



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION I
2100 RENAISSANCE BLVD., SUITE 100
KING OF PRUSSIA, PA 19406-2713

November 9, 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 05000277/2015003 AND 05000278/2015003 AND INDEPENDENT
SPENT FUEL STORAGE INSTALLATION REPORT NO. 07200029/2015001**

Dear Mr. Hanson:

On September 30, 2015, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3. The enclosed inspection report documents the inspection results, which were discussed on October 19, 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.

The inspectors documented one finding of very low safety significance (Green) in this report. This finding involved a violation of NRC requirements. Further, inspectors documented one licensee-identified violation which was determined to be of very low safety significance. The NRC is treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2.a of the Enforcement Policy.

If you contest the non-cited violations in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region I; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at PBAPS. In addition, if you disagree with the cross-cutting aspect assigned to the finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region I, and the NRC Resident Inspector at PBAPS.

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, 50-278 and 72-29
License Nos. DPR-44 and DPR-56

Enclosure:
Inspection Report 05000277/2015003, 05000278/2015003
and 07200029/2015001
w/Attachment: Supplementary Information

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U. S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket Nos. 50-277, 50-278 and 72-29

License Nos. DPR-44 and DPR-56

Report No. 05000277/2015003, 05000277/2015003, and 07200029/2015001

Licensee: Exelon Generation Company, LLC

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

Location: Delta, Pennsylvania

Dates: July 1, 2015 through September 30, 2015

Inspectors: B. Reyes, (Acting) Senior Resident Inspector
B. Smith, Resident Inspector
S. Barber, Senior Project Engineer
J. Brand, Reactor Engineer
J. Furia, Senior Health Physicist
C. Graves, Health Physicist
J. Greives, Senior Resident Inspector, Susquehanna
S. Hammann, Senior Health Physicist
B. Lin, Project Engineer
K. Mangan, Senior Reactor Inspector
L. Micewski, Reactor Operations Engineer (HQ)
M. Scheetz, Reactor Operations Engineer (HQ)
A. Turilin, Project Engineer

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

Enclosure

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SUMMARY

IR 05000277/2015003, 05000278/2015003, 07/01/2015 – 09/30/2015; 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, an independent spent fuel storage installation inspection, a groundwater tritium review, and announced base line inspections performed by regional inspectors. The inspectors identified one non-cited violation (NCV), which was of very low safety significance (Green). The significance of most findings is indicated by their color (i.e., greater than Green, or Green, White, Yellow, Red) and determined using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process (SDP)," dated April 29, 2015. Cross-cutting aspects are determined using IMC 0310, "Aspects Within Cross-Cutting Areas," dated December 4, 2014. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy, dated February 4, 2015. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 5.

Cornerstone: Mitigating Systems

- Green. The inspectors identified a Green NCV of Technical Specification (TS) 5.4.1.a after Exelon did not establish and implement procedures to adequately test the Unit 2 and Unit 3 remote shutdown panels (RSPs). Specifically, Exelon's surveillance procedure did not test all the control circuits, as required by Surveillance Requirement (SR) 3.3.3.2.1, for the Unit 2 and Unit 3 RSPs. Exelon's corrective actions included entering this issue into their CAP, the development of RSP testing procedures for the reactor core isolation cooling (RCIC), control rod drive (CRD), and emergency service water (ESW) system components, and a revision to the bases for TS 3.3.3.2.

The performance deficiency (PD) was determined to be more-than-minor because it was associated with the Equipment Performance attribute of the Mitigating Systems cornerstone, and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Additionally, examples 1.c, 4.l, and 4.m from IMC 0612, Appendix E, detail that a PD was more than minor if required TS surveillance testing is not performed and subsequent testing reveals that the equipment is out of specification or otherwise unable to perform a safety-related function. A detailed risk evaluation concluded that the issue was of very low safety significance (Green). This finding had a cross-cutting aspect in Human Performance, Avoid Complacency, because Exelon failed to recognize and plan for the possibility of latent problems. [H.12] (Section 1R15)

Other Findings

A violation of very low safety significance that was identified by Exelon was reviewed by the inspectors. Corrective actions taken or planned by Exelon have been entered into Exelon's corrective action program (CAP). This violation and corrective action tracking number are listed in Section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status

Unit 2 began the inspection period at 100 percent rated thermal power (RTP). On July 11, 2015, Unit 2 conducted a planned downpower to 20 percent RTP to perform troubleshooting on the electrohydraulic control (EHC) system. The unit was returned to 100 percent RTP later that day. On August 28, 2015, Unit 2 down powered to 55 percent RTP to perform planned main steam line isolation valve testing and a control rod sequence exchange. The unit returned to 100 percent RTP on August 29, 2015, and remained at or near 100 percent power for the remainder of the inspection period.

Unit 3 began the inspection period at 100 percent RTP. On July 9, 2015, Unit 3 down powered to 75 percent RTP to remove the fifth stage feedwater heat exchangers in preparation for end of cycle coastdown. The unit was returned to 100 percent RTP on July 10, 2015. On August 3, 2015, Unit 3 down powered to 90 percent RTP to remove the fourth stage feedwater heat exchangers in preparation for end-of-cycle coast down. The unit was returned to 100 percent RTP on August 4, 2015 and began end-of-cycle coast down. On September 20, 2015, operations commenced a shutdown from 83 percent RTP and entered into a planned refueling outage (P3R20) and remained shutdown at the end of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01 – 1 sample)

Readiness to Cope with External Flooding

a. Inspection Scope

On August 13 and 19, 2015, the inspectors performed an inspection of the external flood protection measures for PBAPS. The inspectors reviewed TS, procedures, design documents, and Updated Final Safety Analysis Report (UFSAR) Chapter 2.3.4.5 and Appendix C.2.5.4, which depict the design flood levels and protection areas containing safety-related equipment. The inspectors conducted a walkdown of the internal and external features of the safety-related pump structure and the emergency diesel generator (EDG) building for Units 2 and 3 to ensure the station's flood protection measures were controlled in accordance with the design specifications. The inspectors also reviewed operating procedures for mitigating external flooding during severe weather to determine if Exelon planned or established adequate measures to protect against external flooding events.

b. Findings

No findings were identified.

1R04 Equipment Alignment (71111.04Q – 4 samples)Partial System Walkdownsa. Inspection Scope

The inspectors performed partial walkdowns of the following systems:

- 125 Vdc during E-1 EDG outage on August 4, 2015
- E-1, E-2, E-3, and E-4 EDGs during cardox testing on August 18, 2015
- Unit 2 high pressure service water (HPSW) / ESW with 'B' ventilation fan out of service (OOS) on September 10, 2015
- Unit 3 'B' loop of shutdown cooling (SDC) while inservice on September 23 and 24, 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 UFSAR, TSs, work orders (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 CAP for resolution with the appropriate significance characterization.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05Q – 5 samples)Resident Inspector Quarterly Walkdownsa. 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 OOS, degraded or inoperable fire protection equipment, as applicable, in accordance with procedures.

- Unit 3 HPSW room on July 15, 2015
- Emergency cooling tower (ECT) on July 16, 2015

- Unit 3 high pressure coolant injection (HPCI) room on July 29, 2015
- E-1 EDG room and upper level on August 18, 2015
- Unit 3 drywell on September 29, 2015

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06 – 2 samples)

.1 Internal Flooding Review

a. Inspection Scope

The inspectors reviewed the UFSAR, the site flooding analysis, and plant procedures to identify internal flooding susceptibilities for the site. The inspectors also reviewed the CAP to determine if PBAPS identified and corrected flooding problems and whether operator actions for coping with flooding were adequate. The inspectors focused on the Unit 3 reactor building closed cooling water room on July 29, 2015, to verify equipment located below the flood line would not impact system availability or any safety functions. The inspectors also verified the adequacy of the watertight door seals, sump pumps, and room flooding alarms.

b. Findings

No findings were identified.

.2 Annual Review of Cables Located in Underground Bunkers/Manholes

a. Inspection Scope

During the week of July 1, 2015, the inspectors conducted an inspection of underground bunkers/manholes subject to flooding that contain cables whose failures could disable risk-significant equipment. The inspectors performed walkdowns of risk-significant areas, including manholes 003, 004, 029, 035, and 061, to verify that the cables were not submerged in water, that cables and/or splices appeared intact, and to observe the condition of cable support structures. When applicable, the inspectors verified proper sump pump operation and verified level alarm circuits were set in accordance with station procedures and calculations to ensure that the cables will not be submerged. The inspectors also ensured that drainage was provided and functioning properly in areas where dewatering devices were not installed.

b. Findings

No findings were identified.

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

.1 Quarterly Review of Licensed Operator Requalification Testing and Training

a. Inspection Scope

The inspectors observed licensed operator simulator training on August 14, 2015, for the Unit 3 anticipated transient without trip and standby liquid control injection scenarios. 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 (MCR)

a. Inspection Scope

The inspectors observed the plant shutdown and cooldown of Unit 2 on September 20 and 21, 2015. The inspectors observed use of and compliance with procedures, crew communications, interpretation, diagnosis, and understanding of plant alarms, use of human error prevention techniques, documentation of activities, and management oversight of the evolution to verify that the crew was following procedures and plant expectations for conduct of operations.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12Q – 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 2 and Unit 3 battery chargers on August 14, 2015
- Unit 2 feedwater system on August 27, 2015
- Unit 2 drywell to torus vacuum breakers on September 2, 2015

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 – 5 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.

- Unit 2 ECT gravity flow line operability with Unit 3 ECT gravity flow line OOS on July 24, 2015
- E-1 EDG statement of work and routine performance measurement system on August 5, 2015
- P3R20 Refueling Outage Paragon Shutdown Safety Overview on August 27, 2015
- Start-up transformer 343 OOS on September 14, 2015
- Unit 3 battery discharge test during yellow risk on September 22, 2015

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15 – 6 samples)

a. Inspection Scope

The inspectors reviewed operability determinations (ODs) for the following degraded or non-conforming conditions based on the risk significance of the associated components

- Unit 2 EHC power supply (22 Vdc) failure on July 1, 2015
- Unit 2 HPCI booster pump vibration on July 7, 2015
- E-2 EDG starting air tubing leak on July 20, 2015
- B.5.b pump engine block heater breaker trips on August 20, 2015
- Unit 2 HPCI pump inboard and outboard mechanical seal leakage on August 25, 2015
- Unit 2 and Unit 3 RSP surveillance testing TS compliance on August 27, 2015

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

Introduction. The inspectors identified a Green NCV of TS 5.4.1.a, after Exelon did not establish and implement procedures to adequately test the Unit 2 and Unit 3 RSPs. Specifically, Exelon's surveillance procedure did not test all control circuits, as required by TS Surveillance Requirement (SR) 3.3.3.2.1, for the Unit 2 and Unit 3 RSPs.

Description. Exelon performed testing of the RCIC system from the Unit 2 RSP. The inspectors questioned why operations started the RCIC pump from the MCR rather than the RSP, since capability exists to start the RCIC pump by opening the RCIC turbine steam supply valve from the RSP. Additionally, the inspectors questioned what other components were not being tested from the RSP. Per TS 3.3.3.2 bases, the RSP's safety function is to provide sufficient instrumentation and controls to place and maintain the plant in a safe shutdown condition from outside the MCR. Exelon asserted that starting RCIC from the RSP was not required to comply with TS 3.3.3.2 because upon MCR evacuation, operators would scram both units and close the main steam isolation valves, which would result in a loss of feedwater and automatic initiation of RCIC on low reactor water level.

The SR 3.3.3.2.1 bases state that each required control circuit shall be tested either by operation of the component or by performance of a continuity check. The inspectors determined that continuity checks were not performed on the RCIC valves at the RSP. Exelon subsequently generated IR 02526507 and performed an extent of cause (EOC) to determine what Unit 2 and Unit 3 RSP components were not being tested by either operation from the RSPs or by performance of a continuity check.

Exelon's extent of condition determined that components on the RCIC system, CRD system, ESW system, and the residual heat removal (RHR) system were not being tested on both units by operation from the RSPs or via continuity checks. The inspectors questioned the licensee on how they were demonstrating compliance of SR 3.3.3.2.1, and operability of the RSPs per TS 3.3.3.2. Exelon stated that they complied with SR 3.3.3.2.1, because they pulled the component control switches on the RSP during testing and verified that control of the components was transferred from the MCR to the RSP. SR 3.3.3.2.1 states that each required control circuit and transfer switch is to be tested. Table B 3.3.3.2-1 of TS bases 3.3.3.2 lists transfer/control parameters on the RSP, including the components of the RCIC, CRD, ESW, and RHR systems. The inspectors noted that the licensee was testing the transfer capability, but was not testing the control circuit of each required component.

On September 1, 2015, the inspectors, NRC regional and Office of Nuclear Reactor Regulation (NRR) staff, reviewed Exelon's written basis and concluded that the licensee did not demonstrate that TS surveillance requirement 3.3.3.2.1 had ever met IMC 0326 Appendix A, "Surveillances," issued January 31, 2014, which states, "In cases where a specified safety function or a necessary and related support function required for operability has never been performed, then a reasonable expectation of operability does not exist." On September 4, 2015, the inspectors informed Exelon of the NRC's position and the licensee declared the RSPs at Unit 2 and Unit 3 inoperable per TS 3.3.3.2 and entered a 30-day shutdown required action statement since Exelon had never demonstrated operability of the RSPs through testing.

Exelon's corrective actions included entering this issue into their CAP as IRs 02551342 and 02551348, development of RSP testing procedures for the RCIC, CRD, and ESW system components, and a revision to the bases for TS 3.3.3.2. During testing of the Unit 2 RSP on September 16, 2015, the Unit 2 RCIC turbine steam supply valve did not stroke open from the RSP. Exelon found a screw missing, resulting in a control circuit wire not being landed in the RSP; they were unable to locate the missing screw. Exelon entered this issue into their CAP as IR 02556042, re-landed the wire with a new screw, and satisfactorily stroke tested the steam supply valve. On September 18, 2015, Exelon completed the RSP testing for both units and exited the 30-day shutdown required action statement of TS 3.3.3.2.

Analysis. The inspectors determined that failure to implement a procedure that adequately tests the Unit 2 and Unit 3 RSPs in accordance with SR 3.3.3.2.1, was a PD that was within the capability of Exelon to foresee and correct and should have been prevented. The PD was determined to be more-than-minor in accordance with IMC 0612 Appendix B, "Issue Screening," issued September 7, 2012, because it was associated with the Equipment Performance attribute of the Mitigating Systems cornerstone, and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, Exelon's failure to properly test the RSPs reduced the availability, reliability, and capability of the Unit 2 and Unit 3 safety functions controlled from the RSP to place and maintain the plant in a safe shutdown condition should the MCR become uninhabitable for any event other than fire or smoke (i.e., toxic gases or high radiation). Additionally, examples 1.c, 4.l, and 4.m from IMC 0612, Appendix E, "Examples of Minor Issues," issued August 11, 2009, detail that a PD is more-than-minor if required TS surveillance testing is not performed and

subsequent testing reveals that the equipment is out of specification or otherwise unable to perform a safety-related function.

The inspectors, in consultation with a Region I SRA, evaluated this finding using IMC 0609, Attachment 4, "Initial Characterization of Findings," issued June 19, 2012, and IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," issued June 19, 2012. The inspectors concluded that the failure of the Unit 2 RCIC steam supply valve to stroke open from the RSP did not degrade automatic operation of the RCIC system or remote operation of the RCIC steam supply valve from the MCR. Per Appendix A, Exhibit 2, Question B, this finding involves the degradation of a system specifically designed for use in the event of control room abandonment. Per Exhibit 4, "External Events Screening Questions," the inspectors determined that this issue required a detailed risk evaluation.

The SRA determined that General Design Criteria 19 RSPs are not modeled in plant probabilistic risk analysis (PRA) models. However, fire PRAs and associated MCR fire events with postulated control room evacuation and mitigation using the remote safe shutdown panels are developed fire PRA scenarios. The SRA used the available archived external event SDP Notebook for Nine Mile Point Unit 2 (NMP2) to approximate the increase in conditional core damage frequency for this finding at Peach Bottom and used Sequence 7 in SDP Worksheet 3.3.7. Specifically, this sequence models a control room fire (1E-5/year) resulting in a control room evacuation (operator failure probability of 0.1) and the subsequent use of the remote safe shutdown panel (nominal failure probability of the panel estimated at 0.01). Using this sequence as a reasonable surrogate, the SRA made the following assumptions: the likelihood of a toxic gas release resulting in a MCR evacuation is estimated at 1E-6/year (conservatively based upon no known toxic gas events resulting in a MCR evacuation in the US or internationally); a more conservative nominal failure probability for the RSPs of 0.1; and the same operator control room evacuation failure probability as the fire scenario of 0.1. As a result, the approximate delta between the condition case (failure probability of the RSP set to 1.0) and the base case (1E-8/year), using this conservative surrogate modeling approach and a one year exposure period, is 1E-7/year or very low safety significance (Green).

A confirmatory SRA review of the Peach Bottom Nuclear Station Individual Plant Examination for External Events, dated May 1996, Section 5.3.1.2, identified that the Regulatory Guide (RG) 1.70 based accident analysis for toxic gas release related events, with the potential to adversely impact personnel in the control room, were less than 1.0E-7 events per year and did not require any further evaluation.

The inspectors determined that this finding had a cross-cutting aspect in Human Performance, Avoid Complacency, because Exelon failed to recognize and plan for the possibility of latent problems. Specifically, Exelon did not ensure that the RSP surveillance testing procedures were satisfying the requirements of SR 3.3.3.2.1. As a result, each required control circuit was not tested at the RSPs either by operation of the component or by performance of a continuity check [H.12].

Enforcement. TS 5.4.1.a requires that written procedures be established, implemented, and maintained covering activities described in RG 1.33, Appendix A, November 1972, which includes procedures for surveillance tests (section H.2). SR 3.3.3.2.1 of TS 3.3.3.2 requires Exelon to verify each required control circuit and transfer switch is

capable of performing the intended function. The SR allows the surveillance to be satisfied by performance of a continuity check of the circuitry.” Contrary to the above, Exelon did not adequately establish, implement, and maintain procedures covering SR 3.3.3.2.1 to verify that each required control circuit on the Unit 2 and Unit 3 RSPs was capable of performing the intended function. Specifically, Exelon did not test the control circuits of RCIC, CRD, ESW, and RHR system components from the Unit 2 and Unit 3 RSPs either by operation of the components or by performance of a continuity check. Exelon’s corrective actions included entering this issue into their CAP, the development of RSP testing procedures for the RCIC, CRD, and ESW system components, and a revision to the bases for TS 3.3.3.2. Because this finding was of very low safety significance (Green) and was entered into Exelon’s CAP as IRs 02551342 and 02551348, this violation is being treated as a NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy. **(NCV 05000277/2015003-01, 05000278-2015003-01, Incomplete Testing of Components from the Remote Shutdown Panels)**

1R18 Plant Modifications (71111.18 – 2 samples)

Permanent Modifications

a. Inspection Scope

The inspectors evaluated the following modifications listed below:

- Cardox room pipe repair modification for ESW pipe leak on July 9, 2015
- Unit 2 and Unit 3 remote shutdown system TS bases change on September 1, 2015

The inspectors verified that the design bases, licensing bases, and performance capability of the affected systems were not degraded by the modifications. In addition, the inspectors reviewed modification documents associated with the upgrade and design change. The inspectors reviewed 10 CFR 50.59 documentation and post-modification testing results, and conducted field walkdowns of the modifications.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19 – 3 samples)

a. Inspection Scope

The inspectors reviewed the post-maintenance tests (PMTs) for the maintenance activities listed below to verify that procedures and test activities 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 quality control hold point were performed and

checked, and that results adequately demonstrated restoration of the affected safety functions.

- SI2T-MIS-8547-B1CQ, "Calibration/Functional Check of Channel B Group 1, 4 and 5 of Primary Containment Isolation System (PCIS) Logic Test for TIS-80547B," Revision 15, on July 31, 2015, following replacement of failed Division II Channel B Steam Leak Monitor Drawer
- ST-O-033-300-2, "ESW, Valve Unit Cooler, and ECT Fans Functional Inservice Test," Revision 39, on July 31, 2015, after planned maintenance outage
- RT-O-052-251-2, "E-1 Diesel Generator Inspection Post-Maintenance Functional Test," Revision 29, on August 5, 2015, after planned maintenance

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22 – 7 samples)

a. Inspection Scope

The inspectors observed performance of surveillance tests and/or reviewed test data of selected risk 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 surveillance tests:

- ST-O-013-201-2, RCIC Alternative Control Panel Test, and RSP Test, Revision 5 on July 1, 2015 (IST)
- ST-O-010-301-2, Unit 2 'A' RHR LOOP Pump, Valve, and Flow (PV&F) Test, Revision 41, on July 7 and July 8, 2015 (IST)
- ST-O-052-413-2, Unit 2 E-3 Diesel Generator Fast Start and Full Load Test, Revision 23, on July 9, 2015
- ST-O-032-301-3, Unit 3 HPSW PV&F Functional and Inservice Test, Revision 31, on July 15, 2015
- SI2D-7-2503-BICE, Unit 2 Torus Reactor Building Differential Pressure, Revision 5, on September 16, 2015 (ISO)
- ST-O-013-201-2, Unit 2 RSP Surveillance Testing, Revision 7, and ST-O-013-201-3, Unit 3 RSP Surveillance Testing, Revision 6, on September 16, 2015
- ST-O-052-122-2, Unit 3 E-33 4kV Bus Undervoltage Relays and LOCA LOOP Functional Test, Revision 9, on September 29, 2015

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety (OS)

2RS3 In-Plant Airborne Radioactivity Control and Mitigation (71124.03 – 1 sample)

a. Inspection Scope

During August 10-13, 2015, the inspectors reviewed the control of in-plant airborne radioactivity and the use of respiratory protection devices for radiological protection. The inspectors used the requirements in 10 CFR 20, RG 8.15, RG 8.25, NUREG/CR 0041, TS, and procedures required by TS as criteria for determining compliance.

Inspection Planning

The inspectors reviewed the UFSAR to identify ventilation and radiation monitoring systems associated with airborne radioactivity controls and respiratory protection equipment staged for emergency use. The inspectors also reviewed respiratory protection program procedures and current performance indicators for unintended internal exposure incidents.

Use of Respiratory Protection Devices

The inspectors reviewed the adequacy of the licensee's use of respiratory protection devices in the plant to include applicable As Low As is Reasonably Achievable (ALARA) evaluations, respiratory protection device certification, respiratory equipment storage, air quality testing records, and individual qualification records.

Self-Contained Breathing Apparatus (SCBA) for Emergency Use

The inspectors reviewed the following: the status and surveillance records for three SCBAs staged in-plant for use during emergencies; SCBA procedures and maintenance and test records; the refilling and transporting of SCBA air bottles; SCBA mask size availability; and the qualifications of personnel performing service and repair of this equipment.

Problem Identification and Resolution

The inspectors evaluated whether problems associated with the control and mitigation of in-plant airborne radioactivity were identified at an appropriate threshold and addressed by the licensee's CAP.

b. Findings

No findings were identified.

2RS4 Occupational Dose Assessment (71124.04 – 1 sample)

a. Inspection Scope

During August 10-13, 2015, the inspectors reviewed the monitoring, assessment, and reporting of occupational dose. The inspectors used the requirements in 10 CFR 20, RGs, TSs, and procedures required by TSs as criteria for determining compliance.

Inspection Planning

The inspectors reviewed: radiation protection program audits; National Voluntary Laboratory Accreditation Program (NVLAP) dosimetry testing reports; and procedures associated with dosimetry operations.

External Dosimetry

The inspectors reviewed: dosimetry NVLAP accreditation; onsite storage of dosimeters; the use of “correction factors” to align electronic personal dosimeter results with NVLAP dosimetry results; dosimetry occurrence reports; and CAP documents for adverse trends related to external dosimetry.

Problem Identification and Resolution

The inspectors evaluated whether problems associated with occupational dose assessment were identified at an appropriate threshold and properly addressed in the CAP.

b. Findings

No findings were identified.

Cornerstone: Public Radiation Safety (PS)

2RS7 Radiological Environmental Monitoring Program (REMP) (71124.07 – 1 sample)

a. Inspection Scope

During July 27-31, 2015, the inspectors reviewed the REMP to validate the effectiveness of the radioactive gaseous and liquid effluent release program. The inspectors used the requirements in 10 CFR 20; 40 CFR 190; 10 CFR 50 Appendix I; and the site’s TSs, Offsite Dose Calculation Manual (ODCM), and procedures required by TSs as criteria for determining compliance.

Inspection Planning

The inspectors reviewed the licensee’s 2013 and 2014 Annual Radiological Environmental and Effluent Monitoring reports; REMP program audits; ODCM changes; land use census; and inter-laboratory comparison program results.

Onsite Inspection

The inspectors reviewed and/or observed the following items:

- Sample collection, monitoring, and dose measurement stations (e.g., thermoluminescent dosimeter, air monitoring, vegetation, milk)
- Calibration and maintenance records for air sample and dosimetry measurement equipment
- Environmental sampling of the effluent release pathways specified in the ODCM
- Meteorological tower and meteorological data readouts
- Meteorological instrument operability status and calibration results
- Missed and anomalous environmental samples identified, resolved, and reported in the annual radioactive environmental monitoring reports
- Positive environmental sample assessment results
- The groundwater monitoring program as it applies to selected potential leaking SSCs
- 10 CFR 50.75(g) records of leaks, spills, and remediation since the previous inspection
- Changes to the ODCM due to changes to the land use census, long-term meteorological conditions, and modifications to the environmental sample stations
- Environmental sample laboratory analysis results, and measurement detection sensitivities
- Results of the laboratory quality control program audit, and the inter-and intra-laboratory comparison program results

Identification and Resolution of Problems

The inspectors evaluated whether problems associated with the REMP were identified at an appropriate threshold and properly addressed in the licensee's CAP.

b. Findings

No findings were identified

2RS8 Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and Transportation (71124.08 – 1 sample)

a. Inspection Scope

The inspectors verified the effectiveness of PBAPS' programs for processing, handling, storage, and transportation of radioactive material. The inspectors used the requirements of 49 CFR 170-177; 10 CFR 20, 37, 61, and 71; applicable industry standards; RGs, and procedures required by TSs as criteria for determining compliance.

Inspection Planning

The inspectors conducted an in-office review of the solid radioactive waste system description in the UFSAR, the process control program, and the recent radiological effluent release report for information on the types, amounts, and processing of radioactive waste disposed. The inspectors reviewed the scope of quality assurance (QA) audits performed for this area since the last inspection.

Radioactive Material Storage

The inspectors observed radioactive waste container storage areas and verified that PBAPS had established a process for monitoring the impact of long-term storage of the waste.

Radioactive Waste System Walk-down

The inspectors walked down the following items and areas:

- Accessible portions of liquid and solid radioactive waste processing systems to verify current system alignment and material condition
- Abandoned in place radioactive waste processing equipment to review the controls in place to ensure protection of personnel
- Changes made to the radioactive waste processing systems since the last inspection
- Processes for transferring radioactive waste resin and/or sludge discharges into shipping/disposal containers
- Current methods and procedures for dewatering waste

Waste Characterization and Classification

The inspectors identified radioactive waste streams and reviewed radiochemical sample analysis results to support radioactive waste characterization. The inspectors reviewed the use of scaling factors and calculations to account for difficult-to-measure radionuclides.

Shipment Preparation

The inspectors reviewed the records of shipment packaging, surveying, labeling, marking, placarding, vehicle checks, emergency instructions, disposal manifest, shipping papers provided to the driver, and licensee verification of shipment readiness.

Shipping Records

The inspectors reviewed selected non-accepted package shipment records.

Identification and Resolution of Problems

The inspectors assessed whether problems associated with radioactive waste processing, handling, storage, and transportation, were identified at an appropriate threshold and properly addressed in PBAPS' CAP.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

.1 Safety System Functional Failures (2 samples)

a. Inspection Scope

The inspectors sampled PBAPS's submittals for the safety system functional failures (SSFFs) performance indicator (PI) for both Unit 2 and Unit 3 for the period of July 1, 2014 through June 30, 2015. To determine the accuracy of the PI data reported during those periods, inspectors used definitions and guidance contained in the Nuclear Energy Institute (NEI) Document 99-02, "Regulatory Assessment PI Guideline," Revision 7, and NUREG-1022, Revision 3, "Event Reporting Guidelines 10 CFR 50.72 and 10 CFR 50.73." The inspectors reviewed PBAPS's operator narrative logs, operability assessments, MR records, maintenance WOs, CRs, event reports and NRC integrated inspection reports to validate the accuracy of the submittals.

b. Findings

No findings were identified.

.2 Radiological Effluent TS/ODCM Radiological Effluent Occurrences (1 sample)

a. Inspection Scope

The inspectors reviewed licensee submittals for the radiological effluent TS/ODCM radiological effluent occurrences PI for the 1st quarter 2014 through the 4th quarter 2014. The inspectors used PI definitions and guidance contained in the Nuclear Energy Institute Document 99-02, Revision 7, to determine if the PI data was reported properly. The inspectors reviewed the public dose assessments for the PI for public radiation safety to determine if related data was accurately calculated and reported.

The inspectors reviewed the CAP database to identify any potential occurrences such as unmonitored, uncontrolled, or improperly calculated effluent releases that may have impacted offsite dose. The inspectors reviewed gaseous and liquid effluent summary data and the results of associated offsite dose calculations to determine if indicator results were accurately reported.

b. Findings

No findings were identified.

.3 Mitigating Systems Performance Index (2 samples)

a. Inspection Scope

The inspectors reviewed Exelon's submittal of the Mitigating Systems Performance Index for the following systems for the period of July 1, 2014, through June 30, 2015:

- Unit 2 Emergency AC Power System
- Unit 3 Emergency AC Power System

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 Exelon's operator narrative logs, condition reports, mitigating systems performance index derivation reports, event reports, and NRC integrated inspection reports to validate the accuracy of the submittals.

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution (71152 – 3 samples)

.1 Routine Review of Problem Identification and Resolution Activities

a. Inspection Scope

As required by Inspection Procedure 71152, "Problem Identification and Resolution (PI&R)," 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: ECT Human Performance Error

a. Inspection Scope

This PI&R sample reviewed PBAPS actions related to the implementation of effective risk management actions (RMAs) when a protected (Unit 2) train of an ECT letdown path to the ESW / HPSW bay was unexpectedly made inoperable while the opposite (Unit 3) train letdown path was OOS for installation of a Fukushima FLEX modification.

b. Findings and Observations

No findings were identified.

On July 21, 2015, at 1:03 a.m., control room operators identified that the closed indication light for MO-2-48-2804A (this valve is one of two series remotely operated

valves in the Unit 2 letdown path from the ECT to the ESW/HPSW Pump Bay) was not lit. Additional investigation determined that a local control switch at the valve, which was labeled with a protected equipment placard, was in the "Stop" vice the proper "Remote" position. At 1:45 a.m., operators restored the local control switch to the "Remote" position, which restored the control room indication. An extent of condition review at that time verified that all other similar valve (MO-2804B, MO-3804A, and MO-3804B) control switches were in the proper "Remote" position. Prior to and during the time of discovery, contractors had been working in the ECT letdown area installing a Fukushima FLEX equipment modification that involved cutting a hole between the two in-series valves in the Unit 3 ECT letdown line. PBAPS initiated a prompt investigation to address this configuration control event. This issue was documented in IR 02530672.

PBAPS' prompt investigation determined that contract workers, while using a vacuum to clean up debris from modification work on the opposite train, most likely snagged the vacuum hose or the canister on the local control switch for MO-2-48-2804A, causing it to move to the "Stop" position late in the evening of July 20, 2015. The workers were aware that the Unit 2 ECT letdown valves were protected while they were doing modification work on the Unit 3 system (as denoted by a protected equipment placard), and of the need to keep their distance from the valve clutch and handwheel when working within two feet of them. However, when the work group evaluated conditions within two-foot zone prior to initiating work, they did not identify the existence of local valve controls, and thus no additional actions (additional placarding, barricading, proximity warnings, etc.) were taken to protect the local controls, contrary to the requirements of OP-AA-108-117, Protected Equipment Program.

The inspectors noted that this procedure describes appropriate risk management actions, which include administrative actions and physical barriers. The procedure requires a discussion of protected equipment in the vicinity and additionally requires PBAPS personnel to place appropriate placards on protected equipment. However, PBAPS did not to effectively implement OP-AA-108-117 to manage risk when a protected train Unit 2 ECT letdown path to the ESW/HPSW bay was unexpectedly made inoperable while the redundant Unit 3 train was OOS for installation of a FLEX modification. Specifically, risk management actions were not effectively implemented to prevent a worker from inadvertently operating a local control switch for MO-2-48-2804A. This resulted in the potential unavailability of the ECT for a Loss of Conowingo Pond event. A prior alignment of the ECT per SO 48.1.A, Emergency Cooling Tower System, took operators 47 minutes to complete. The 47 minutes to align the ECT, combined with the July 21, 2015, actual OOS time of 42 minutes, was less than the 90 minutes allowed by OP-PB-102-106, Peach Bottom Master List of Time Critical and Sensitive Actions. Thus the inspectors determined that if a Loss of Conowingo Pond event occurred, operators would have had sufficient time to operate the ECT to mitigate the consequences of this event.

The inspectors independently evaluated the PD noted above for significance in accordance with the guidance in IMC 0612, Appendix B, "Issue Screening," and Appendix E, "Examples of Minor Issues." The inspectors noted that if a Loss of Conowingo Pond event occurred because of a loss of the Conowingo Dam: 1) operators would have advance warning based on control room indication of actual river level and could take prompt action, 2), it was highly likely that the operators would have discovered the mis-positioned local valve switch in less than 42 minutes under these circumstances, and 3) even if the event occurred, operators would have had sufficient

time operate the ECT to mitigate the consequences of this event. Thus, the inspectors determined that this PD was of minor significance and, therefore, was not subject to enforcement action in accordance with the NRC's Enforcement Policy. PBAPS documented this issue in IR 02530672 and also took actions to enhance the local posting by covering the local valve controls with improved placarding as well as directed the work group to counsel personnel involved on the need for heightened vigilance when working near protected equipment.

.3 Annual Sample: Power Uprate Database Equipment Description

a. Inspection Scope

The inspectors performed an in-depth review of Exelon's evaluation and corrective actions associated with the classification and description of motor-operated valves (MOVs) installed, upgraded, or reclassified to meet power uprate licensing requirements. The inspectors reviewed condition reports and corrective actions associated with the failure to properly identify and describe the safety function of these MOVs in Exelon's computer tracking system equipment data bases. Specifically, the inspectors reviewed the actions taken by Exelon to correct inaccurate descriptions of these components. Exelon used these descriptions to determine maintenance requirements and to evaluate the safety implications of deficient conditions identified to ensure the equipment is being properly maintained and to assure that the evaluation of the identified deficiency takes into account the ability of the component to meet all safety functions.

The inspectors assessed Exelon's evaluation, extent of condition review, completed and proposed corrective actions, and the prioritization and timeliness of actions to determine whether the corrective actions were appropriate. Inspectors evaluated whether the revised descriptions would ensure Exelon personnel would have adequate information to evaluate the component's required capabilities. The inspectors also reviewed Exelon's actions to evaluate whether other component descriptions, described in the power uprate license amendment, were properly updated. The inspectors interviewed engineers and reviewed Exelon's evaluation of the issue and corrective actions taken to ensure that the scope of the review was adequate to correct deficiencies in the database.

b. Findings and Observations

No findings were identified.

The inspectors determined that Exelon's evaluation and extent of condition review were thorough, and the causes were appropriately identified. However, the inspectors determined that all corrective actions were not completed. Specifically, Exelon's engineering evaluation identified the MOVs credited in the power uprate license amendment; however, in some cases the database was either only partially corrected or not corrected. In response to questions from the inspectors, Exelon reviewed the database for all equipment discussed in the license amendment and entered identified deficiencies into their CAP. The inspectors concluded that Exelon's subsequent evaluation was appropriate and thorough.

.4 Annual Sample: HPCI Steam Supply Valve Leak-By (1 sample)

a. Inspection Scope

The inspectors performed an in-depth review of PBAPS' corrective actions associated with IRs 02550899 and IR 02552430, "Received 310 J-3 High Area Temperature Alarm," dated September 3, 2015 and September 9, 2015, respectively. Specifically, in the months following a degraded condition which PBAPS identified with the Unit 3 HPCI MO-14 Steam Supply Valve, PBAPS' operators received the HPCI high area temperature alarm on multiple occasions. During these occasions equipment operators responded by cycling on the HPCI room coolers to lower room temperature below the 110 degrees F setpoint.

The inspectors assessed PBAPS' problem identification threshold, operability evaluations, extent-of-condition reviews, compensatory actions, adverse condition monitoring plan, 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 HPCI.

b. Findings and Observations

No findings were identified.

PBAPS identified and the inspectors confirmed through a review of temperature plots that the leaking HPCI MO-14 steam supply valve was causing the Unit 3 HPCI turbine casing temperature to be elevated to approximately 110 degrees F. PBAPS engineering was able to demonstrate through schematics, temperature plots and graphs, and river temperatures that the cause of elevated room temperatures were a combination of the leaking HPCI MO-14 valve and the high ultimate heat sink temperature due to summer temperatures. The inspectors concluded that PBAPS assessed the issue correctly and the equipment operability was unaffected.

4OA5 Other Activities

.1 Operation of an Independent Spent Fuel Storage Installation (ISFSI)
(60855, 60855.1 – 1 sample)

a. Inspection Scope

On May 11 - 15, 2015, the inspectors observed and evaluated PBAPS' loading of a TN-68 dry shielded cask associated with the current ISFSI dry cask campaign. The inspector also reviewed PBAPS' activities related to long-term operation and monitoring of their ISFSI. The inspectors verified compliance with the Certificate of Compliance (CoC), TSs, regulations, and licensee procedures.

The inspectors observed and evaluated PBAPS' loading of the second TN-68 cask associated with their current ISFSI dry cask loading campaign. The inspectors observed TN-68 loading and processing operations including: placement of the cask into the spent fuel pool (SFP), loading spent fuel into the cask, alignment and installation of the cask lid, removal of the cask from the SFP, draining of the cask, movement to the cask prep area, decontamination, setup of the vacuum drying, final integrated leak testing, and transport of the cask to the ISFSI. The inspector also observed the lid bolt torquing process via remote cameras on the cask platform and was able to verify adherence to the bolt torquing pattern. During performance of the activities, the inspector evaluated PBAPS's adherence to site procedures, supervisory oversight, and communication and coordination between the personnel involved.

The inspector reviewed radiation protection (RP) procedures and radiation work permits associated with the ISFSI loading campaign. The inspector also reviewed the ALARA goal for the loading of the casks to determine the adequacy of PBAPS's radiological controls, ensuring that radiation worker doses were ALARA, and that project dose goals were being achieved. The inspector reviewed radiological records from the current loading campaign to confirm that contamination levels measured on the TN-68 casks were within the limits specified by the TS.

The inspector reviewed PBAPS' program associated with fuel characterization and selection for storage. The inspector reviewed cask fuel selection packages to verify that PBAPS was loading fuel in accordance with the CoC and TS. In addition, the inspector independently verified the cask loading for the current cask via review of the digital recording. PBAPS did not plan to load any damaged fuel assemblies during this campaign.

The inspector reviewed Exelon's 10 CFR 72.48 screenings, corrective action reports, and the associated follow-up actions that were generated since PBAPS' last loading campaign to ensure that issues were entered into the CAP, prioritized, and evaluated commensurate with their safety significance. The inspector toured the ISFSI pad to assess the material condition of the pad and the loaded TN-68 casks and verified that PBAPS appropriately performed surveillances in accordance with TS requirements. The inspectors also verified that transient combustibles were not being stored on the ISFSI pad or in the vicinity of the loaded casks. The environmental reports were reviewed to verify that areas around the ISFSI site boundary were within the limits specified in 10 CFR Part 20 and 10 CFR 72.104.

b. Findings

No findings were identified.

.2 Groundwater Protection Initiative

a. Inspection Scope

Exelon submitted a voluntary Groundwater Protection Initiative special report on May 15, 2015, for elevated tritium levels identified in an on-site groundwater monitoring well. Exelon determined the tritium migrated through the concrete of the turbine building from condensed turbine building air-water vapor that had pooled around a stand pipe. Exelon took corrective actions to remove the water and to mitigate further pooling. Inspectors

reviewed Exelon's apparent cause evaluation, interviewed staff members, and conducted walkdowns of the turbine buildings and surrounding areas to verify that no SSCs were the cause of the elevated tritium levels.

b. Findings

No findings were identified.

4OA6 Meetings, Including Exit

Quarterly Resident Exit Meeting Summary

On October 19, 2015, the inspectors presented the inspection results to Mr. Pat Navin, Peach Bottom Plant Manager, and other members of the PBAPS staff. The inspectors verified that no proprietary information was retained by the inspectors or documented in this report.

4OA7 Licensee-Identified Violations

The following violation of very low safety significance (Green) was identified by Exelon and is a violation of NRC requirements which meets the criteria of the NRC Enforcement Policy for being dispositioned as a NCV.

From 2010 to 2014, PBAPS made a total of 18 shipments of radioactive waste for disposal to the Energy Solutions Clive, UT facility, which contained category 2 levels of radioactive material quantity of concern (RAM-QC), but did not implement transportation security plan for these shipments, which is contrary to the requirements of 10 CFR 71.5 and 49 CFR 172, Subpart I, "Safety and Security Plans." This PD adversely affected the Public Radiation Safety cornerstone attribute of Program and Process based on inadequate procedures associated with the transportation of radioactive materials. This issue was documented in Exelon's CAP as assignment reports 02484424, 02487034, and 02490534.

ATTACHMENT: SUPPLEMENTARY INFORMATION

SUPPLEMENTARY INFORMATION

KEY POINTS OF CONTACT

Exelon Generation Company Personnel

M. Massaro, Site Vice President
P. Navin, Plant Manager
J. Armstrong, Regulatory Assurance Manager
C. Albert, ISFSI Project Manager (Contractor)
C. Bersell, Reactor Services
R. Benzel, Reactor Core Isolation Cooling System Engineer
P. Breidenbaugh, Maintenance Director
R. Brightup, Senior Engineer
J. Chizever, Design Engineer Manager
C. Crabtree, Environmental Chemist
A. Donley, REMP Program Manager
D. Dullum, Regulatory Assurance Engineer
B. Eckman, Nuclear Oversight
P. Gregory, Dry Cask Services Senior Programs Manager
B. Harper, Reactor Services
M. Herr, Operations Director
D. Henry, Engineering Director
J. Holley, Reactor Engineer
R. Holmes, Radiation Protection Manager
D. Hornherger, Chemistry – Radwaste Specialist
D. Kern, Lead RP Technician
B. Kozemchak, Reactor Services
J. Laverde, Design Engineer
H. McCrory, Radiation Protection Technical Support Manager
L. Nace, High Pressure Coolant Injection System Engineer
M. Pawlowski, Health Physics Shipping Specialist
C. Reynolds, Motor Operated Valve Engineer
J. Stenclik, Chemistry Programs Manager
D. Turek, Operations Support and Services Manager

NRC PERSONNEL

B. Reyes, (Acting) Senior Resident Inspector
B. Smith, Resident Inspector
S. Barber, Senior Project Engineer
J. Brand, Reactor Engineer
C. Graves, Health Physicist
J. Furia, Senior Health Physicist
J. Greives, Senior Resident Inspector, Susquehanna
S. Hammann, Senior Health Physicist
B. Lin, Project Engineer
K. Mangan, Senior Reactor Inspector
L. Micewski, Reactor Operations Engineer (HQ)
M. Scheetz, Reactor Operations Engineer (HQ)
A. Turilin, Project Engineer

LIST OF ITEMS OPENED, CLOSED, DISCUSSED, AND UPDATED

Opened/Closed

05000277, 278/2015003-01	NCV	Incomplete Testing of Components from the Remote Shutdown Panels (Section 1R15)
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LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather

Procedures

AO 28.2, Response to High/Low River Level, Revision 2
OP-AA-108-111-1001, Severe Weather and Natural Disaster Guidelines, Revision 13
OP-PB-108-111-1001, Preparation for Severe Weather, Revision 13
OP-PB-108-111-1002, Utility/Agency River Monitoring and Communications, Revision 0
SE-4, Flood, Revision 35

Drawings

Bechtel Drawing No. C-90, C.W. Pump Structure Concrete Superstructure, Revision 18
Bechtel Drawing No. S-552, EDG, Revision 18
Peach Bottom 6280-M-315, ESW and HPSW Systems, Revision 56

ARs/IRs

02544317, Evaluate Wall Penetrations

Section 1R04: Equipment Alignment

Procedures

COL 32.1.A-2, HPSW System, Revision 14
SO 10.1.B-3, Residual Heat Removal System Shutdown Cooling Mode Manual Start, Revision 47
SO 32.1.A-2, HPSW System Startup and Normal Operations, Revision 19
SO 32.8.A-2, HPSW System Routine Inspection, Revision 6ST-I-37G-392-2, E-2 Diesel Generator Cardox System Simulated Actuation and Air Flow Test, Revision 8
ST-O-032-350-2, HPSW Valve Alignment Verification, Revision 1

Drawings

P&I Diagram RHR System, 6280-M-361, Revision 73

ARs/IRs

02428284

Miscellaneous

PBAPS Clearance, No. 15001224, Intake Structure Vent Exchange 2BV83, Perform BRK PM on 2BV083
PBAPS UFSAR, 10.7, HPSW System, Revision 25

Section 1R05: Fire Protection

Procedures

CC-AA-211, Fire Protection Program, Revision 6
CC-PB-201, Hazard Barrier Control Program, Revision 3
ER-AA-600-1069, High Risk Fire Area Identification, Revision 2
OP-AA-201-001, Fire Marshall Tours, Revision 6
OP-AA-201-009, Control of Transient Combustible Material, Revision 17
OP-ASA-201-009, Control of Transient Combustible Material, Revision 17
PF-136, Emergency Cooling Tower Elevation 123 – 153 – General Area, Pre-fire Strategy Plan, Revision 3
PF-144, Circulating Water Pump Structure – General Area, Pre-fire Strategy Plan, Revision 7
PF-62, Unit 3 Reactor Building HPCI Room, Elevation 88'-0", Revision 7

Fire Plans

PF-132A, Upper Level, General Area (E-1) Pre-Fire Strategy Plan, Revision 4
PF-132-DG Building, General Area (E-1) Pre-Fire Strategy Plan, Revision 9

Miscellaneous

Fire Protection System Impairment Hourly/Shiftly Firewatch Log for FSI R12501230601, dated August 17-18, 2015

Section 1R06: Flood Protection Measures

Procedures

ER-AA-3003, Cable Condition Monitoring Program, Revision 2
OP-AA-108-115, Operability Evaluation, Revision 9
T-103, Secondary Containment Control, Revision 19

ARs/IRs

01039017	A1968135	A1977819	01039017	02517569	02521496
02521497	02521498	02521500	02521501	02521502	02522389
02522857	02522859	02523244	02523257	02528638	02534208
02534749					

Miscellaneous

PB-PRA-012, PBAPS Probabilistic Risk Assessment Internal Flood Evaluation Summary Notebook, Revision 2
Plant Engineering: Cable Aging Management Program Implementation Guidance, 2011 Technical Report, EPRI
POP-AA-102-105-1001, Peach Bottom Priority Work List – Priority 3, Addendum – Manhole Alarms, dated 7/1/15

Section 1R11: Licensed Operator Requalification Program

Procedures

GP-3-3, Normal Plant Shutdown, Revision 3

Section 1R12: Maintenance Effectiveness

Procedures

ST-O-007-425-2, Vacuum Breaker Position Verification, Revision 3

ST-O-007-430-02, Drywell/Torus Vacuum Breakers Operability Test, Revision 11

ARs/IRs

01574406 02398989 02398992 02498280 02513087 02540731
A1929040

WO

C0257443 R1248540

Drawings

D-11938-10, Wiring Diagram for Model 130/200R3-S Battery Charger, dated July 15, 1992

Miscellaneous

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02540358	02545223	02550045	02551342	02551348	A1438439
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Modifications

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Calculations, Analysis, and Evaluations

ARs/IRs

02486812

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A1605228

WO

C0220650

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COL 52C.1.A-1, E-1 EDG Starting Air Startup

COL 52D.1.A-1, E-1 EDG Fuel Oil Operation

COL 52D.3.A, EDG Fuel Oil Tank Fill

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01619258	01631277	01635701	01635747	01638633	01652690
01658045	01659914	01660943	01660943	01660967	01662052
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 SF-910, Spent Fuel Cask Leakage Location Determination, Revision 0
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WOs

CO255709	R128285	R1291035
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LIST OF ACRONYMS

AC	alternating current
ADAMS	Agencywide Documents Access and Management System
ALARA	as low as reasonably achievable
ASME	American Society of Mechanical Engineers
CAP	corrective action program
CFR	Code of Federal Regulations
CoC	certificate of compliance
CR	condition report
CRD	control rod drive
ECT	emergency cooling tower
EDG	emergency diesel generator
EHC	electrohydraulic control
ESW	emergency service water

FSAR	final safety analysis report
GL	generic letter
HPCI	high pressure coolant injection
HPSW	high pressure service water
IMC	inspection manual chapter
IP	inspection procedure
IR	issue report
ISFSI	independent spent fuel storage installation
LER	licensee event report
MCR	main control room
MOV	motor-operated valve
MR	maintenance rule
NCV	non-cited violation
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
NVLAP	National Voluntary Laboratory Accreditation Program
OD	operability determination
ODCM	offsite does calculation manual
OOS	out-of-service
PARS	publicly available records
PBAPS	Peach Bottom Atomic Power Station
PD	performance deficiency
PI	performance indicator
PMTs	post-maintenance tests
PRA	probabilistic risk analysis
PV&F	pump, valve, and flow
QA	quality assurance
RAM-QC	radioactive material – quality of concern
RCIC	reactor core isolation cooling
REMP	radiological environmental monitoring program
RG	regulatory guide
RHR	residual heat removal
RP	radiation protection
RSPs	remote shutdown panels
RTP	rated thermal power
SCBA	self-contained breathing apparatus
SFP	spent fuel pool
SR	surveillance requirement
SRA	senior reactor analyst
SSCs	structures, systems, and components
SSFFs	safety system functional failures
TS	technical specification
UFSAR	Updated Final Safety Analysis Report
WOs	work orders