maintenance rule (MR) basis documents to ensure that PBAPS was identifying and properly evaluating performance problems within the scope of the MR. For each sample selected, the inspectors verified that the SSC was properly scoped into the MR in accordance with 10 CFR 50.65 and that the (a)(2) performance criteria established by the PBAPS staff were reasonable. As applicable, for SSCs classified as (a)(1), the inspectors assessed the adequacy of goals and corrective actions to return these SSCs to (a)(2) status. Additionally, the inspectors ensured that PBAPS staff was identifying and addressing common cause failures that occurred within and across MR system boundaries.

- Unit 3 'A' SBLC leaking discharge relief valve on May 26, 2015
- Motor driven fire pump failures on May 29, 2015
- Unit 3 'B' turbine building closed cooling water HX, a(1) action plan on June 14, 2015

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 - 6 samples)

a. Inspection Scope

The inspectors reviewed station evaluation and management of plant risk for the maintenance and emergent work activities listed below to verify that PBAPS performed the appropriate risk assessments prior to removing equipment for work. The inspectors selected these activities based on potential risk significance relative to the reactor

safety cornerstones. As applicable for each activity, the inspectors verified that PBAPS personnel performed risk assessments as required by 10 CFR 50.65(a)(4) and that the assessments were accurate and complete. When PBAPS performed emergent work, the inspectors verified that operations personnel promptly assessed and managed plant risk. The inspectors reviewed the scope of maintenance work and discussed the results of the assessment with the station's probabilistic risk analyst to verify plant conditions were consistent with the risk assessment. The inspectors also reviewed the TS requirements and inspected portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met.

- Planned testing on the Unit 2 primary containment isolation system (PCIS) on May 5, 2015
- Planned maintenance on the SU2 transformer on May 18, 2015
- Planned relay testing on the Unit 2 'B' RHR loss of offsite power system logic on June 2, 2015
- Elevated risk for a PJM Interconnection issued hot weather alert during planned maintenance on the Unit 2 'C' HPSW motor and SU3 transformer on June 22, 2015
- Unplanned maintenance on the Unit 2 'C' reactor feed pump (RFP) during a downpower and trip of the Unit 2 'C' condensate pump on June 26 to June 27, 2015
- Elevated risk for unplanned loss of the primary Unit 2 electrohydraulic control power supply on June 28, 2015

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15 – 5 samples)

a. Inspection Scope

The inspectors reviewed operability determinations (ODs) for the following degraded or non-conforming conditions:

- Unit 2 'B' emergency service water (ESW) 30 drop per minute leak in the reactor building sump room on May 4, 2015
- E-3 EDG lube oil low temperature alarm on May 15, 2015
- Unit 3 torus vacuum breaker valve slow close time on May 28, 2015
- E-1 EDG non-dedicated o-rings on fuel cylinders on June 8, 2015
- Unit 2 'C' RFP controller oscillations on June 24, 2015

The inspectors selected these issues based on the risk significance of the associated components and systems. The inspectors evaluated the technical adequacy of the ODs to assess whether TS operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the TSs and UFSAR to PBAPS' evaluations to determine whether the components or systems were operable. The inspectors confirmed, where appropriate, compliance with bounding limitations associated with the evaluations.

b. Findings

No findings were identified.

1R17 Evaluations of Changes, Tests, or Experiments and Permanent Plant Modifications – (71111.17 – 3 samples)

.1 Evaluations of Changes, Tests, or Experiments (2 samples)

a. Inspection Scope

The inspectors reviewed one safety evaluation, PB-2013-002-E, “EPU App R/SBO Mod – CST Standpipe,” Revision 0, related to EPU implementation to determine whether the changes to the facility or procedures, as described in the UFSAR, had been reviewed and documented in accordance with the requirements of 10 CFR 50.59, “Changes, Tests, and Experiments.” In addition, the inspectors evaluated whether PBAPS had been required to obtain NRC approval prior to implementing the changes. The inspectors interviewed plant staff and reviewed supporting information, including calculations, analyses, design change documentation, procedures, and the UFSAR, TSs, and plant drawings to assess the adequacy of the safety evaluations. The inspectors compared the safety evaluations and supporting documents to the guidance and methods provided in Nuclear Energy Institute (NEI) 96-07, “Guidelines for 10 CFR 50.59 Evaluations,” Revision 1, as endorsed by NRC Regulatory Guide 1.187, “Guidance for Implementation of 10 CFR 50.59, Changes, Tests, and Experiments,” to determine the adequacy of the safety evaluations.

The inspectors also reviewed one EPU related 10 CFR 50.59 screening, PB-2014-021-S, “Unit 2 – HPSW Cross-Tie Modification,” Revision 0, for which PBAPS had concluded that a safety evaluation was not required. This review was performed to assess whether Exelon’s threshold for performing safety evaluations was consistent with 10 CFR 50.59.

b. Findings

No findings were identified.

.2 Permanent Plant Modifications (1 sample)

Unit 2 HPSW Crosstie

a. Inspection Scope

The inspectors reviewed EPU related modification ECR PB 13-00135, “Unit 2 EPU HPSW Mod – Mechanical Scope,” Revision 2, and ECR PB 12-00155, “Unit 2 EPU HPSW Mod – Electrical Scope,” Revision 4, that significantly modified the operational capabilities of the Unit 2 HPSW crosstie. The modification was performed to enable the control room operators to manually align HPSW pumps from the opposite division in order to provide cooling water to the two operating RHR HXs placed in service for post-loss of coolant accident suppression pool cooling.

The inspectors reviewed the modification to determine if the design bases, licensing bases, or performance capability of the HPSW was degraded by the modification. The inspectors evaluated whether the design specifications of the newly installed motor operated crosstie valve were sufficient to operate under design basis conditions. The inspectors interviewed design engineers and plant operators and reviewed evaluations, installation documents, design drawings, vendor documents, and test reports to assess the adequacy of the modified crosstie and newly installed motor operated valve. In addition, the inspectors reviewed station procedures and training records to verify operators had appropriate written instructions, training, and knowledge to successfully align and operate the alternate HPSW crosstie when needed. Finally, the inspectors walked down the HPSW crosstie to assess the material condition and standby configuration. The 10 CFR 50.59 screening determination associated with this modification was also reviewed as described in Section 1R17.1 of this report.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19 - 6 samples)

a. Inspection Scope

The inspectors reviewed the PMTs for the maintenance activities listed below to verify that procedures and test activities ensured system operability and functional capability. The inspectors reviewed the test procedure to verify that the procedure adequately tested the safety functions that may have been affected by the maintenance activity, that the acceptance criteria in the procedure were consistent with the information in the applicable licensing basis and/or design basis documents, and that the test results were properly reviewed and accepted and problems were appropriately documented. The inspectors also walked down the affected job site, observed the pre-job brief and post-job critique where possible, confirmed work site cleanliness was maintained, and witnessed the test or reviewed test data to verify that results adequately demonstrated restoration of the affected safety functions.

- Motor driven fire pump fitting replacement on April 27, 2015
- Unit 3 'B' core spray (CS) planned maintenance on May 6, 2015
- SU2 transformer planned maintenance on May 20, 2015
- Unit 3 'B' HPSW motor cooler replacement on June 5, 2015
- Unit 2 'C' feed water pump TM-25 actuator replacement on June 26, 2015
- Unit 2 'C' condensate pump neutral overcurrent relay replacement on June 28, 2015

b. Findings

No findings were identified.

1R21 Component Design Bases Inspection (71111.21 – 1 sample)

Unit 2 'B' CS Suction Motor Operated Valve

a. Inspection Scope

The inspectors inspected the Unit 2 'B' CS suction motor operated valve (MOV) (MO-2-14-007B) to determine if it was capable of performing its design basis function for EPU conditions. Specifically, the inspectors determined if the valve would reposition, as required, to isolate the 2 'B' CS pump from the suppression pool if necessary. This MOV was initially identified by PBAPS as low margin and requiring corrective action prior to EPU implementation. The initial identification was based on an overly conservative new differential pressure requirement for EPU conditions. PBAPS recalculated the design basis differential pressure for EPU conditions and determined the MOV was high margin.

The inspectors reviewed periodic MOV diagnostic test results to verify acceptance criteria were met. The inspectors also evaluated whether the MOV safety functions, performance capability, torque switch configuration, and design margins were adequately monitored and maintained in accordance with GL 89-10 guidance. The inspectors verified that the valve analysis used the maximum differential pressure expected across the valve during worst case operating conditions. The inspectors discussed the design, operation, and component history of the valve with the MOV program engineer to determine performance history and overall component health.

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22 – 5 samples)

a. Inspection Scope

The inspectors observed performance of STs and/or reviewed test data of selected risk-significant SSCs to assess whether test results satisfied TSs, the UFSAR, and PBAPS procedure requirements. The inspectors verified that test acceptance criteria were clear, tests demonstrated operational readiness and were consistent with design documentation, test instrumentation had current calibrations and the range and accuracy for the application, tests were performed as written, and applicable test prerequisites were satisfied. Upon test completion, the inspectors considered whether the test results supported that equipment was capable of performing the required safety functions. The inspectors reviewed the following STs and RTs:

- RT-I-006-230-2, Unit 2 feed water control stability/response test on April 15, 2015
- ST-O-052-122-2, E-2 EDG/RHR pump load reject test on April 21, 2015
- ST-O-020-560-2, Unit 2 reactor coolant system leakage test on April 28, 2015
- ST-O-007-420-3, Unit 2 PCIS Group III isolation valve test on May 5, 2015
- ST-O-010-306-2, Unit 2 'B' RHR pump, valve, and flow test on June 3, 2015

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness (EP)

1EP6 Drill Evaluation (71114.06 – 1 sample)

Emergency Preparedness Drill Observation

a. Inspection Scope

The inspectors evaluated the conduct of a routine PBAPS emergency drill on April 20, 2015, to identify any weaknesses and deficiencies in the classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the simulator and technical support center to determine whether the event classification, notifications, and protective action recommendations were performed in accordance with procedures. The inspectors also attended the station drill critique to compare inspector observations with those identified by PBAPS staff in order to evaluate PBAPS' critique and to verify whether the PBAPS staff were properly identifying weaknesses and entering them into the CAP.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151 – 4 samples)

Reactor Coolant System (RCS) Specific Activity and RCS Leak Rate

a. Inspection Scope

The inspectors reviewed PBAPS' submittal for the RCS specific activity and RCS leak rate performance indicators (PIs) for both Unit 2 and Unit 3 for the period of April 1, 2014, through March 31, 2015. To determine the accuracy of the PI data reported during those periods, the inspectors used definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment PI Guideline," Revision 7. The inspectors also reviewed RCS sample analysis and control room logs of daily measurements of RCS leakage, and compared that information to the data reported by the PI. Additionally, the inspectors observed surveillance activities that determined the RCS identified leakage rate, and chemistry personnel taking and analyzing an RCS sample.

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution (71152 – 1 sample)

.1 Routine Review of Problem Identification and Resolution Activities

a. Inspection Scope

As required by Inspection Procedure (IP) 71152, "Problem Identification and Resolution," the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify that PBAPS entered issues into the CAP at an appropriate threshold, gave adequate attention to timely corrective actions, and identified and addressed adverse trends. In order to assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the CAP and periodically attended condition report screening meetings. The inspectors also confirmed, on a sampling basis, that, as applicable, for identified defects and non-conformances, PBAPS performed an evaluation in accordance with 10 CFR Part 21.

b. Findings

No findings were identified.

.2 Annual Sample: E-3 EDG Degraded Lube Oil Temperature Switch

a. Inspection Scope

The inspectors performed an in-depth review of PBAPS' corrective actions associated with IR 02501112, "Received E-3 D/G Trouble Alarm," dated May 15, 2015. The inspectors also reviewed IRs 02483985 and 02445646 dated April 13, 2015 and February 1, 2015, respectively, which pertained to the same issue. Specifically, in the months following an E-3 EDG overhaul in January 2015, PBAPS' operators received the E-3 EDG low lube oil temperature alarm on three different occasions. Equipment operators responded locally to the E-3 EDG to discover the temperature switch controlling the lube oil heater had not actuated according to its design to maintain standby lube oil temperature between the range of 120 – 150 degrees F.

The inspectors assessed PBAPS' problem identification threshold, operability evaluations, extent of condition reviews, compensatory actions, and prioritization and timeliness of PBAPS' corrective actions to determine whether PBAPS was appropriately identifying, characterizing, and correcting problems associated with this issue and whether the planned corrective actions were appropriate. The inspectors compared the actions taken and operability evaluations to the requirements of PBAPS' CAP, 10 CFR 50, Appendix B, TS, and applicable procedures. In addition, the inspectors performed field walkdowns, interviewed engineering personnel to assess the effectiveness of the implemented corrective actions, and ensured that adequate design measures were in place to maintain operability of the E-3 EDG.

b. Findings and Observations

No findings were identified.

PBAPS identified that temperature switch TS-7245C, which actuates the lube oil heater for the E-3 EDG lube oil system, was not actuating the lube oil heater within the appropriate temperature band. The inspectors determined that PBAPS' identification and characterization of the issue on their Priority Work List was appropriate. The temperature switch was replaced on May 27, 2015, and the E-3 EDG experienced no further low lube oil temperature alarms.

However, the inspectors' review of IR 02501112 identified that operators were incorrectly assessing the operability of the E-3 EDG after EOs agitated TS-7245C and the lube oil heater began heating the lube oil system rather than assessing the operability of the E-3 EDG considering the as-found lube oil temperature. The inspectors also identified that the alarm setpoint measuring temperature in the lube oil sump and the operability limit for lube oil temperature in the lube oil sump were the same value of 105 degrees F. Engineering determined that to ensure the E-3 EDG will meet its design basis fast start time of ten seconds, standby lube oil temperature must be equal or greater than 105 degrees F. PBAPS initiated an IR to document the inspectors' concerns and specified a corrective action to raise the alarm setpoint to provide additional margin.

Subsequent to the inspectors' questions, PBAPS engineering was able to demonstrate through schematics, walk downs, and past lube oil heater heatup data that there was enough temperature margin in the center of the lube oil sump once the low lube oil temperature alarm was received to reasonably declare the E-3 EDG operable (i.e. lube oil temperature had been greater than 105 degrees F.) The low lube oil temperature alarm measures lube oil temperature in the sump at a location cooler than the center of the sump where the EDG will first draw a lube oil suction when receiving an engine start. The inspectors concluded that the issues were minor because when assessed correctly the equipment operability was reasonably not affected. In accordance with Inspection Manual Chapter (IMC) 0612, "Power Reactor Inspection Reports," the above issue constituted an issue of minor significance that was not subject to enforcement action in accordance with the Enforcement Policy. PBAPS entered the inspectors' observations into the CAP as IR 02506799.

4OA3 Followup of Events and Notices of Enforcement Discretion (71153 – 3 samples)

.1 Plant Events

a. Inspection Scope

For the plant event listed below, the inspectors reviewed and observed plant parameters, reviewed personnel performance, and evaluated performance of mitigating systems. The inspectors communicated the plant event to appropriate regional personnel. As applicable, the inspectors verified that PBAPS made appropriate emergency classification assessments and properly reported the event in accordance with 10 CFR Parts 50.72 and 50.73. The inspectors reviewed PBAPS' follow-up actions related to the events to assure that PBAPS implemented appropriate corrective actions commensurate with their safety significance.

- Unit 2 reactor recirculation pump runback and down power to 58 percent RTP on June 26, 2015, due to an unplanned trip of the 'C' condensate pump

b. Findings

No findings were identified.

.2 (Closed) Licensee Event Report (LER) 05000277/2014-002-00: ESW Pinhole Leak Results in Condition Prohibited by TS

On August 23, 2014, PBAPS identified a pin-hole leak coming from a 6" diameter pipe elbow in the ESW system. The piping is classified as a safety-related, American Society of Mechanical Engineers (ASME) Code Class 3, moderate energy piping. Engineering evaluated the piping flow and determined that it did not meet the NRC approved ASME code case requirements for acceptance of flaws in Class 3 moderate energy piping. As a result, both subsystems of the ESW system were declared inoperable at 1300 hours on Saturday, August 23, 2014, for both Units 2 and 3. TS 3.7.2, Condition B, requires the unit to be in Mode 3 within 12 hours due to two inoperable ESW subsystems.

Ultrasonic examination of the pipe was performed to determine the size and nature of effects of river water in the elbow. A risk assessment was performed and it was determined that the condition met the requirements for requesting a Notice of Enforcement Discretion (NOED) from the NRC. A verbal request was made to the NRC to extend the required completion time for TS 3.7.2, Condition B by 48 hours, to allow for additional time to obtain an emergency ASME code relief request. The NRC granted the NOED at 7:22 pm on August 23, 2014, which was documented in a letter (ML14240A499) dated August 28, 2014. The NRC approved an emergency ASME code relief request on August 24, 2014, which was documented in a memorandum (ML14237A434) dated August 26, 2014. The inspectors did not identify any new issues during the review of the LER. This LER is closed.

.3 (Closed) LER 05000277/2014-003-00: Containment Leakage Limit Exceeded Due to Through-Seat Leakage of Feedwater Check Valves

On October 29, 2014, engineering personnel determined that the N-9A primary containment penetration pathway had leakage that exceeded the maximum allowable primary containment leakage rate (L^a) value required by TS 5.5.12, "Primary Containment Leakage Rate Testing Program." This determination was based on as-found leakage through the seats of two redundant feedwater check valves (CHK-2-06-28A and CHK-2-06-96A) that are PCIVs. The cause of the deficiency in both swing check valves was due to operational wear on the check valve pivot shaft and associated bushings. Both check valves were repaired during the refueling outage and as-left leak testing proved appropriate leak-tightness of the check valves in the closed position. Additional corrective actions are being assessed as part of a causal analysis being performed in accordance with the station's CAP. There were no actual safety consequences associated with this event and the inspectors did not identify any new issues during the review of the LER. This LER is closed.

4OA5 Other Activities

Extended Power Uprate (EPU), Inspection Procedure 71004

a. Inspection Scope

The inspectors completed four inspection samples related to EPU implementation:

Evaluations of Changes, Tests, or Experiments (IP 71111.17) for:

- Unit 2 CST standpipe modification
- Unit 2 HPSW crosstie modification

Plant Modifications (71111.17) for:

- Unit 2 HPSW crosstie modification

Component Design Bases Inspection (IP 71111.21) for:

- Unit 2 'B' CS pump suction MOV

Details of the inspection scope are documented in sections 1R17 and 1R21 of this report.

b. Findings

No findings were identified.

4OA6 Meetings, Including Exit

Quarterly Resident Exit Meeting Summary

On July 10, 2015, the inspectors presented the inspection results to Mr. Pat Navin, Peach Bottom Plant Manager and other PBAPS staff. The inspectors verified that no proprietary information was retained by the inspectors or documented in this report.

ATTACHMENT: SUPPLEMENTARY INFORMATION

SUPPLEMENTARY INFORMATION

KEY POINTS OF CONTACT

Exelon Generation Company Personnel

M. Massaro, Site Vice President
 P. Navin, Plant Manager
 N. Alexakos, Emergency Preparedness Manager
 J. Armstrong, Regulatory Assurance Manager
 D. Henry, Engineering Director
 M. Long, System Engineering Manager
 M. Simon, System Engineer
 J. Grover, System Engineer
 M. Herr, Operations Director
 R. Holmes, Radiation Protection Manager
 J. McClintock, LOR Training Supervisor
 C. Millard, Operations Training Manager
 R. Tyler, Simulator Supervisor

LIST OF ITEMS OPENED, CLOSED, DISCUSSED, AND UPDATED

Opened/Closed

None

Closed

05000277/2014-002-00	LER	ESW Pinhole Leak Results in Condition Prohibited by TSs (Section 40A3)
05000277/2014-003-00	LER	Containment Leakage Limit Exceeded Due to Through-Seat Leakage of Feedwater Check Valves (Section 40A3)

Enclosure

LIST OF DOCUMENTS REVIEWED

* -- Indicates NRC-identified

Section 1R01: Adverse Weather

Procedures

NO-AA-220-1009-F-SUM, Summer Readiness MDA Template, Revision 0
OP-AA-108-107, Switchyard Control, Revision 4
OP-AA-108-107-1001, Station Response to Grid Capacity Conditions, Revision 6
OP-AA-108-111-1001, Severe Weather and Natural Disaster Guidelines, Revision 12
OP-PB-108-111-1001, Preparation for Severe Weather, Revision 13
WC-AA-107, Seasonal Readiness, Revision 15
AO 53.2-0, Equipment Checks after a Thunderstorm, Revision 4

CRs

02516715, ENG 4.0 Critique of Summer Readiness
*02518280, North Substation Gate Left Unlocked
02522331, Possible Lightning Strike at Peach Bottom

Miscellaneous

Peach Bottom Single Line Diagram, North Substation, South Substation, Terminal Yard

Section 1R04: Equipment Alignment

Procedures

COL 32.1.A-2, HPSW System, Revision 14
ST-O-032-350-2, HPSW Valve Alignment Verification, Revision 1
ST-O-51H-201-2, SBO Line TS 3.8.1 B.1 Verification, Revision 4

CRs

*02519751, Staged Lagging Contacting 'B' ESW Discharge Check Valve

Section 1R05: Fire Protection

Procedures

CC-AA-211, Fire Protection Plan, Revision 6
OP-AA-201-009, Control of Transient Combustible Material, Revision 17
CC-AA-201, Plant Barrier Control Program, Revision 2

Fire Plans

PF-0, PBAPS Pre-Fire Strategy Plan Area and Location Index, Revision 7
PF-59, Unit 2 Reactor Building HPCI Room Pre-Fire Strategy Plan, Revision 7
PF-70, Radwaste Building Standby Gas Treatment Room Pre-Fire Strategy Plan, Revision 4
PF-132, DG Building, General Area (E-2 and E-4) Pre-Fire Strategy Plan, Revision 9
PF-132A, DG Building, Upper Level (E-2 and E-4) Pre-Fire Strategy Plan, Revision 4
PF-144, Circulating Water Pump Structure Pre-Fire Strategy Plan, Revision 7

Section 1R07: Heat Sink Performance

Procedures

RT-O-010-660-3, RHR HX Performance Test (Unit 3 'D' RHR HX), Revision 11
RT-X-010-661-3, RHR HX Performance Calculation Test (Unit 3 'D' RHR),
Revision 4
MA-PB-733-002, Condenser or HX Tube Plugging Inspection, Verification, and
Documentation, Revision 0

CRs

00102216

Miscellaneous

PBAPS UFSAR, Section 4.8 and 10.7
Data Sheet and Calculated Heat Load Spreadsheet for Unit 3 'D' RHR HX

Section 1R11: Licensed Operator Regualification Program

Miscellaneous

Memo dated March 27, 2015, from John E. McClintock, LORT Lead Instructor Regarding
Licensed Operator Regualification Training Cycle 14-07 Schedule, Revision 000

Section 1R12: Maintenance Effectiveness

CRs

01930135, Sodium Pentaborate on Top of Relief Valve of SBLC Pump 3AP040
02506433, MR Scoping for LS-2(3)924 Torus Room Flood Alarm
02506486, MRFF for Motor Driven Fire Pump
02510270, A(1) Determination Recommended
*02511777, RV-3-11-39A has Crystallized Sodium Pentaborate on Valve
02514582, MR Unavailability to be Exceeded for 3BE038
02514697, MDFP OOS Twice in a 5 Week Period

Miscellaneous

System Notebooks and Health Reports

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedures

ER-AA-600-1012, Risk Mangement Documentation, Revision 12
OP-AA-108-117, Protected Equipment Program, Revision 4
OP-PB-108-101-1002, Control of Protected Equipment Tracking Sheets, Revision 7
WC-AA-101-1006, On-Line Risk Management and Assessment, Revision 1
WC-AA-104, Integrated Risk Management, Revision 22

Miscellaneous

Paragon Risk Profiles

1R15: Operability Evaluations

Procedures

ST-O-052-313-2, E-3 DG Slow Start Full Load and IST Test, Revision 21
AO 52G.1, Lube Oil Temperature Monitoring, Revision 2

CRs

00144807, E-2/E-4 EDG Lube Oil Sump Low Temp Alarms Came in Early
02445646, E-3 D/G LO HTR not Maintaining Oil Temperature 120F-150F
02483985, E-3 EDG Low Lube Oil Temperature Alarm
02501112, E-3 D/G Trouble Alarm 004 G-5
02505853, AO-3-07B-3502B Stroke Time in Alert Range
02506058, O-Rings Not Being an Exact Replacement SC# 115-01900
*02506799, EDG Lube Oil Low Temperature Alarm has no margin
02509654, Pome Review -O- Ring ARI S/N 115-01900 Installed in E-1 DG

Work Orders

R1246610 A1404551 A1404552 A1404555 A1404557

Drawings

6280-M-377, DG Auxiliary Systems (Lube Oil System), Sheet 3, Revision 45
HISO-3311, 33 ESW, Sheet 10, Revision 1
ESW/ECW Flowpath Training Diagram

Miscellaneous

2006 E2 Sump Level Cooldown and Heatup Data
Instrument Calibration Sheets, TS-7246 D/G Lube Oil Sump Temperature
PBAPS Alarm Response Card, 0BC097 D-1, Revision 8

Section 1R17: Evaluations of Changes, Tests, or Experiments and Permanent Plant Modifications

10 CFR 50.59 Evaluations

PB-2013-002-E, EPU App R/SBO Mod – CST Standpipe, Revision 0

10 CFR 50.59 Screened-out Evaluations

PB-2014-021-S, Unit 2 – HPSW Cross-Tie Modification, Revision 0

Modification Packages

ECR PB 12-00155, Unit 2 EPU HPSW Mod – Electrical Scope, Revision 4
ECR PB 12-00227, EPU App R/SBO Mod – CST Standpipe, Revision 2
ECR PB 13-00135, Unit 2 EPU HPSW Mod – Mechanical Scope, Revision 2

Calculations, Analysis, and Evaluations

ME-0003, RHR HX Inlet Pressures for All Modes of RHR/HPSW Operation, Revision 1A
MIDACALC Results for MO-2-14-0007B, Revisions 2 & 3
MIDACALC Results for MO-2-32-2344, Revision 3
PEAM-EPU-109, Task Report 43, GLs, Revision 2
PM-0138, Determine the Dedicated CST Volume for HPCI and RCIC Suction, Revision 3

PM-0436, Determination of Minimum Acceptable Wall Thickness to Support the Applied Mechanical Loads for Systems 30, 32, 33, 34, 44 & 48 Piping, Revision 0
 PM-0620, Determine Upstream and Downstream Line Pressures for MOVs within the Scope of GL 89-10 and Summarize the Maximum Design Basis Differential Pressure, Revision 18
 PM-1079, HPSW System – Orifice Sizing, Revision 0
 PM-1136, RWST to CST Flow Rate, Revision 0
 PM-1150, CST & RWST Minimum Inventory Requirements for Appendix R, SBO & ATWS Events, Revision 0
 31-9/B-1, Water Tight Wall, Revision 3
 32-1, Piping Stress Analysis for HPSW Pumps Discharge in Pump Structure Building, Revision 0
 32-1H, Design of Supports 2-32GB-S67 and 3-32GB-S67 for Calc 32-1, Revision 4

CRs

02486812

Drawings

6280-M-315, Sheet 1, P&I Diagram ESW and HPSW Systems, Revision 82

Training Documents

Attendance and Grade Summary Licensed Operator Requalification Sheets for LMS Component N-PB-OPS-LOR-14-04, Submitted 10/7/14
 Simulator Training Attendance Sheets for LMS Component N-PB-OPS-LOR-14-04-SIM, Submitted 10/7/14
 PLORT-14-04E, PBAPS RHR/HPSW System (w/EPU), Revision 0
 PSEG-EPU-14-03-01, EPU Simulator Overview Part 1, LORT Cycle 14-03-01, Revision 0
 PSEG-EPU-14-04-01, EPU Simulator Overview Part 2, LORT Cycle 14-04-01, Revision 0
 PSEG-EPU-14-04-02, EPU Plant Response to a DBA LOCA LORT Cycle 14-04-02, Revision 0
 PSEG-EPU-14-04-03, EPU Post-DBA LOCA Operations LORT Cycle 14-04-03, Revision 0

Procedures

COL 32.1.A-2, HPSW, Revision 14
 ER-AA-302-1001, MOV Rising Stem MOV Thrust and Torque Sizing and Set-up Window Determination Methodology, Revision 9
 ER-AA-302-1003, MOV Margin Analysis and Periodic Verification Test Intervals, Revision 8
 ER-AA-302-1007, MOV Limitorque Actuator Capability Determination Methodology, Revision 8
 ER-AA-302-1009, Final JOG MOV Periodic Verification Program Implementation, Revision 3
 OP-PB-108-103-2, Locked Valve List – PBAPS Unit #2, Revision 5
 SO 32.1.A-2, HPSW System Startup and Normal Operations, Revision 19
 ST-O-032-301-2, HPSW Pump, Valve and Flow Functional and Inservice Test, Revision 32
 ST-O-032-350-2, HPSW Valve Alignment Verification, Revision 1
 ST-O-032-400-2, HPSW Cross-Tie Backup Power Supply Transfer Test, Revision 0
 T-101, PBAPS Trip Procedure RPV Control, Revision 20
 T-247-2, Aligning CST Bottom Suction to Main Condenser Hotwell and CRD Pumps, Revision 0

Work Orders

C0228324	C0251108	C0251109	C0251116	C0251706	C0252200
C0252485	C0252486	C0252487	C0252488	C0252741	C0252875
C0252921	C0254756				

Miscellaneous

330-10000517-2, Weir Torque Calculation Report for 14" Class 300 Tricentric Butterfly Valve, Revision 7

Section 1R19: Post-Maintenance Testing

Procedures

MA-AA-716-012, PMT, Revision 20
SO 37B.1.B, Fire Water System Pump Manual Startup, Revision 6
SO 37B.8.A, Fire Water System Routine Inspection, Revision 10

CRs

01997871, Motor Driven Fire Pump Discharge Relief Valve
02505628, As Found Incorrect Wiring in RFPT Aux Control Panels
02518662, Unexpected Unit 2 C RFPT Controller Trouble MCR Alarm

WOs

R1290346-01 M1997871-01

Section 1R22: Surveillance Testing

Procedures

RT-I-006-230-2, Feedwater Control System Stability/Response Test, Revision 7
ST-O-007-420-3, PCIS Normally Closed Valves Operability Test, Revision 21
ST-O-020-560-2, RCL Test, Revision 13
ST-O-052-122-2, E-2 DG RHR Pump Reject Test, Revision 9
ST-O-010-306-2, B Loop RHR PVF Test, Revision 9

CRs

02505863, AO-3-07B-3502B Stroke Time in Alert Range

Section 1EP6: Drill Evaluation

Miscellaneous

Memo dated March 27, 2015, from John E. McClintock, LORT Lead Instructor, Regarding
Licensed Operator Requalification Training Cycle 14-07 Schedule, Revision 000

Section 4OA1: Performance Indicator Verification

Procedures

LS-AA-2001, Collecting and Reporting of NRC PIs Data, Revision 14
LS-AA-2090, Monthly Data Elements for NRC RCS Specific Activity, Revision 4
LS-AA-2100, Monthly Data Elements for NRC RCS Leakage, Revision 5
ST-O-020-560-2, Reactor Coolant Leakage Test (sample of completed test records),
Revision 13
ST-O-020-560-3, Reactor Coolant Leakage Test (sample of completed test records),
Revision 15
ST-C-095-820-2, Determination of Dose Equivalent $\mu\text{Ci/g}$ I-131 in Primary Coolant, Revision 4
ST-C-095-820-3, Determination of Dose Equivalent $\mu\text{Ci/g}$ I-131 in Primary Coolant, Revision 4

ST-C-095-864-2, Off Gas Monitor Response and Release Rate Verification by a Grab Sample, Revision 2

ST-C-095-864-3, Off Gas Monitor Response and Release Rate Verification by a Grab Sample, Revision 2

Miscellaneous

NEI 99-02, Regulatory Assessment PI Guideline, Revision 7

BI PI data – 2nd Quarter 2014 through the 1st Quarter 2015

Section 4OA2: Problem Identification and Resolution

Procedures

ST-O-052-313-2, E-3 DG Slow Start Full Load and IST Test, Revision 21

AO 52G.1, Lube Oil Temperature Monitoring, Revision 2

CRs

00144807, E-2/E-4 EDG Lube Oil Sump Low Temp Alarms Came in Early

02445646, E-3 D/G LO HTR not maintaining oil temp. 120F-150F

02483985, E-3 EDG Low Lube Oil Temperature Alarm

02501112, E-3 D/G Trouble Alarm 004 G-5

*02506799, EDG Lube Oil Low Temperature Alarm has no margin

Work Orders

A1404551 A1404552 A1404555 A1404557

Drawings

6280-M-377, DG Auxiliary Systems (Lube Oil System), Sheet 3, Revision 45

Miscellaneous

2006 E-2 Sump Level Cooldown and Heatup Data

Instrument Calibration Sheets, TS-7246 D/G Lube Oil Sump Temperature

PBAPS Alarm Response Card, OBC097 D-1, Revision 8

Section 4OA3: Follow-up of Events and Notices of Enforcement Discretion

CRs

02402909, Containment Penetration N-9A Exceeded La

Miscellaneous

Apparent Cause Investigation Report for IR 02402909

LIST OF ACRONYMS

AC	alternating current
ADAMS	Agencywide Documents Access and Management System
ASME	American Society of Mechanical Engineers
CAP	corrective action program
CFR	Code of Federal Regulations
CR	condition report
CS	core spray
DRS	Division of Reactor Safety
EAL	emergency action level
EDG	emergency diesel generator
EO	equipment operator
EP	emergency preparedness
EPU	extended power uprate
ESW	emergency service water
GL	generic letter
HPCI	high pressure coolant injection
HPSW	high pressure service water
HX	heat exchanger
IMC	inspection manual chapter
IP	inspection procedure
IR	issue report
LER	licensee event report
LORT	licensed operator requalification training
MOV	motor operated valve
MR	maintenance rule
NEI	Nuclear Energy Institute
NOED	Notice of Enforcement Discretion
NRC	Nuclear Regulatory Commission
OD	operability determination
OOS	out-of-service
PARS	publicly available records
PBAPS	Peach Bottom Atomic Power Station
PCIVs	primary containment isolation valves
PI	performance indicator
PMT	post-maintenance testing
RCIC	reactor core isolation cooling
RCS	reactor coolant system
RFP	reactor feed pump
RG	regulatory guide
RHR	residual heat removal
RTP	rated thermal power
SBLC	standby liquid control
SBO	station blackout
SSC	structures, systems, and components
ST	surveillance test
TS	technical specification
UFSAR	Updated Final Safety Analysis Report
WOs	work orders