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

November 7, 2014

Mr. Michael J. Pacilio
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 - NRC INTEGRATED INSPECTION REPORT 05000277/2014004 AND 05000278/2014004

Dear Mr. Pacilio:

On September 30, 2014, the U. S. Nuclear Regulatory Commission (NRC) completed an integrated 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 17, 2014, with Mr. Michael Massaro, Site Vice President, and other members of your staff.

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

This report documents two NRC-identified findings and one self-revealing finding of very low safety significance (Green). The findings were determined to involve violations of NRC requirements. However, because of their very low safety significance, and because they are entered into your corrective action program, the NRC is treating the findings as non-cited violations (NCVs), consistent with Section 2.3.2.a of the NRC Enforcement Policy. If you contest any NCV in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, 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 Senior Resident Inspector at the PBAPS. In addition, if you disagree with the cross-cutting aspect assigned to any 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 Senior Resident Inspector at PBAPS.

In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any), will be available electronically for public inspection in the NRC'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
License Nos: DPR-44, DPR-56

Enclosure: Inspection Report 05000277/2014004 and 05000278/2014004
w/Attachment: Supplementary Information

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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).

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REGION I

Docket Nos:	50-277, 50-278
License Nos:	DPR-44, DPR-56
Report Nos:	05000277/2014004 and 05000278/2014004
Licensee:	Exelon Generation Company, LLC (Exelon)
Facility:	Peach Bottom Atomic Power Station, Units 2 and 3
Location:	Delta, Pennsylvania
Dates:	July 1, 2014 through September 30, 2014
Inspectors:	S. Hansell, Senior Resident Inspector B. Smith, Resident Inspector S. Barr, Senior Emergency Preparedness Specialist W. Cook, Senior Reactor Analyst C. Graves, Health Physicist J. Heinly, Resident Inspector, Three Mile Island
Approved by:	Fred L. Bower III, Chief Reactor Projects Branch 4 Division of Reactor Projects

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SUMMARY OF FINDINGS

IR 05000277/2014004, 05000278/2014004; 07/01/2014 – 09/30/2014; Peach Bottom Atomic Power Station (PBAPS) Units 2 and 3; Fire Protection, Surveillance Testing, and Maintaining Emergency Preparedness.

This report covered a three-month period of inspection by resident inspectors and announced inspections performed by regional inspectors. Two NRC-identified findings and one self-revealing finding of very low safety significance (Green) were identified. 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 June 2, 2011. The cross-cutting aspects are determined using IMC 0310, "Aspects Within Cross-Cutting Areas," dated December 19, 2013. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy, dated July 9, 2013. 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 non-cited violation (NCV) of the PBAPS Units 2 and 3 operating licenses, Section 2.C.4, "Fire Protection," because Exelon did not have the ability to implement all provisions of their approved Fire Protection Program as described in the Updated Final Safety Analysis Report (UFSAR). Specifically, UFSAR Section 5.2.2, Appendix R, "Shutdown Method D," was found degraded due to the loss of the alternate 125 volts direct current (Vdc) control power to both E-2 and E-4 alternate shutdown panels. The alternate 125 Vdc power was found degraded during a planned inspection due to broken electrical wires located in the safety-related E-23 4.16 kilovolt (kV) breaker cubicle associated with the E-2 alternate shutdown panel. The extent-of-condition (EOC) corrective actions were not timely to identify and correct similar broken wires in the E-43 4.16 kV breaker cubicle associated with the E-4 alternate shutdown panel. PBAPS entered the following issue reports (IRs) into their corrective action program (CAP): IR 01629839, 01656255, 01662555, and 01662767. Exelon completed repairs of the broken wires in both electrical breaker cubicles.

  The finding is more than minor because it is associated with the external events (fire) attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, following a postulated control room abandonment fire, the analyzed normal method was unavailable for closing three 4 kV circuit breakers locally with the switchgear mounted switch. Using IMC 0609, Appendix F, "Fire Protection SDP," the Region I Senior Reactor Analyst (SRA) determined per Figure F.1, "Phase 1 Flow Chart," and associated screening criteria that this finding is of very low safety significance (Green). The inspectors determined that this finding had a cross-cutting aspect in the area of Problem Identification and Resolution (PI&R), Evaluation, because Exelon did not complete the EOC action in a timely manner commensurate with its safety significance. Specifically, the decision to implement corrective actions to address the EOC two months after the identification of the first breaker cubicle broken wire was not timely and commensurate with its safety significance. Additionally, the condition potentially existed for a longer period of time, but was not identified by established maintenance procedures. Even though the E-43 4.16 kV breaker wires could be checked

without affecting the operability or availability of the E-4 emergency diesel generator (EDG), Exelon decided to perform the E-43 4.16 kV EDG breaker cubicle inspection during a future scheduled overhaul. Exelon's corrective action procedure defines an "immediate" EOC concern when, as in this case, a work group evaluation (WGE) is required. [P.2 PI&R, Evaluation] (Section 1R05)

- Green. A self-revealing finding was identified involving an NCV of very low safety significance (Green) for Technical Specification (TS) 5.4.1 "Procedures," because Exelon did not correctly implement procedure MA-MA-796-024-1001, Revision 8, "Scaffold Criteria for the Mid-Atlantic Stations." In addition, work order (WO) C0244158, "Open/Close CHK-2-10-48A for OPS Torus Support," instructions were not implemented as written to remove a gag (i.e., eyebolt) on the Unit 2 'A' residual heat removal (RHR) pump discharge check valve, CHK-2-10-48A, following restoration of the 2 'A' RHR system after a September 16, 2012, maintenance and fill activity. By not implementing these procedures and instructions, the eyebolt prevented full closure of CHK-2-10-48A after the 2 'A' RHR pump was secured. Exelon entered these issues into their CAP as IR 1680741, IR 1690648, and action request (AR) 02387793. Exelon removed the eyebolt and scaffold midrail to prevent any obstruction of movement on CHK-2-10-48A.

  The finding is more than minor because it affected the Mitigating Systems cornerstone attribute of equipment performance in the area of reliability and availability of the 2 'A' RHR train. Specifically, due to the stuck open check valve during a postulated loss of coolant accident (LOCA)/loss of offsite power (LOOP) scenario, voiding could occur and create a potential water hammer resulting in pipe support damage. This finding was determined to be of very low safety significance (Green) using IMC 0609, Appendix A, Exhibit 2, because the finding did not represent a loss of system function, did not represent a loss of a single train for greater than its allowed TS outage time, and did not involve the loss or degradation of equipment or function specifically designed to mitigate a seismic, flooding, or severe weather initiating event. Additionally, the inspectors determined that the function of 2 'A' RHR remained available because RHR piping would remain intact and containment cooling would not have been lost during the postulated water hammer scenario. The finding has a cross-cutting aspect in Human Performance, Work Management, because in the case of the erected scaffold, Exelon did not plan, control, and execute work activities such that nuclear safety was the overriding priority. Specifically, the work process did not coordinate effectively with different groups (i.e., operations, engineering, scaffold builders, and maintenance) and job activities to identify and preclude the scaffold from obstructing an eyebolt attached to the swing arm of the 2 'A' RHR pump discharge check valve. [H.5 Human Performance, Work Management] (Section 1R22)

Cornerstone: Emergency Preparedness

- Green. The inspectors identified a Green NCV of Title 10 of the *Code of Federal Regulations* (10 CFR) 50.54(q)(2), 10 CFR 50.47(b)(10), and 10 CFR Part 50, Appendix E, Section IV.4, for failing to maintain the effectiveness of the PBAPS, Units 2 and 3, Emergency Plan. The station did not provide the evacuation time estimate (ETE) to the responsible offsite response organizations (OROs) by the required date. Exelon entered this issue into its CAP as IR 1525923 and IR 1578649. Additionally, Exelon re-submitted a new revision of the Peach Bottom ETE to the NRC on May 2, 2014.

  The performance deficiency is more than minor because it is associated with the Emergency Preparedness cornerstone attribute of procedure quality and it adversely affected the

cornerstone objective of ensuring that the licensee is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. The finding was determined to be of very low safety significance (Green) because it was a failure to comply with a non-risk significant portion of 10 CFR 50.47(b)(10). The cause of the finding is related to the cross-cutting element of Human Performance, Documentation, because Exelon did not appropriately create and maintain complete, accurate and, up-to-date documentation [H.7 Human Performance, Documentation] (Section 1EP5)

Other Findings

None

REPORT DETAILS

Summary of Plant Status

Unit 2 began the inspection period at 100 percent rated thermal power (RTP). On July 26, 2014, operators reduced RTP to approximately 69 percent to perform a control rod pattern adjustment. The unit was returned to 100 percent RTP on July 27, 2014. On August 23, 2014, operators reduced RTP to approximately 90 percent to remove the 'A' and 'C' fifth stage feedwater (FW) heaters from service. The unit was returned to 100 percent RTP on August 24, 2014. On September 7, 2014, operators reduced RTP to approximately 90 percent to remove the 'A' and 'C' fourth stage FW heaters from service. The unit returned to 100 percent RTP on September 8, 2014. Subsequently, the unit began to lower RTP due to the end-of-cycle coast down and by the end of the inspection period was at approximately 92 percent RTP.

Unit 3 began the inspection period at 100 percent RTP. On September 20, 2014, operators reduced RTP to approximately 59 percent to perform a control rod pattern adjustment and FW pump linkage inspections. The unit returned to 100 percent RTP on September 21, 2014. The unit remained at 100 percent RTP through the end of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Emergency Preparedness, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01 – 1 sample)

External Flooding

a. Inspection Scope

On September 29 and 30, 2014, the inspectors performed an inspection of the external flood protection measures for PBAPS. The inspectors reviewed TS, procedures, design documents, and UFSAR Chapter 2.4.3.5, which depicts 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 for Units 2 and 3, to ensure that PBAPS' 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. Documents reviewed for each section of this inspection report are listed in the Attachment.

b. Findings

No findings were identified.

1R04 Equipment Alignment (71111.04)

Partial System Walkdowns (71111.04Q – 3 samples)

a. Inspection Scope

The inspectors performed partial walkdowns of the following systems:

- Unit 2 'B' standby liquid control (SBLC) train during breaker maintenance on the 'A' SBLC train on July 22, 2014
- Unit 2 control rod drive system during emergency power uprate (EPU) modification work on July 31 and August 4, 2014
- Unit 2 and Unit 3 emergency service water (ESW) and service water during a notice of enforcement discretion (NOED) relief request on August 24, 2014

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, TS, WOs, condition reports (CRs), and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have impacted system performance of their 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 Exelon 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 (71111.05)

Resident Inspector Quarterly Walkdowns (71111.05Q - 7 samples)

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 Exelon 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, degraded, or inoperable fire protection equipment, as applicable, in accordance with procedures.

- Unit 2 and Unit 3 outer river water intake structure on July 7, 2014
- Unit 2 'A', 'B', and 'C' reactor feed pump rooms on July 29, 2014
- Unit 2 motor generator set room on July 30, 2014

- Unit 2 reactor building (RB) 135' elevation on July 30, 2014
- Unit 2 reactor building closed-cooling water (RBCCW) area on August 24, 2014
- Unit 2 and Unit 3 emergency shutdown panel breaker rooms on August 27, 2014
- Unit 2 'D' RHR pump room on September 3, 2014

b. Findings

Introduction. The inspectors identified a Green NCV of the PBAPS Units 2 and 3 operating licenses, Section 2.C.4, "Fire Protection," because PBAPS did not have the ability to implement all provisions of their approved Fire Protection Program as described in the UFSAR. Specifically, UFSAR Section 5.2.2, Appendix R, "Shutdown Method D," was found degraded due to the loss of the alternate 125 Vdc control power to both E-2 and E-4 alternate shutdown panels. The alternate 125 Vdc power was found degraded during a licensee planned inspection due to broken electrical wires located in the safety-related E-23 4.16 kV breaker cubicle associated with the E-2 alternate shutdown panel. The EOC corrective actions were not timely to identify and correct similar broken wires in the E-43 4.16 kV breaker cubicle associated with the E-4 alternate shutdown panel.

Description. PBAPS' Appendix R, "Fire Protection Plan, Method D," considers a potential fire occurring in the main control room (MCR), cable spreading room, or computer room that has the potential to prevent safe shutdown from the MCR. Therefore, alternative shutdown capability is required to ensure that a safe shutdown can be achieved in the event of a fire in any of the three zones. Four types of alternative control stations have been provided to achieve a safe shutdown. Station 'C' includes alternative control stations provided for the 'B' and 'D' diesel generators (E-2 and E-4). Since the EDGs are common to both units, the alternative control stations are common to both units. Each control station includes transfer and isolation switches at the 4.16 kV electrical breakers that provide the capability to remotely close each EDG output breaker onto its safety-related 4.16 kV electrical bus.

On March 6, 2014, Exelon performed a planned inspection on the E-23 4.16 kV breaker during an E-2 EDG overhaul. The inspection identified six broken wires inside the E-23 4 kV breaker. The six wires were part of a wire bundle associated with the alternate shutdown panel circuit. The wires provide alternate 125 Vdc control power to the transfer/isolation switch when the switch is taken to the "emergency" position. The wires were part of an Appendix R modification that was installed in 1985. Engineering concluded that the installation by maintenance personnel did not provide proper wire support that would allow the wires to flex when the breaker door was opened and closed. No strain reliefs at the bending point were found to prevent the bending movement from being transmitted down the wire's length to the termination point (i.e., where the wire is crimped to the lug). In addition, eight gauge, nineteen strand-wire, which is relatively stiff, was used in the installation and required strain reliefs to prevent wire fatigue over time.

On March 7, 2014, the broken wires were replaced, wire supports and strain reliefs were added, and the alternate shutdown function to E-2 was restored. On March 13, a WGE was completed and specified that an EOC review was required for the E-4 EDG alternate shutdown panel. Even though the E-4 breaker wires could be checked without affecting operability or availability, Exelon scheduled the EOC during the next scheduled E-4 six-year preventative maintenance overhaul beginning on May 5, 2014.

Procedure PI-AA-125, Revision 0, “CAP Procedure,” section 4.3.5, “Perform Class “D” WGEs,” states, In the EOC section, evaluate and document any immediate EOC concerns in accordance with PI-AA-125-1006, Revision 0, “Investigation Techniques Manual Procedure.” PI-AA-125-1006, Attachment 19 of “EOC/Extent of Cause,” Subsection E asks: Has consideration been given to initiate the same immediate actions on other equipment. The inspectors questioned personnel about the timeliness of the EOC review specified in the IR generated on March 6. The inspectors also reviewed the WGE, interviewed personnel who conducted the WGE, and concluded that the CAP procedure and the investigation techniques manual was not consulted when the evaluation was performed, completed, and documented.

On May 5, 2014, broken wires were identified in the E-43 4.16 kV breaker cubicle supplying control power to the E-4 alternate shutdown panel. Similar to the E-2 condition, the broken wires were attributed to wire fatigue from poor installation and flexibility of the wire type. Engineering subsequently recommended a more detailed and aggressive inspection schedule be established and executed to ensure that all potential wires would be repaired. The inspections and repairs were completed on May 21, 2014. A reportable event for an unanalyzed condition was generated after additional wires affecting the alternate transfer capability of the 3 ‘D’ RHR pump were found broken from fatigue-related stress.

Additionally, the inspectors questioned why PBAPS’ two-year surveillance did not identify the broken wires and absence of control power to the alternative control stations. The inspectors reviewed PBAPS’ surveillance for testing the alternate shutdown panels, ST-O-054-752-3, Revision 25, and PBAPS’ electrical drawing E-193, Revision 34, which depicts two separate fuses, normal and alternate, in parallel at the 125 Vdc control power input to the 4.16 kV circuit breakers. The normal fuse is assumed to fail open in the event of an Appendix R fire in the control room/cable spreading room. Placing the transfer switch to “emergency” isolates the control room circuitry, including the assumed fault. It also connects the alternate fuse to supply power to the local circuitry. Although the test procedure has operators place the switch to “emergency,” it does not include a step to have operators pull the normal fuse, and does not test that power can be supplied through the alternate fuse and associated wiring. Exelon entered these issues into the CAP as IRs 01629839, 01656255, 01662555, and 01662767.

Analysis. The failure to take timely corrective action to assess the EOC for the broken 125 Vdc control power wiring in 4 kV breaker cabinets was a performance deficiency. This performance deficiency is more than minor because it is associated with the external events (fire) attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, following a postulated control room abandonment fire, the analyzed normal method for closing three 4 kV circuit breakers locally was unavailable using the switchgear mounted switch.

Using IMC 0609, Appendix F, “Fire Protection SDP,” the Region I SRA determined per Figure F.1, “Phase 1 Flow Chart,” and associated screening criteria that this finding is of very low safety significance (Green). The SRA reviewed electrical circuit diagrams and independently verified that after taking local control of the affected circuit breakers because of the broken control power wiring, the operator would not have had indication

of control power availability and the local circuit breaker control switches would not have been functional.

However, the ability to manually close the 4 kV circuit breakers with the mechanical close push bottom was retained. The SRA determined that this manual closure method is proceduralized in AO-54.2, "4 kV Breaker Manual Operation," that operators had received training on this method, and that there would be sufficient time available to complete the actions. In accordance with Appendix F, Attachment 1, Step 1.6, the SRA reviewed Exelon's Probabilistic Risk Analysis assessment conducted to evaluate the collective impact of the three degraded 4 kV breakers (E-23, E-43 and 3 'D' RHR pump breaker). Exelon's risk assessment used the available MCR and cable spreading room fire frequencies and associated consolidated fire growth and smoke transport analyses (CFAST) for these rooms to postulate the conditions that would potentially compromise control room habitability and require operators to abandon the control room in accordance with PBAPS Special Event Procedure SE-10, "Alternate Shut Down." Conservative adjustments were used to modify the human error probabilities associated with operator actions to realign the 4 kV switchgear Alternate Control Stations per SE-10, Attachment 6, consistent with the additional operator recovery actions needed to compensate for the degraded breaker conditions outlined in AO-54.2. The estimated calculated annualized increase in core damage frequency (CDF) associated with the three as-found breaker conditions is in the low E-7 range for the cable spreading room and low E-9 range for the MCR. Although the identified PD involves a two month period of time , the degraded wiring condition could have existed for a longer priod of itme. Consistent with IMC 0609 and the Risk Assessment of Operational Events (RASP) Handbook, one year was used as the exposure time for this condition and the associated PD. Accordingly, the individual fire zone annualized delta CDF values are summed to characterize the overall increase in risk associated with this PD (low E-7) and is of very low safety significance (Green). The SRA concluded that Exelon's risk evaluation used reasonable and conservative assumptions to bound the worst case control room abandonment fire scenarios and associated operator actions to compensate for the three as-found breaker conditions.

The inspectors determined that this finding had a cross-cutting aspect in the area of PI&R, Evaluation, because Exelon did not complete the EOC in a timely manner commensurate with its safety significance. Specifically, the decision to implement corrective actions to address the EOC two months after the identification of the first breaker cubicle broken wire was not timely and commensurate with its safety significance. Even though the E-43 4.16 kV breaker wires could be checked without affecting the operability or availability of the E-4 EDG, Exelon decided to perform the E-43 4.16 kV EDG breaker cubicle inspection during a future scheduled overhaul. Exelon' corrective action procedure defines an "immediate" EOC concern when, as in this case, a WGE is required. [P.2]

Enforcement. PBAPS' facility operating license, Section 2.C.4 under Fire Protection states, "The Exelon Generation Company shall implement and maintain all provisions of the approved fire protection program as described in the UFSAR for the facility, and as approved in the NRC Safety Evaluation Report dated May 23, 1979, and supplements dated August 13, September 15, October 10, and November 24, 1980, and in the NRC Safety Evaluation Reports dated September 16, 1993, and August 24, 1994." Contrary to the above requirement, Section 5.2.2 (Shutdown Method "D") of PBAPS' Fire Protection Plan in the UFSAR could not be implemented due to the failure of the

alternate 125 Vdc control power to both E-2 and E-4 alternate shutdown panels. This condition potentially existed for an extended period of time (greater than a year), but was not readily identified by established periodic testing and maintenance procedures. Because this finding was of very low safety significance and was entered into Exelon's CAP, this violation is being treated as an NCV, consistent with Section 2.3.2.a of the NRC's Enforcement Policy. **(NCV 05000277, 278/2014004-01, Corrective Actions Not Timely for EOC of Appendix R Broken Wires)**

1R06 Internal Flood Protection (71111.06 - 2 samples)

.1 Internal Flooding (1 Sample)

a. Inspection Scope

The inspectors reviewed the UFSAR, the site flooding analysis, and plant procedures to susceptibilities involving internal flooding. The inspectors also reviewed the CAP to determine if Exelon identified and corrected flooding problems and whether operator actions for coping with flooding were adequate. The inspectors focused on the Unit 2 RBCCW room on August 25 – August 29, 2014, to verify the adequacy of equipment seals located below the flood line, floor and water penetration seals, watertight door seals, common drain lines and sumps, sump pumps, level alarms, control circuits, and temporary or removable flood barriers.

b. Findings

No findings were identified.

.2 Annual Review of Cables Located in Underground Bunkers/Manholes (1 sample)

a. Inspection Scope

The inspectors conducted an inspection of underground bunkers/manholes subject to flooding that contain cables whose failure could disable risk-significant areas, including three manholes (manholes 4, 106, and 107), between the dates of September 3 – September 9, 2014, 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 operations and verified level alarm circuits were set in accordance with station procedures and calculations to ensure that the cables will 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 (71111.11 – 2 samples)

.1 Quarterly Review of Licensed Operator Requalification Testing and Training (1 sample)

a. Inspection Scope

The inspectors observed a licensed operator training simulator scenario related to Unit 2 and Unit 3's simulator modification for EPU on July 29, 2014. Specifically, the inspectors observed a turbine trip and reactor scram without turbine bypass valves scenario and a LOOP scenario on the newly updated EPU simulator to compare and contrast differences between operator performance on the old and new models. 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 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 MCR (1 sample)

a. Inspection Scope

The inspectors observed licensed operator performance in the MCR for a Unit 3 downpower to 59 percent reactor power to perform a control rod pattern adjustment and linkage inspections on the 'C' reactor feed pump on September 20 – September 21, 2014. The inspectors observed reactivity manipulations to verify that they were performed in a safe and controlled manner and included the appropriate level of peer verification and supervisory oversight.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12 – 2 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 Exelon 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 Exelon 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 Exelon staff was identifying and addressing common cause failures that occurred within and across MR system boundaries.

- Unit 2 and Unit 3 switchyard system review and functional failure review on August 19 – August 29, 2014
- Unit 3 safety relief valve 71-E functional failure review on September 12 – September 19, 2014

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 - 4 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 Exelon 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 Exelon personnel performed risk assessments as required by 10 CFR 50.65(a)(4) and that the assessments were accurate and complete. When Exelon 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 analysis 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 3, yellow risk, circuit breaker CB-65 opened on July 30, 2014
- Unit 3, green risk, reactor core isolation cooling (RCIC) alternate shutdown panel test on August 18, 2014
- Unit 2 and Unit 3, yellow risk, cable replacement for the 343 startup transformer on September 8, 2014
- Unit 2 and Unit 3, yellow risk, E-4 EDG fuel oil leak and 343 startup transformer restoration on September 14, 2014

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors reviewed five operability determinations for the following degraded or non-conforming conditions:

- Unit 3 switchyard 63 'A' disconnect misaligned on July 21, 2014
- Unit 3 startup switchgear due to degraded electrical power cable on July 30, 2014
- Unit 2 rising torus level and potential voiding with the discharge valve stuck open during the 'A' RHR pump, valve, and flow test on July 31, 2014
- Unit 2 and Unit 3 cable separation plate missing on emergency cooling tower (ECT) valve junction box on August 5, 2014
- Unit 2 'B' RHR low pressure coolant injection (LPCI) pipe noise on September 4, 2014

The inspectors selected these issues based on the risk significance of the associated components and systems. The inspectors evaluated the technical adequacy of the operability determinations to assess whether TS operability was justified properly 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 Exelon's evaluations to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were controlled properly by Exelon. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations.

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18 – 1 sample)

a. Inspection Scope

The inspectors reviewed the permanent modification listed below to determine whether the modification affected the safety function of systems that are important to safety. The inspectors reviewed 10 CFR 50.59 documentation and post-modification testing results, and conducted field walkdowns of the modification to verify that the temporary modification did not degrade the design bases, licensing bases, and performance capability of the affected system.

- Unit 3 high pressure service water (HPSW) EPU cable routing on August 6, 2014

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19 – 7 samples)

a. Inspection Scope

The inspectors reviewed the post-maintenance tests 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 was consistent with

the information in the applicable licensing basis and/or design basis documents, and that the procedure had been properly reviewed and approved. The inspectors also witnessed the test or reviewed test data to verify that the test results adequately demonstrated restoration of the affected safety functions.

- Unit 3 'D' RHR pump run from the alternate shutdown panel after replacement of wires on July 9, 2014
- Unit 2 and Unit 3 ECT emergency fill pumps after loss of battery charger power on July 17, 2014
- Unit 2 'A' SBLC test after breaker maintenance on July 23, 2014
- Unit 2 and Unit 3 electric fire pump run after repair of a leaking fitting on August 5, 2014
- Unit 2 HPSW ventilation fan run after thermal overload tripped on August 20, 2014
- Unit 2 and Unit 3 343 transformer testing and 3 EDG runs after cable replacement on September 12, 2014
- ST-O-052-154-3, Unit 3 core spray relay failure that provided all four EDG start signals on September 23, 2014

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22 - 6 samples)

a. Inspection Scope (3 routine surveillances; 2 IST samples; 1 RCS sample)

The inspectors observed performance of surveillance tests and/or reviewed test data of selected risk-significant SSCs to assess whether test results satisfied TSs, the UFSAR, and Exelon 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:

- Unit 2 'A' RHR pump, valve, and flow inservice testing (IST) on July 11, 2014
- Unit 3 HPSW pump, valve, and flow IST on July 15, 2014
- Unit 3 RCIC pump, valve and flow routine test on July 16, 2014
- Unit 2 RCIC pump, valve, and flow routine test on July 23, 2014
- Unit 3 RCIC routine testing from the alternate shutdown panel on August 18, 2014
- Unit 2 and Unit 3 'A' standby gas treatment (SBGT) routine testing on September 2, 2014

b. Findings

Introduction: A self-revealing finding was identified involving an NCV of very low safety significance (Green) of TS 5.4.1 "Procedures," because Exelon did not correctly implement procedure MA-MA-796-024-1001, Revision 8, "Scaffold Criteria for the Mid-

Atlantic Stations." In addition, WO C0244158 "Open/Close CHK-2-10-48A for OPS Torus Support," instructions were not implemented to remove a gag (i.e., eyebolt) on the Unit 2 'A' pump discharge check valve, CHK-2-10-48A, following restoration of the 2 'A' RHR system after a September 16, 2012, maintenance and fill activity. By not implementing these procedures and instructions, an eyebolt prevented the full closure of CHK-2-10-48A after the 2 'A' RHR pump was secured.

Description: On July 11, 2014, Exelon performed the 2 'A' RHR loop pump, valve, and flow IST using procedure ST-O-010-302-2, Revision 2. After the 2 'A' RHR pump was secured from testing, control room operators observed a torus water level increase. A local inspection by operations revealed an eyebolt installed on the end of the discharge check valve (CHK-2-10-48A) swing arm in contact with a scaffold mid-rail preventing full closure of the valve. Operators closed the check valve by pushing the swing arm past the scaffold pole. Operators then removed the eyebolt and verified that full range of motion for CHK-2-10-48A was restored. In addition, the scaffold was modified to remove the mid-rail that caused the interference. Operators finished the 2 'A' RHR loop pump, valve, and flow IST without any further issues.

Procedure MA-MA-796-024-1001, Revision 8, "Scaffold Criteria for the Mid-Atlantic Stations," Section 1.9 states, in part that, scaffolds shall not impede or interfere with the equipment travel path of station equipment during manual or automatic operation. Exelon generated IR 1680741, and performed an apparent cause evaluation (ACE) of the event that included a past operability evaluation for the 2 'A' RHR system. Exelon determined that scaffold M4-1369 was installed on February 26, 2014, in the 2 'A' RHR room near CHK-2-10-48A to support core bore work for the RHR Crossover Pipe Project. Between February 26 and July 11, the station operated the 'A' RHR train twice on April 17 and April 30 without scaffold M4-1369 interfering with CHK-2-10-48A. No change in torus level was detected during either of these circumstances.

Exelon' s ACE documented the chronology of the event and investigation of multiple in-place barriers which did not preclude Exelon from violating section 1.9 of scaffold procedure MA-MA-796-024-1001. The ACE explored these barriers, which included operator rounds, focused inspections by Operations and Engineering, the scaffold installation and modification process, corporate and site procedural requirements, and Exelon' CAP. Exelon's ACE, however, did not determine the exact cause of the scaffold interference. The ACE notes that no precursor events occurred between the time the scaffold was erected and the event. The scaffold installers had an opportunity to request Operations to perform inspections per the installation process. Although the inspection was optional, Exelon missed an opportunity for Operations to perform a focused inspection of the area and the scaffold. The ACE notes that twenty-two interviews were conducted to gain information about the work performed in the vicinity of the check valve. However, the ACE was inconclusive about if, how, or when the scaffold moved or was modified to obstruct the check valve on July 11, but not obstruct the check valve during the previous 2 'A' RHR pump runs in April.

IR 1680741 also detailed a past operability evaluation performed by engineering. The past operability review evaluated various transient and accident scenarios involving the 2 'A' RHR system and concluded that the scenario with the most impact is the transfer from LPCI mode to containment cooling following a LOCA/LOOP. In this scenario, the 2 'A' RHR pump is secured prior to opening the 2 'A' RHR loop torus header valves. Then, the pump is restarted and the containment cooling valves are opened. During the

time the pump is secured with CHK-2-10-48A partially open, voiding could occur in the RHR piping. Upon pump restart, a water hammer event could occur. The water hammer would put additional stresses on the piping. Exelon performed a stress analysis using a pipe-stress computer program calculation ME-101 to determine if the worst case water hammer forces would exceed allowable forces in the pipe. Exelon assumed previously analyzed seismic and hydrodynamic forces were absent during the water hammer at pump restart which the inspectors deemed reasonable. The evaluation concluded that in the worst case scenario the water hammer effect could lead to pipe support damage, but RHR piping would remain intact and permit RHR to meet its TS requirement of providing containment cooling.

The inspectors walked down scaffold M4-1369 and valve CHK-2-10-48A, reviewed control room logs, reviewed the completed surveillance procedure ST-O-010-302-2, and interviewed operators involved with the event. Although difficult for an operator performing rounds to visualize the scaffold obstructing the swing arm's path of travel, the inspectors determined that opportunities were missed to identify the event beforehand. Specifically, Exelon's procedure OP-AA-102-102, "General Area Checks and Operator Field Rounds," Revision 12, provide written guidance for equipment operators to perform equipment checks that monitor equipment condition. The procedure then lists applicable equipment checks including, "suction, discharge, and recirculation flowpaths available." In addition, the inspectors determined that surveillance procedure ST-O-010-302-2 offers only limited pre-start checks for the RHR system and do not include any partial walkdown of RHR.

The inspectors reviewed the ACE and discussed the acceptability of the eyebolt installation with maintenance. Exelon created a separate IR (1690648) after the event to evaluate the acceptability of the eyebolt. The IR concluded that the eyebolt installation was acceptable. The IR did not, however, evaluate whether the eyebolt removal was appropriate or whether the impact on safety-related equipment was tracked by an appropriate process. The inspectors discussed the lack of depth in the evaluation concerning the IR 1690648 eyebolt evaluation. Exelon then generated AR 02387793 to perform a WGE on the 2012 installation/removal of the eyebolt. The WGE concluded that WO C0244158 "Open/Close CHK-2-10-48A for OPS Torus Support," instructions were not implemented as written to remove a gag (i.e., eyebolt) on discharge check valve CHK-2-10-48A following restoration of the 'A' RHR system after a September 16, 2012, maintenance and fill activity. Corrective actions for this event included removing the scaffold mid-rail and eyebolt attached to CHK-2-10-48A, performing an EOC walkdown on all scaffolds, requiring operations to inspect all newly constructed scaffolds in safety-related areas, and generating a temporary scaffold inspection checklist to verify no interference from potential equipment movement during operation.

Analysis: The inspectors determined that the station's failure to implement the scaffold criteria procedure and WO instructions was a performance deficiency that was reasonably within the ability to foresee and correct, and could have been prevented. The finding is more than minor because it affected the Mitigating Systems cornerstone attribute of equipment performance in the area of reliability and availability of the 2 'A' RHR train. Specifically, due to the stuck open check valve during a LOCA/LOOP scenario, voiding could occur and create a potential water hammer resulting in pipe support damage when operators would transfer the 2 'A' RHR system to its containment cooling mode. This finding was determined to be of very low safety significance (Green) using IMC 0609, Appendix A, Exhibit 2, because the finding did not represent a loss of

system function, did not represent a loss of a single train for greater than its allowed TS outage time, and did not involve the loss or degradation of equipment or function specifically designed to mitigate a seismic, flooding, or severe weather initiating event. Additionally, the inspectors determined that the function of 2 'A' RHR remained available because RHR piping would remain intact and containment cooling would not have been lost during the postulated water hammer scenario.

The finding has a cross-cutting aspect in Human Performance, Work Management, because in the case of the erected scaffold, Exelon did not plan, control, and execute work activities such that nuclear safety was the overriding priority. Specifically, the work process was not coordinated effectively with different groups (i.e., operations, engineering, scaffold builders, and maintenance) and job activities to identify and preclude the scaffold from obstructing an eyebolt attached to the swing arm of the 2 'A' RHR pump discharge check valve. [H.5]

Enforcement: TS 5.4 "Procedures," Section 5.4.1, states that, written procedures shall be implemented and maintained covering the following activities: the applicable procedures recommended in Regulatory Guide (RG) 1.33, Appendix A, November 1972. RG 1.33, Appendix A, lists typical safety-related activities which should be covered by written procedures. Section I.1 of RG 1.33 includes procedures for performing maintenance which can affect the performance of safety-related equipment and should be properly preplanned and performed in accordance with written procedures, documented instructions, or drawings appropriate to the circumstances. Contrary to the above, Exelon did not implement both section 1.9 of procedure MA-MA-796-024-1001 and instructions specified in WO C0244158 which led to the stuck open check valve CHK-2-10-48A. This condition existed from September 16, 2012 until the condition was corrected. Because this finding was of very low safety significance (Green) and was entered into Exelon's CAP (IR 1680741, IR 1690648, and AR 02387793), this violation is being treated as a NCV, consistent with Section 2.3.2.a of the NRC Enforcement Policy. **(NCV 05000277/2014004-02, Scaffold Obstructs 2 'A' RHR Discharge Check Valve)**

Cornerstone: Emergency Preparedness

1EP4 Emergency Action Level and Emergency Plan Changes (71114.04 – 1 sample)

a. Inspection Scope

Staff from the Office of Nuclear Security and Incident Response (NSIR) performed an in-office review of the latest revision, dated May 2, 2014, of the ETE Analysis for PBAPS located under ADAMS accession number ML14141A046 as listed in the Attachment.

The staff performed a review using the guidance provided in NUREG/CR-7002, "Criteria for Development of ETE Studies." The updated ETE was found to be complete in accordance with 10 CFR Part 50, Appendix E.IV.3. The NRC review was only intended to verify consistent application of the ETE guidance contained in NUREG/CR-7002 and, therefore, remains subject to future NRC inspection in its entirety.

b. Findings

No findings were identified.

1EP5 Maintaining Emergency Preparedness (71114.05 – 1 sample)

a. Inspection Scope

NRC EP rulemaking, which became effective on December 23, 2011, added a new regulation which required Exelon to develop an ETE analysis and submit it to the NRC by December 23, 2012. This inspection was a follow-up of issues identified by the NSIR staff during its review of the Exelon submittal of the ETEs for the ten sites that it operated at the time. The NSIR staff related those issues to Exelon, which provided responses through 2013 and into 2014. During this inspection period, regional EP inspectors reviewed applicable Exelon documents, conducted discussions with Exelon personnel, and provided assessment of the Exelon response.

b. Findings

Introduction: The inspectors identified a Green NCV of 10 CFR 50.54(q)(2) for failing to maintain the effectiveness of the PBAPS Emergency Plan. Specifically, Exelon failed to provide the station ETE to responsible OROs and failed to update its site-specific protective action strategies as outlined in the requirements listed in 10 CFR 50.47(b)(10), and Section IV, Paragraph 4, of Appendix E to 10 CFR Part 50.

Description: On November 23, 2011, the NRC issued the final new and amended EP regulations (76 Federal Register (FR) 72560) that required all licensees to update the ETE on a periodic basis. This rulemaking became effective on December 23, 2011. The rulemaking also added a new regulation, 10 CFR Part 50, Appendix E, Section IV.4, which required licensees to develop an ETE analysis using the most recent decennial census data and submit it to the NRC within 365 days of December 23, 2011. Concurrently with the issuance of the rulemaking, the NRC published a new report entitled, “Criteria for Development of ETE Studies,” NUREG/CR-7002. The Statements of Consideration for the rulemaking (76 FR 72580) identified that the NRC staff would review the submitted ETEs for completeness using that document. The Statements also provided that the guidance of NUREG/ CR-2002 guidance was an acceptable template to meet the requirements and licensees should use the guidance or an appropriate alternative.

By individual letters dated December 12, 2012, Exelon submitted the ETEs for the sites for which it held the operating licenses, including PBAPS. By a letter dated January 23, 2013, Exelon submitted the NUREG/CR-7002 checklists for these ETEs that identified where a particular criterion was addressed in the ETEs, facilitating the NRC review.

As provided in the Statements of Consideration, the NRC staff performed a completeness review using the checklists and found the ETEs (including the ETEs for the PBAPS) to be incomplete due to common and site-specific deficiencies. The NRC staff discussed its concerns regarding the completeness of the ETEs, in a teleconference with Exelon conducted on June 10, 2013. On September 5, 2013, Exelon resubmitted the ETEs and the associated checklists for its sites. The staff performed another completeness review and again found the ETEs to be incomplete. Examples of information missing from the submittal included: peak and average attendance were not stated (NUREG/CR-7002 Criteria Item 2.1.2.a); the ETE used a value based on campsite and hotel capacity, vice an average value (2.1.2.b); basis for speed and capacity reduction factors due to weather was not provided (3.4.b); snow

removal was not addressed (3.4.c); no bus routes or plans were included in the ETE analysis (4.1.2.a); and no discussion on the means of evacuating ambulatory and non-ambulatory residents were included (4.1.2.b). The staff communicated the various ETE issues to Exelon through several telephone conference calls. Upon identification, Exelon entered this issue into its CAP as IR 1525923 and IR 1578649. Exelon submitted a third ETE for PBAPS on May 2, 2014, and the NRC's review of that ETE is documented in Section 1EP4 of this report.

Analysis: The inspectors determined that the failure to submit a complete updated ETE for the PBAPS by December 23, 2012, was a performance deficiency because Exelon failed to meet a regulatory requirement that was reasonably within its ability to foresee and correct, and should have been prevented, for both the December 12, 2012, and September 5, 2013, submittals.

Using IMC 0612, Appendix B, "Issue Screening," the inspectors determined that the performance deficiency was associated with the EP cornerstone attribute of procedure quality and was more than minor because it adversely affected the cornerstone objective of ensuring that the licensee is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. The ETE is an input into the development of protective action strategies prior to an accident and to the protective action recommendation decision making process during an accident. The inadequate ETEs had the potential to reduce the effectiveness of public protective actions implemented by the OROs.

The inspectors utilized IMC 0609, Appendix B, "Emergency Preparedness SDP," to determine the significance of the performance deficiency. The performance deficiency was associated with planning standard 10 CFR 50.47(b)(10). EP SDP Table 5.10-1, "Significance Examples 50.47(b)(10)," provides two Green significance examples: "ETEs and updates to the ETEs were not provided to responsible OROs," and "The current public protective action strategies documented in Emergency Preparedness implementing procedures are not consistent with the current ETE." The inspectors concluded that, because the performance deficiency delayed the NRC's approval of the PBAPS ETE, the ETE was not provided to the site OROs nor was it used to inform the site emergency preparedness implementing procedures as required by 10 CFR 50.47(b)(10), and Section IV.4 of Appendix E to 10 CFR Part 50. Therefore, in accordance with EP SDP Table 5.10-1, this was determined to be a finding of very low safety significance (Green).

The cause of the finding had a cross-cutting aspect in the area of Human Performance, Documentation, because Exelon did not create and maintain complete, accurate, and, up-to-date documentation. Specifically, the EP organization did not develop the PBAPS ETE as required by the new regulation introduced by the NRC's EP Rule [H.7].

Enforcement: 10 CFR 50.54(q)(2) states, in part, that a licensee shall follow and maintain an effective emergency plan which meet the standards in 10 CFR 50.47(b) and the requirements in Appendix E to this part. 10 CFR 50.47(b)(10), states, in part, that licensees shall develop an evacuation time estimate and update it on a periodic basis. 10 CFR Part 50 Appendix E, Section IV.4, states that within 365 days of December 23, 2011, nuclear power reactor licensees shall develop an ETE analysis and submit it under 50.4.

Contrary to all of the above, the ETEs submitted by Exelon on December 12, 2012, and on September 5, 2013, for the PBAPS were found to be inadequate. Upon identification, Exelon implemented immediate corrective actions by entering this issue into its CAP as IRs 1525923 and 1578649 and revising the ETE to satisfy NRC requirements. Because this finding is of very low safety significance (Green) and was entered into Exelon's CAP, this issue is being treated as an NCV consistent with Section 2.3.2.a of the Enforcement Policy. **(NCV 05000277/278/2014004-03: Inadequate Evacuation Time Estimate Submittals)**

2. RADIATION SAFETY

Cornerstone: Public Radiation Safety

2RS5 Radiation Monitoring Instrumentation (71124.05)

a. Inspection Scope

During the period September 8 – 12, 2014, the inspectors reviewed Exelon's performance in assuring the accuracy and operability of radiation monitoring instruments used for effluent monitoring and analyses. The inspectors used the requirements in 10 CFR Part 20; 10 CFR Part 50, Appendix I; TSs; Offsite Dose Calculation Manual (ODCM); applicable industry standards; and procedures required by TSs as criteria for determining compliance.

Inspection Planning

The inspectors conducted in-office preparation and review: Exelon submitted the 2012 and 2013 effluent and environmental annual reports; UFSAR; and ODCM.

Walkdowns and Observations

The inspectors performed the following:

- Walkdowns of the effluent radiation monitoring systems (Unit 1 and Unit 2 RB vent, liquid radwaste discharge monitor, SBGT vent)
- Assessed whether the effluent/process monitor configurations align with what is described in the ODCM and the UFSAR

Process and Effluent Monitors

The inspectors reviewed the following:

- Selected effluent monitoring instruments and evaluated whether channel calibration and functional tests were performed consistent with station TSs/ODCM.

b. Findings

No findings were identified.

2RS6 Radioactive Gaseous and Liquid Effluent Treatment (71124.06)

a. Inspection Scope

During the period September 8 – 12, 2014, the inspectors reviewed Exelon's performance in treatment, monitoring, and control of effluent releases including adequacy of public dose calculations and projections. The inspectors used the requirements in 10 CFR Part 20; 10 CFR Part 50, Appendix I; TSs; ODCM; applicable industry standards; and procedures required by TSs as criteria for determining compliance.

Inspection Planning

The inspectors conducted in-office preparation and review of Exelon submitted effluent and environmental program documents and reviewed UFSAR, including ODCM.

The inspectors reviewed the following:

- Annual radiological effluent and environmental reports for 2012 and 2013 including unexpected trends or abnormal releases.
- Reported effluent monitor operability issues.
- Changes to ODCM including technical justifications
- Identification of any contaminated non-radioactive system and associated 10 CFR 50.59 evaluations.
- Reported groundwater monitoring results and changes to the written program for identifying and controlling contaminated spills/leaks to groundwater
- Changes to the program since last inspection to identify changes.
- Licensee Event Reports (LERs) and special reports related to the effluent program
- Effluent program implementing procedures, including those associated with effluent sampling, effluent monitor set-point determinations, and dose calculations
- Evaluation reports of the effluent monitoring program since the last inspection.

Walkdowns and Observations

The inspectors performed and reviewed the following:

- Walkdowns of selected components of the gaseous and liquid effluent monitoring systems
- Potential unmonitored release points, building alterations which could impact airborne, or liquid, and effluent controls, and ventilation system leakage
- Material condition surveillance records
- Changes to effluent release paths
- 10 CFR 50.59 reviews for changes to effluent release points.

Sampling and Analyses

The inspectors reviewed the following:

- Effluent discharges made with inoperable effluent radiation monitors and the use of compensatory effluent sampling

- Results of the inter-laboratory and intra-laboratory comparison program, including hard-to-detect isotopes, to verify the quality of the radioactive effluent sample analyses.

Instrumentation and Equipment

The inspectors reviewed the following:

- The methodology for determining building vent and main stack flow rates and any differences between actual versus TS required
- Surveillance tests for TS ventilation effluent discharge systems

Dose Calculations

The inspectors reviewed the following:

- Significant changes in reported dose values compared to the previous radioactive effluent release reports
- Liquid and gaseous waste discharge permits
- Changes in the methodology for offsite dose calculations since the last inspection
- Meteorological dispersion and deposition factors
- Latest Land Use Census to verify that changes in the local land use had been factored into public dose projections and environmental sampling/analysis program, as applicable
- Dose calculations (monthly, quarterly, annual)
- Records of any abnormal gaseous or liquid releases
- Discharges made with inoperable effluent radiation monitors, or unmonitored leakage were reviewed to ensure that an evaluation was made of the discharge to account for the effluent release and were included in the calculated doses to the public.

Groundwater Protection Initiative (GPI) Implementation

The inspectors reviewed the following:

- Monitoring and reporting results of the GPI
- Changes made to the GPI program
- Anomalous results or missed samples
- Leakage or spill events and entries made into the decommissioning files (10 CFR50.75(g))
- Onsite contamination events involving contamination of groundwater

PI&R

The inspectors evaluated whether problems associated with the effluent monitoring and control program were being identified at an appropriate threshold and were properly addressed for resolution in Exelon's CAP.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151 – 8 samples)

.1 Safety System Functional Failures (2 samples)

a. Inspection Scope

The inspectors sampled Exelon's submittals for the safety system functional failures performance indicator (PI) for both Unit 2 and Unit 3 for the period of October 2013 through June 2014. 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, dated August 31, 2013, and NUREG-1022, Revision 3. "Event Report Guidelines 10 CFR 50.72 and 50.73." The inspectors reviewed PBAPS' 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 Mitigating Systems Performance Index (4 samples)

a. Inspection Scope

The inspectors reviewed Exelon's submittal for the Mitigating Systems Performance Index (MSPI) for the period of October 2013 through June 2014.

- Unit 2 and Unit 3 emergency alternating current power (MS06)
- Unit 2 and Unit 3 cooling water (MS10)

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 reactor coolant system (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 chemistry technician surveillance activities that determined the RCS identified leakage rate, and discussed the chemistry RCS sampling data and analysis.

b. Findings

No findings were identified.

.3 Occupational Exposure Control Effectiveness (1 sample)

a. Inspection Scope

During September 8 – 12, 2014, the inspectors sampled Exelon's submittals for the occupational exposure control effectiveness PI for the period from the first quarter 2014 through second quarter 2014. The inspectors used PI definitions and guidance

contained in the NEI Document 99-02, "Regulatory Assessment PI Guideline," Revision 7, to determine the accuracy of the PI data reported.

To assess the adequacy of the PBAPS' PI data collection and analyses, the inspectors discussed with radiation protection staff the results of their PI review, and independently reviewed electronic personal dosimetry accumulated dose alarms, dose reports, and dose assignments for any intakes that occurred during the time period. The inspectors conducted walk-downs of numerous locked high and very high radiation area entrances to determine the adequacy of the controls in place for these areas.

b. Findings

No findings were identified.

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

a. Inspection Scope

During September 8 – 12, 2014, the inspectors sampled Exelon's submittals for the radiological effluent TS/ODCM radiological effluent occurrences PI for the period from the first quarter 2013 through second quarter 2014. The inspectors used PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment PI Guideline," Revision 7, to determine if the PI data was reported properly during this period.

The inspector reviewed Exelon's corrective action report database to identify any potential unmonitored, uncontrolled, or improperly calculated effluent releases. The inspector reviewed gaseous and liquid effluent summary data and the results of associated offsite dose calculations for selected dates between the first quarter 2014 through second quarter 2014, to determine if indicator results were accurately reported.

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution (71152 - 2 samples)

.1 Routine Review of Problem Identification and Resolution Activities

a. Inspection Scope

As required by Inspection Procedure 71152, "Problem Identification and Resolution," the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify that Exelon 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 CR screening meetings.

.2 Annual Sample: Elevated Vibration Trend on Unit 3 RCIC Pump (1 sample)

a. Inspection Scope

The inspectors performed an in-depth review of Exelon's assessment and corrective actions in response to IR 1331025, Unit 3 RCIC recurring issue of high vibration/abnormal oil results. Specifically, Exelon had identified that prior maintenance activities had not corrected the long standing degraded trend in the Unit 3 RCIC pump vibration level nor did they address the excessive wear particulate concentration (WPC). Exelon determined that a detailed equipment ACE was required to identify the possible degraded conditions and develop corrective actions to address the condition. The inspectors focused their review on the detailed cause evaluation and subsequent actions taken to arrest the adverse vibration and oil trend.

The inspectors assessed Exelon's problem identification threshold, cause analyses, extent of condition reviews, compensatory actions, and the prioritization and timeliness of Exelon's corrective actions to determine whether Exelon was appropriately identifying, characterizing, and correcting problems associated with this issue and whether the planned and completed corrective actions were appropriate. The inspectors compared the actions taken to the requirements of Exelon's CAP and 10 CFR 50, Appendix B. In addition, the inspectors performed field walkdowns and interviewed engineering personnel to assess the effectiveness of the implemented corrective actions.

b. Findings and Observations

No findings were identified.

The inspectors determined that Exelon had appropriately captured the condition adverse to quality with the Unit 3 RCIC pump high vibration and WPC in the CAP. Specifically, Exelon had been coping with this issue since 2003 with a wide range of preventive and corrective maintenance work practices. Exelon used the CAP to document each occurrence of the degrading trend and appropriately developed troubleshooting plans and/or cause evaluations to identify and correct the degraded condition. The inspectors reviewed the timeline and historical WOs for the RCIC system to ensure Exelon appropriately identified the conditions adverse to quality and prioritized the work commensurate with the safety significance.

In 2012, Exelon documented in IR 1331025 that the prior maintenance activities to correct the degraded vibration and WPC trend were ineffective and that a detailed equipment ACE was required to fully identify and correct the condition adverse to quality. Exelon's cause evaluation identified that the vibration trend was caused by pipe strain on the pump and the fit between the bearings and rotating assembly. Subsequently, Exelon developed and implemented corrective actions to address the pipe strain and replace the pump bearings and bearing housing. After completion of the corrective maintenance, the RCIC pump vibrations reduced to acceptable levels and the oil analysis reflected expected initial wear-in values. The inspectors reviewed and assessed the ACE, the corrective actions, work activities, and vibration/oil analysis data. In addition, the inspectors interviewed maintenance and engineering personnel, and performed in-field walkdowns of the RCIC system. The inspectors did not identify any additional conditions adverse to quality; however, the inspectors identified that the removed suspect bearings and bearing housing were not formally inspected and

documented to fully understand the condition that lead to the high vibration and WPC. The inspectors determined this issue was minor because their review of the current health of the RCIC system did not identify any degraded trends or adverse conditions that would indicate that the failure mechanism remains in the system or would impact the operability of the system. Furthermore, the inspectors determined that Exelon took appropriate corrective actions in a timely manner such that the condition adverse to quality did not significantly challenge the operability of the system.

.3 Annual Sample: Review of the Operator Work Around Program (1 sample)

a. Inspection Scope

The inspectors reviewed the cumulative effects of the existing operator workarounds (OWAs), operator burdens, existing operator aids and disabled alarms, and open MCR deficiencies to identify any effect on operator actions included in emergency operating procedures, and any impact on possible initiating events or mitigating systems. The inspectors evaluated whether station personnel had identified, assessed, and reviewed OWAs as specified in PBAPS procedure OP-AA-102-103, “OWA Program.”

The inspectors reviewed Exelon’s process to identify, prioritize, and resolve MCR distractions to minimize operator burdens. The inspectors reviewed the system used to track these OWAs and recent Exelon self-assessments of the program. The inspectors also toured the control room and discussed the current OWAs with the operators to ensure the items were being addressed on a schedule consistent with their relative safety significance.

b. Findings and Observations

No findings were identified.

The inspectors determined that the reviewed issues did not adversely affect the capability of the operators to implement abnormal or emergency operating procedures. The inspectors also verified that Exelon entered OWAs and burdens into the CAP at an appropriate threshold and planned or implemented corrective actions commensurate with their safety significance.

4OA3 Followup of Events and Notices of Enforcement Discretion (71153 - 2 samples)

.1 Notice of Enforcement Discretion (NOED) for Unit 2 and Unit 3 Common ESW Pinhole Leak

a. Inspection Scope

The inspectors reviewed Exelon’s response to a NOED that was required for both trains of ESW on both Units 2 and 3 due to an inoperable unexpected condition. On August 26, 2014, as a result of the discovery of a pinhole leak on a common header to both trains of ESW, Exelon declared both trains of ESW inoperable and entered the applicable limiting condition for operation (LCO) Action Statements of Mode 3 within 12 hours and Mode 4 within 36 hours. Due to the pinhole leak’s location at the pipe elbow, PBAPS’ current American Society for Mechanical Engineers (ASME) code case (N-513-3) for repair of low to moderate energy piping does not have a provision for repairs to elbows and fittings. The pending revision (N-513-4) of this ASME code case does provide a methodology and equations to account for stresses at elbows

and fittings. Exelon requested and was granted an NOED to extend the TS Action Completion Time for LCO 3.7.2.B; an additional 48 hours for the completion of calculations that would demonstrate that a through-wall leak in ESW piping would meet the eligibility requirements for an emergent, one-time relief request that would result in the ESW system being able to be declared operable with the leak. The emergent relief request from the NRC-approved ASME Code Case N-513-3 was granted which allowed Exelon to perform an evaluation of the piping flaw utilizing an ASME-approved methodology for evaluating elbows.

The inspectors concluded that once the issue was identified, Exelon's efforts to request a relief request and operability evaluation were reasonable to restore operability of ESW and exit the NOED.

b. Findings

No findings were identified.

.2 (Closed) LER 05000277, 278/2014-001-00, Unanalyzed Condition Due to Broken Wires in Breakers Used for Appendix R Post-Fire Safe Shutdown

a. Inspection Scope

On May 21, 2014, based on inspections being performed as part of an EOC review, it was determined that an unanalyzed condition existed that potentially impacted the ability to mitigate an Appendix R fire postulated to occur in the control room and cable spreading room. Broken wires leading to the alternate fuse for the 125 Vdc control power supply were previously identified in the breaker enclosures for three 4 kV safety-related breakers. In the event of an Appendix R fire in the control room and cable spreading room, with a fire-induced short circuit that results in a blown primary control power fuse, the broken wires would result in the loss of control power to the affected breakers. This would impact the ability to close the breaker locally after the control room has been evacuated. The inspectors reviewed Exelon's actions associated with LER 05000277, 278/2014-001-00, which are addressed in Exelon's CAP and in the finding in Section 1R05 of this report. The LER is closed.

b. Findings

See Section 1R05.

4OA6 Meetings, Including Exit

Quarterly Resident Exit Meeting Summary

On October 17, 2014, the resident inspectors presented the inspection results to Mr. Michael Massaro, Peach Bottom Site Vice President, and other PBAPS staff, who acknowledged the findings. 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
K. Aleshire, Exelon Corporate Emergency Preparedness Manager
N. Alexakos, Emergency Preparedness Manager
J. Armstrong, Regulatory Assurance Manager
D. Baracco, ALARA Manager
R. Bolding, Respiratory Physicist
V. Cwietniewicz, Mid-Atlantic Corproate Emergency Preparedness Manager
C. Cilluffo, Buried Piping and Tanks Program Engineer
D. Dullum, Exelon Senior Regulatory Engineer
B. Hennigan, Operations Training Manager
M. Herr, Operations Director
R. Holmes, Radiation Protection Manager
M. Jesse, Regulatory Assurance Manager
F. Leone, Chemistry Manager
T. Moore, Site Engineering Director
B. Reiner, Training Director
R. Ridge, Supervisor, Radiological Instruments
E. Schwarz, ODCM/RECP/REMP Program Manager
P. Simmons, Security Manager
J. Stenclik, Chemistry Programs Supervisor
D. Striebig, Emergency Preparedness Coordinator
M. Weidman, Work Management Director

NRC Personnel
F. Bower III, Branch Chief
S. Hansell, Senior Resident Inspector
B. Smith, Resident Inspector
S. Barr, Senior Emergency Preparedness Specialist
W. Cook, Senior Reactor Analyst, DRS
C. Graves, Health Physicist
J. Heinly, Resident Inspector, Three Mile Island

LIST OF ITEMS OPENED, CLOSED, DISCUSSED, AND UPDATED

Opened/Closed

05000277/278/2014004-01	NCV	Corrective Actions Not Timely for EOC of Appendix R Broken Wires (Section 1R05)
05000277/2014004-02	NCV	Scaffold Obstructs 'A' RHR Discharge Check Valve (Section 1R22)
05000277/278/2014004-03	NCV	Inadequate Evacuation Time Estimate Submittals (Section 1EP5)

Closed

05000277/278/2014-001-00	LER	Unanalyzed Condition Due to Broken Wires in Breakers Used for Appendix R Post-Fire Safe Shutdown (Section 4OA3)

LIST OF DOCUMENTS REVIEWED

* -- Indicates NRC-identified

Section 1R01: Adverse Weather

Procedures
OP-PB-108-111-1001, Preparation for Severe Weather, Revision 13
OP-AA-108-111-1001, Severe Weather and Natural Disaster Guidelines, Revision 12

AR
02381092, Incorrect Agnes Flood Evaluation in Unit 2/3 UFSAR

Section 1R04: Equipment Alignment

Procedures
COL 11.1.A-2, Standby Liquid Control System (SBLC), Revision 13

CRs
01684404, Three Point Terminal Block in MCU Has Threads Stripping Out
01684484, 2 'A' SBLC Pump Breaker Return to Service Delayed
01699465, 2 'D' RHR Pump Calculated D/P in Alert Range for ST-307 Test

Section 1R05: Fire Protection

Procedures
AO 54.2, 4 kV Breaker Manual Operation, Revision 0
PI-AA-125, Corrective Action Procedure, Revision 0
PI-AA-125-1006, Investigation Techniques Manual, Revision 0
SE-10, Attachment 6, 4 kV Alternative Shutdown Panel Setup and Transfer of 125V Battery Charger 2BD003 to Alternate Power Source, Revision 6

CRs
01629839, Broken Wires Found in E-23 Breaker (1606) Cubicle
01662555, E-43 (1802) 3 'D' RHR APP R Switch EOC Found Broken Wire
*01662767, Functional Test of ALTS/D Transfer Switch Doesn't Test CTRLPWR Circuit
01684404, Three Point Terminal Block in MCU Has Threads Stripping Out

Drawings
E-1, Single Line Diagram Station, Revision 55
E-12, Single Line Meter and Relay Diagram Standby Diesel Generators and 4160 Volt Emergency Power System – Unit 3, Revision 11
E-193, Sheet 6, Electrical Schematic Diagram Emergency Auxiliary Switchgear Diesel-Generator 4160V Circuit Breaker, Revision 34
E-1715, Sheet 1, Single Line Meter and Relay Diagram E-134 and E-234 Emergency L.C., E-134-W-A and E234-R-B, Reactor MCC and E134-T-B and E234-T-B, Turbine MCC 440V

Miscellaneous
SE-10 Plant Shutdown from the Alternate Shutdown Panels – Bases, Revision 23
PBAPS Fire Protection Plan, Revision 19

Section 1R06: Flood Protection Measures

CRs
01667267, MH-025A Water Level Touching Cable
01695849, NOED Required for ESW Pipe Leak
01720022, PBAPS Unit 3 ESW NDE EOC
01720161, PBAPS Unit 2 ESW NDE EOC
*02121589, MH-004 As Found Condition: Cables Submerged
02381636, P3R20-Unit 3 AUX Transformer Replacement
02381916, MH-004 in Alarm
02383422, Cable Program Reinforcement of ER-AA-3003 Step 4.3.5

Procedures
ER-AA-3003, Cable Condition Monitoring Program, Revision 2

Miscellaneous
Table Q1-1, Pumping Criteria Summary Medium and Low-Voltage cable
Regulatory Guide 1.218, Condition-Monitoring Techniques for Electric Cables Used in Nuclear Power Plants

Section 1R11: Licensed Operator Requalification Program

CRs
02383999, NOS ID: MCR Observations During Unit 3 Load Drop
02384129, PS05 4.0 Critique for Unit 3 Load Drop 9/20/14, Days
02384044, PSO4 4.0 Critique for Unit 3 Load Drop 9/19/14 – 9/20/14 Nights
02344721, 343SU (0404) PIL Alignment Problem During Rack In

Miscellaneous
PSEG-EPU-04-03-02, Operational Transient Procedures, Revision 0

Section 1R12: Maintenance Effectiveness

CRs
01680998, ER Trend – Substation System
01682858, Maintenance Rule Functional Failure (MRFF) for CB #215
01682865, MRFF for SW #2LP3
01682932, Switch #63 Degrading
01693590, Switch #343 – Thermography Heating on Hinge A Phase
*01699394, 3G3 Failure Improperly Assigned to Maintenance Rule Function
02165755, MRFF: SRV 71E Bellows Leak Det. Ground Classified as MRFF

IRs
01624979
01672120

Miscellaneous
MR System Basis Document, System: 51/51B/C
Table of Functional Failures for System 51/51B/C

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Miscellaneous
Paragon Equipment Out-of-service Tool

Section 1R15: Operability Evaluations

Procedures
SE-3 Loss of Conowingo Pond – Procedure, Revision 22
RT-O-100-505-2, Emergency Operating Procedure Tool Inventory, Revision 37
RT-O-48B-275-2, ECT Portable Pump Operability, Revision 7
OP-PB-101-111, Attachment 9, Expectation for Scaffold Walkdown Briefs and Inspections, Revision 20
MA-AA-796-024, Scaffold Installation, Inspection, and Removal, Revision 9
MA-AA-716-025, Scaffold Installation, Modification, and Removal Request Process, Revision 9
MA-MA-796-024-1001, Scaffolding Criteria for the Mid Atlantic Stations, Revision 8

CRs
01680741, CHK-48A Swing Arm/Scaffold Interference
01682112, OA (B, C) 415 ECT Pump Batteries Have No Charge
01682646, Scaffold Interference with Stem of HV-3-14-8B
01699494, Impacts Heard in Unit 2 'B' LPCI Injection Line

Miscellaneous
SE-3 Bases, SE-3 Loss of Conowingo Pond, Revision 17

Section 1R18: Plant Modifications

CRs
01688484, Cable Separation Criteria Not Met

Drawings
6280-E-1008, Raceway & Grounding Layout Pump Structure – Unit 3, Sheet 3 of 3, Revision 31

Section 1R19: Post-Maintenance Testing

Procedures
SO 10.1.A-2, RHR System Set Up for Automatic Operation, Revision 4
SO 32.1.A-2, HPSW System, Revision 17
ST-O-011-301-2, SBLC Pump Functional Test for IST, Revision 24
ST-O-052-154-3, E-4 DG Simulated Unit 3 ECCS Signal Auto Start with Offsite Power Available, Revision 10

ARs
1966515, Intake Structure Vent Supply Fan 2BV60
1914789, Unit 3 RCIC Pump Vibration

CRs
02384391, Relay Did Not Pick Up During Testing
02198972, 2014 3EA Tan Delta Cable Testing Results

WOs
C0252906, Repair Damaged Wires (Relug/Splice/Reland as Required)

Miscellaneous
eSOMS Peach Bottom Unified Control Room Log from 9/22/2014 to 9/23/2014

Section 1R22: Surveillance Testing

Procedures
ST-O-013-302-3, RCIC Pump, Valve, Flow and Unit Cooler Functional and In-service Comprehensive Test, Revision 5
ST-O-013-611-3, RCIC System Piping Pressure Test Inspection, Revision 4
ST-O-013-201-3, RCIC Alternative Control Panel Test, and Remote Shutdown Panel Test, Revision 3
ST-O-09A-325-2, SBGT Subsystem Operability Test, Revision 5
ST-O-010-302-2, 'A' RHR Loop Pump, Valve, Flow, and Unit Cooler Functional and Inservice Comprehensive Test, Revision 2

OP-AA-102-102, General Area Checks and Operator Field Rounds, Revision 12
OP-PB-101-111, Attachment 9, Expectation for Scaffold Walkdown Briefs and Inspections, Revision 20
MA-AA-796-024, Scaffold Installation, Inspection, and Removal, Revision 9
MA-AA-716-025, Scaffold Installation, Modification, and Removal Request Process, Revision 9
MA-MA-796-024-1001, Scaffolding Criteria for the Mid Atlantic Stations, Revision 8

CRs
01680741, CHK-48A Swing Arm/Scaffold Interference
*01685505, IR not documented in completed ST-O-010-302-2
01698330, 'A' SBGT Filter Heater Not Energizing

ARs
*02387793, CHK-48A/Scaffold Interference due to Eyebolt Installation

Miscellaneous
SBGT System Diagram
Control Room Logs from 7/11/2014

Section 1EP4: Emergency Action Level and Emergency Plan Changes

Letter from J. Barstow (Exelon Generation Company, LLC) to: U.S. NRC, "10 CFR 50, Appendix E – ETE Analysis Information," dated May 2, 2014 [ML14141A046]

Section 1EP5: Maintaining Emergency Preparedness

Issue Reports
1525923
1578649

Miscellaneous
Letter from D. M. Gullott (Exelon Generation Company, LLC) to: U.S. Nuclear Regulatory Commission, "10 CFR 50 Appendix E - ETE Analysis for PBAPS," dated December 12, 2012 [ML123550276]
Letter from D. M. Gullott (Exelon Generation Company, LLC) to: U.S. Nuclear Regulatory Commission, "10 CFR 50 Appendix E - ETE Analysis Checklists," dated January 23, 2013 [ML13024A209]
Letter from J. Barstow (Exelon Generation Company, LLC) to: U.S. Nuclear Regulatory Commission, "10 CFR 50, Appendix E – ETE Analysis Supplemental Response for Braidwood Station, Byron Station, Clinton Power Station, Dresden Nuclear Power Station, LaSalle County Station, Limerick Generating Station, Oyster Creek Nuclear Generating Station, PBAPS, Quad Cities Nuclear Power Station, and Three Mile Island Nuclear Station," dated September 5, 2013 [ML13254A112]
Letter from J. Barstow (Exelon Generation Company, LLC) to:
U.S. NRC, "10 CFR 50 Appendix E – ETE Analysis Information," dated May 2, 2014 [ML14141A046]

Section 2RSO6: Radioactive Gaseous and Liquid Effluent Treatment

Procedures
ST-C095-805-2, Liquid Radwaste Discharge, Revision 15
ST-C095-855-2, Analysis of gaseous Release for Tritium, Revision 4
ST-C-095-857-2, Main Stack and Roof Vents Total Iodine and Particulate Release Rates, Revision 14
ST-C-095-834-2, Verification of Cumulative Dose Contribution for Liquid Radwaste, Revision 3
ST-C-095-854-2, Preparation of the Radioactive Effluent Release Report, Revision 8
ST-C-095-858-2, Determination of Sr89, Sr90, and Alpha Activity from Main Stack and Roof Vent Particulate filters, Revision 7
RT-C-095-861-2, Radiochemistry Interlaboratory Cross Check Analysis Program, Revision 8
CY—AA-130-205-F-02, Tritium, Gross Alpha, and Gross Beta Sample Preparation for Scintillation Counting, Revision 2
CY-AA-170-000, Radioactive Effluent and Environmental Monitoring Programs, Revision 6
CY-AA-170-1000, Radiological Environmental Monitoring Program and Meteorological Program Implementation, Revision 8
CY-AA-170-1100, Quality Assurance for Radiological Monitoring Programs, Revision 1
CY-AA-170-3100, ODCM Revisions, Revision 6
EN-PB-408-4160, RGPP Reference Material for Peach Bottom Atomic Power Station
RP-AA-201-1001, Radiological Instruction Sheet for Escorted Visitors, Revision 2

Corrective Action Reports
AR01440410
AR01600913

Miscellaneous
PBAPS 2012 and 2013 Annual Effluents and Environmental Reports
SBGT Flow Engineering Calculation, December 6, 1983
SBGT Ventilation Differential Pressure Calibration, January 9, 2013
SBGT Ventilation ST Train A, May 3, 2013
SBGT Ventilation ST Train A, May 27, 2014
SBGT Ventilation ST Train B, January 8, 2013
SBGT Ventilation ST Train B, January 7, 2014
Control Room Emergency Ventilation STST Train A, July 22, 2013
Control Room Emergency Ventilation ST Train A, June 4, 2014
Control Room Emergency Ventilation Surveillance Test Train B, February 13, 2013
Control Room Emergency Ventilation ST Train B, January 13, 2014
Unit 2 RB Vent Calibration, April 17, 2014
Unit 3 RB Vent Calibration, June 3, 2014
Main Stack Calibration, November 3, 2011
Main Stack Calibration, July 30, 2013
Liquid Radwaste Calibration, May 29, 2012
Liquid Radwaste Calibration, May 22, 2014
Murray and Trettel Inc., 2013 Annual Meteorological Report
ODCM, Rev. 14
Teledyne Brown Annual Report 2013
Calculation of Main/Vent Stack RMS Analytical Process Limits, October 3, 1994

Discharge Permits
R1272421, Main Stack Iodine/Particulate, October 9, 2013
R1250870, Main Stack Iodine/Particulate, February 6, 2013
R1255588, Main Stack Iodine/Particulate, April 3, 2013
R1241026, Determination of Sr89, Sr90, and Alpha Activity from Main Stack and Roof Vent, January 7, 2013
L-20130708-073-B, B Tank Discharge, July 8, 2013
L-20131125-092-B, Aux Boiler Blowdown, November 25, 2013
L-20140326-103-B, B Tank Discharge, March 26, 2014

Section 4OA1: Performance Indicator Verification

Procedures
LS-AA-2080, Monthly Data Elements for NRC Safety System Functional Failures, Revision 4
LS-AA-2200, Mitigating System Performance Index Data Acquisition and Reporting, Revision 5

MSPI Deviation Reports and System Manager Notebooks:
October 2013 through June 2014, Unit 2 and Unit 3 ESW
October 2013 through June 2014, Unit 2 and Unit 3 EDGs

Miscellaneous
NEI 99-02, Regulatory Assessment Indicator Guideline, Revision 7
PBAPS MSPI Basis Document, Revision 7

Section 4OA2: Identification and Resolution of Problems
ARs
A1549118, A1830004, A1914789, A1954560

IRs
1331025, 1363491, 1531884, 1531888, 1651174, 1651578, 1656898

WOs
R1056934, R1279708, R1281757, R1291223, C0207702, C0246238, C0248352, C0249410

Procedures
ST-O-013-301-3, RCIC Pump, Valve, Flow & Unit Cooler Functional and IST, Revision 28
WC-AA-106, Work Screening and Processing, Revision 14
OP-AA-102-103, Operator Work-Around Program, Revision 3

Miscellaneous
Unit 3 RCIC Oil Analysis, June 2007 – July 2014
Unit 3 RCIC Pump + Turbine Vibration, May 1994 – July 2014
OWA Board Meeting Minutes
OWA and Challenges chart

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

CRs
01695849, NOED Required for ESW Pipe Leak
02384975, LOCA Signal EDG Start Relay 11B – TS Lessons Learned

LIST OF ACRONYMS

10 CFR	Title 10 of the *Code of Federal Regulations*
ACE	apparent cause evaluation
ADAMS	Agencywide Documents Access and Management System
AR	action request
ASME	American Society for Mechanical Engineers
CAP	corrective action program
CR	condition report
ECT	emergency cooling tower
EDG	emergency diesel generator
EOC	extent of condition
EP	emergency preparedness
EPU	emergency power uprate
ESW	emergency service water
ETE	evacuation time estimate
Exelon	Exelon Generation Company, LLC
FW	feedwater
GPI	ground water protection initiative
HPSW	high pressure service water
IMC	inspection manual chapter
IR	issue report
kV	kilovolt
LER	licensee event report
LCO	limiting condition for operation
LOCA	loss of coolant accident
LOOP	loss of offsite power
LPCI	low pressure coolant injection
MCR	main control room
MR	maintenance rule
MSPI	mitigating systems performance index
NCV	non-cited violation
NEI	Nuclear Energy Institute
NOED	Notice of Enforcement Discretion
NRC	Nuclear Regulatory Commission
NSIR	Nuclear Security and Incident Response, Office of
ODCM	offsite dose calculation manual
ORO	offsite response organization
OWA	operator work-arounds
PBAPS	Peach Bottom Atomic Power Station
PI	performance indicator
PI&R	problem identification and resolution
RB	reactor building
RBCCW	reactor building closed cooling water
RCIC	reactor core isolation coolant
RCS	reactor coolant system
RG	regulatory guide
RHR	residual heat removal
RTP	rated thermal power
SDP	significance determination process
SBGT	standby gas treatment

SBLC	standby liquid control
SRA	senior reactor analyst
SSC	structure, system, and component
TS	technical specification
UFSAR	Updated Final Safety Analysis Report
Vdc	volts direct current
WGE	work group evaluation
WOs	work orders
WPC	wear particulate concentration