



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

December 13, 2018

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

**SUBJECT: ERRATA FOR PEACH BOTTOM ATOMIC POWER STATION – INTEGRATED  
INSPECTION REPORT 05000277/2018002 AND 05000278/2018002 AND  
INDEPENDENT SPENT FUEL STORAGE INSTALLATION REPORT  
07200029/2018002**

Dear Mr. Hanson:

The U.S. Nuclear Regulatory Commission (NRC) identified an omission in the original issuance of NRC Integrated Inspection Report 05000277/2018002 and 05000278/2018002 and Independent Spent Fuel Storage Installation Report 07200029/2018002, dated August 13, 2018 (ADAMS Accession No. ML18225A086). Specifically, the inspection report inadvertently omitted the completion of four samples in the Radiation Safety section pertaining to Inspection Procedure 71124.04, "Occupational Dose Assessment." As a result, the NRC is reissuing the report in its entirety to correct this omission. The necessary corrections are reflected in the enclosed revised report.

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and the NRC's Public Document Room in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR), Part 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

*/RA/*

Jonathan E. Greives, Chief  
Reactor Projects Branch 4  
Division of Reactor Projects

Docket Numbers: 50-277 and 50-278  
License Numbers: DPR-44 and DPR-56

Enclosure:  
Inspection Report 05000277/2018002  
and 05000278/2018002 and 07200029/2018002

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SUBJECT: ERRATA FOR PEACH BOTTOM ATOMIC POWER STATION – INTEGRATED INSPECTION REPORT 05000277/2018002 AND 05000278/2018002 AND INDEPENDENT SPENT FUEL STORAGE INSTALLATION REPORT 07200029/2018002 DATED DECEMBER 13, 2018

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DOCUMENT NAME: G:\DRP\BRANCH4\Inspection Reports\Peach Bottom\2018\2018002\2018-002.ERRATA Final.docx  
 ADAMS ACCESSION NUMBER: **ML18347A482**

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**U.S. NUCLEAR REGULATORY COMMISSION  
Inspection Report**

Docket Numbers: 50-277 and 50-278

License Numbers: DPR-44 and DPR-56

Report Numbers: 05000277/2018002 and 05000278/2018002 and 07200029/2018002

Enterprise Identifier: I-2018-002-0064

Licensee: Exelon Generation Company, LLC

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

Location: Delta, Pennsylvania

Inspection Dates: April 1, 2018 to June 30, 2018

Inspectors: J. Heinly, Senior Resident Inspector  
B. Smith, Resident Inspector  
O. Masnyk Bailey, Health Physicist  
J. Cassata, Health Physicist  
J. Nicholson, Senior Health Physicist  
M. Orr, Reactor Inspector  
A. Turilin, Project Engineer

Approved By: Jonathan E. Greives, Chief  
Reactor Projects Branch 4  
Division of Reactor Projects

## SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring Exelon's performance at Peach Bottom Atomic Power Station, Units 2 and 3, by conducting the baseline inspections described in this report in accordance with the Reactor Oversight Process. The Reactor Oversight Process is the NRC's program for overseeing the safe operation of commercial nuclear power reactors. Refer to <https://www.nrc.gov/reactors/operating/oversight.html> for more information. NRC-identified and self-revealed findings, violations, and additional items are summarized in the table below.

### List of Findings and Violations

Failure to Identify and Promptly Correct a Condition Adverse to Quality Concerning Battery Charger 2B-003-1			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000277/2018-002-01 Opened/Closed	P.1 – Problem Identification and Resolution Identification	71111.19
The NRC identified a Green non-cited violation (NCV) of 10 <i>Code of Federal Regulations</i> (CFR) Part 50, Appendix B, Criterion XVI, "Corrective Action," because Exelon did not identify and promptly correct a condition adverse to quality (CAQ) commensurate with its safety significance concerning the 2BD-003-1 safety-related battery charger. Specifically, Exelon did not appropriately prioritize repairs for a CAQ and, as a result, the 2BD-003-1 battery charger failed to operate when placed in service on June 5, 2018.			

### Additional Tracking Items

Type	Issue number	Title	Report Section	Status
LER	05000277/2018-001-00	Fire Safe Shutdown Requirements Not Met for Spurious Operation of Valves at a High-Low Pressure Interface	71153	Closed

## PLANT STATUS

Unit 2 began the inspection period at rated thermal power (RTP). On June 1, 2018, the unit was down powered to 58 percent thermal power to perform summer readiness waterbox cleaning. The unit was returned to RTP on June 2, 2018, and remained at or near RTP for the remainder of the inspection period.

Unit 3 began the inspection period at RTP. On April 9, 2018, the unit was down powered to 57 percent thermal power to perform power suppression testing for a suspected fuel leak. The unit was returned to RTP on April 12, 2018. On June 8, 2018, the '3B' adjustable speed drive tripped off-line and the unit was down powered to 40 percent RTP. Exelon repaired a failed power supply on the '3B' adjustable speed drive system and the unit was returned to RTP on June 11, 2018. The unit remained at or near RTP for the remainder of the inspection period.

## INSPECTION SCOPES

Inspections were conducted using the appropriate portions of the inspection procedures (IPs) in effect at the beginning of the inspection unless otherwise noted. Currently approved IPs with their attached revision histories are located on the public website at <http://www.nrc.gov/reading-rm/doc-collections/insp-manual/inspection-procedure/index.html>. Samples were declared complete when the IP requirements most appropriate to the inspection activity were met consistent with Inspection Manual Chapter (IMC) 2515, "Light-Water Reactor Inspection Program - Operations Phase." The inspectors performed plant status activities described in IMC 2515, Appendix D, "Plant Status," and conducted routine reviews using IP 71152, "Problem Identification, and Resolution." The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel to assess Exelon's performance and compliance with Commission rules and regulations, license conditions, site procedures, and standards.

## REACTOR SAFETY

### 71111.01 - Adverse Weather Protection

#### Summer Readiness (1 Sample)

The inspectors evaluated summer readiness of offsite and alternate AC power systems on May 3 and 4, 2018.

### 71111.04 - Equipment Alignment

#### Partial Walkdowns (3 Samples)

The inspectors evaluated system configurations during partial walkdowns of the following systems/trains:

- (1) Unit 2 reactor core isolation cooling (RCIC) on May 2, 2018
- (2) Offsite power and station blackout on June 14, 2018
- (3) Emergency cooling tower (ECT) on June 25, 2018

Complete Walkdown (1 Sample)

The inspectors evaluated system configurations during a complete walkdown of the Unit 2 high-pressure coolant injection from May 11 through 18, 2018.

71111.05AQ - Fire Protection Annual/Quarterly

Quarterly Inspection (5 Samples)

The inspectors evaluated fire protection program implementation in the following selected areas:

- (1) Unit 3 turbine building, 116' elevation on April 10, 2018
- (2) Unit 2 reactor building, 195' general area on April 26, 2018
- (3) ECT, 136' general area on May 3, 2018
- (4) Unit 2 core spray (CS) instrument room, 116' elevation, on May 18, 2018
- (5) Unit 3 main transformer yard on May 21, 2018

71111.07 - Heat Sink Performance

Heat Sink (1 Sample)

The inspectors evaluated Exelon's monitoring and maintenance of the E-4 emergency diesel generator (EDG) heat exchanger on May 7, 2018.

71111.11 - Licensed Operator Requalification Program and Licensed Operator Performance

Operator Requalification (1 Sample)

The inspectors observed and evaluated the simulator scenario involving a torus leak and anticipated transient without scram on May 7, 2018.

Operator Performance (1 Sample)

The inspectors observed a downpower to support Unit 3 fuel power suppression testing from April 9 through 11, 2018.

71111.12 - Maintenance Effectiveness

Routine Maintenance Effectiveness (1 Sample)

The inspectors evaluated the effectiveness of routine maintenance activities associated with the following equipment and/or safety significant functions:

- (1) a(1) determination for Unit 3 failed fuel assembly from April 30 through May 4, 2018

71111.13 - Maintenance Risk Assessments and Emergent Work Control (4 Samples)

The inspectors evaluated the risk assessments for the following planned and emergent work activities:

- (1) Unit 3 RCIC unavailable and yellow risk on April 22, 2018
- (2) Unit 2 high-pressure coolant injection unavailable and yellow risk on May 2, 2018
- (3) E-1 EDG high crank case pressure trip unavailability on May 4, 2018
- (4) Unit 2 high-pressure service water 'A' inlet to ECT Reservoir valve repairs on June 4, 2018

71111.15 - Operability Determinations and Functionality Assessments (5 Samples)

The inspectors evaluated the following operability determinations and functionality assessments:

- (1) Unit 2 'C' residual heat removal (RHR) heat exchanger leak on April 6, 2018
- (2) Unit 2 torus vacuum relief valve pressure switch out of service on April 12, 2018
- (3) Unit 2 RCIC MO-2-13-20 valve degraded stroke time on April 25, 2018
- (4) Unit 3 'D' battery charger fail alarm on May 22, 2018
- (5) Unit 2 and Unit 3 automatic depressurization system backup nitrogen time delay relays out of calibration on June 18, 2018

71111.18 - Plant Modifications (1 Sample)

The inspectors evaluated the following permanent modification:

- (1) Engineering Change Package EC07-00031, Unit 3 CS Full Flow Test Valve MO-3-14-026A Not Able to Meet Minimum Thrust on June 12, 2018

71111.19 - Post-Maintenance Testing (6 Samples)

The inspectors evaluated post-maintenance testing for the following maintenance/repair activities:

- (1) Unit 3 RCIC failed pressure switch replacement on April 23, 2018
- (2) Unit 2 AO-2-40B-20467 actuator replacement on April 24, 2018
- (3) E-1 EDG high crank case pressure on May 4, 2018
- (4) E-4 EDG cylinder liner replacement on May 17, 2018
- (5) Unit 2 'B' battery charger repair on June 6, 2018
- (6) E-3 EDG high temperature and turbo charger replacement on June 14, 2018

71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

Routine (5 Samples)

- (1) Unit 3 reactor protection system 'B' channel control valve fast closure on April 9, 2018

- (2) Main control room emergency ventilation logic system functional testing (LSFT) on April 17, 2018
- (3) E-2 EDG ventilation LSFT on April 18, 2018
- (4) Chemical storage accounting inventory on April 30, 2018
- (5) Unit 3 'B' RHR surveillance test on June 7, 2018

Inservice (1 Sample)

- (1) Unit 2 'A' CS inservice test on May 29, 2018

71114.06 - Drill Evaluation

Drill/Training Evolution (1 Sample)

The inspectors observed and evaluated the simulator scenario and emergency classification and notifications involving a torus leak and anticipated transient without scram on May 7, 2018.

**RADIATION SAFETY**

71124.01 - Radiological Hazard Assessment and Exposure Controls

Radiological Hazard Assessment (1 Sample)

The inspectors conducted independent radiation measurements during walkdowns of the facility and reviewed:

- (1) The radiological survey program
- (2) Any changes to plant operations since the last inspection
- (3) Recent plant radiation surveys for radiological work activities
- (4) Air sampling and analysis
- (5) Continuous air monitor use

Contamination and Radioactive Material Control (1 Sample)

The inspectors observed the monitoring of potentially contaminated material leaving the radiological controlled area and inspected the methods and radiation monitoring instrumentation used for control, survey, and release of that material. The inspectors selected several sealed sources from inventory records and assessed whether the sources were accounted for and were tested for loose surface contamination. The inspectors evaluated whether any recent transactions involving nationally tracked sources were reported in accordance with requirements.

Radiation Worker Performance and Radiation Protection Technician Proficiency (1 Sample)

The inspectors evaluated radiation worker performance with respect to radiation protection work permit requirements. The inspectors evaluated radiation protection technicians in performance of radiation surveys and in providing radiological job coverage.



## 71124.02 - Occupational As Low As Reasonably Achievable (ALARA) Planning and Controls

### Radiological Work Planning (1 Sample)

The inspectors evaluated radiological work planning by reviewing significant work activities to verify that ALARA planning was integrated into work procedures and radiation work permit documents.

### Radiation Worker Performance (1 Sample)

The inspectors observed radiation worker and radiation protection technician performance during radiological work to evaluate worker ALARA performance according to specified work controls and procedures.

## 71124.04 Occupational Dose Assessment

### Source Term Characterization (1 Sample)

The inspectors verified the licensee has characterized the radiation types and energies being monitored and has developed appropriate scaling factors for hard-to-detect radionuclide activity and alpha radionuclides in internal dose assessments.

### External Dosimetry (1 Sample)

The inspectors evaluated external dosimetry to include the following:

- (1) Verification of National Voluntary Laboratory Accreditation Program accreditation for dosimetry processor
- (2) Onsite storage of passive dosimeters
- (3) Determine if bias and correlations for electronic alarming dosimeter are appropriate

### Internal Dosimetry (1 Sample)

The inspectors evaluated the internal dosimetry program to include routine bioassay, special bioassay, and dose assessments.

### Special Dosimetric Situations (1 Sample)

The inspectors evaluated special dosimetric situations to include declared pregnant workers, dosimeter placement and assessment of effective dose equivalent for external exposures, shallow dose equivalent, neutron dose assessment, and dose of legal record.

## **OTHER ACTIVITIES – BASELINE**

### 71151 - Performance Indicator Verification (4 Samples)

The inspectors verified licensee performance indicators submittals listed below for the period from April 1, 2017 through March 31, 2018.

- (1) Unit 2 Reactor Coolant System (RCS) Activity (BI01)
- (2) Unit 3 RCS Activity (BI01)
- (3) Unit 2 RCS Leakage (B102)
- (4) Unit 3 RCS Leakage (B102)

### 71152 - Problem Identification and Resolution

#### Semi-Annual Trend Review (1 Sample)

The inspectors reviewed Exelon's corrective action program (CAP) for trends that might be indicative of a more significant safety issue.

#### Annual Follow-up of Selected Issues (2 Samples)

The inspectors reviewed Exelon's implementation of its CAP related to the following issues:

- (1) Issue Report (IR) 3963696, Cable reliability program on May 29, 2018
- (2) IR 3999563, CS motor vibration trend and extent of condition on June 21, 2018

### 71153 - Follow-up of Events and Notices of Enforcement Discretion

#### Licensee Event Reports (1 Sample)

The inspectors evaluated the following Exelon event report which can be accessed at <https://lersearch.inl.gov/LERSearchCriteria.aspx>:

- (1) Licensee Event Report (LER) 05000277/2018-001-00, Fire Safe Shutdown Requirements Not Met for Spurious Operation of Valves at a High-Low Pressure

Interface on March 14, 2018. The review for this event is documented in IR 05000277/2018010 and 05000278/2018010 as a licensee-identified NCV.

## **OTHER ACTIVITIES – TEMPORARY INSTRUCTIONS, INFREQUENT, AND ABNORMAL**

### 60855.1 – Operation of an Independent Spent Fuel Storage Installation (1 Sample)

The inspectors evaluated Exelon's independent spent fuel storage installation cask loading on June 18–22, 2018. Specifically, the inspectors reviewed or observed the following activities:

- (1) Fuel selection and fuel loading
- (2) Heavy load movement of the loaded TN-68 cask
- (3) Closure bolting
- (4) Final helium leak test

- (5) Radiological field surveys
- (6) Drying and backfill evolutions
- (7) Transfer and transport evolutions
- (8) Radiological field surveys

## INSPECTION RESULTS

Failure to Identify and Promptly Correct a Condition Adverse to Quality Concerning Battery Charger 2B-003-1			
Cornerstone	Significance	Cross-cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000277/2018002-01	P.1 – Problem Identification and Resolution, Identification	71111.19
<p><u>Introduction:</u> The NRC identified a NCV of 10 CFR Part 50, Appendix B, Criterion XVI, “Corrective Action,” because Exelon did not identify and promptly correct a CAQ commensurate with its safety significance concerning the 2BD-003-1 safety-related battery charger. Specifically, Exelon did not appropriately prioritize repairs for a CAQ and, as a result, the 2BD-003-1 battery charger failed to operate when placed in service on June 5, 2018.</p>			
<p><u>Description:</u> Peach Bottom has two independent safety-related 125/250 VDC systems per unit. Each system is comprised of two 125 V batteries, each with its own charger panel consisting of two 100 percent chargers. The safety-related chargers are full wave, silicon controlled rectifiers, suitable for float charging the lead-calcium battery at 2.25 V per cell, and supplying an equalizing charge at 2.33 V per cell. The chargers operate from 480 V, 3 phase, 60 Hz sources supplied from separate 480 V motor control centers and are capable of carrying the normal DC system load and, at the same time, supplying charging current to keep the batteries in a fully charged condition.</p> <p>On March 5, 2018, IR 4111441 was initiated for Exelon to investigate and troubleshoot a fan failure alarm of the 2BD-003-1 battery charger under Work Order (WO) 4755435. The IR was placed on Exelon’s priority work list (PWL) and operators swapped in-service battery chargers to the 2BD-003-2 charger in preparation to conduct troubleshooting on the 2BD-003-01 charger. During the troubleshooting for the fan failure alarm, Exelon’s fix-it-now (FIN) department observed a separate condition; the battery fail alarm light was lit when the battery was placed in-service but unloaded.</p> <p>IR 4116697 was initiated and closed to WO 4755435 to investigate the new issue concerning the lit 2BD-003-01 fail light. Exelon installed a recorder to obtain data on the 2BD-003-1 while in service before swapping back to the 2BD-003-2 to remain in-service. The recorder data was reviewed for both unloaded and full load battery service. IR 4116697 documents that under full load service, the 2BD-003-1 showed no abnormalities in the recorder traces and that the battery fail light extinguished when load was placed on the charger. The IR recommended no additional actions and concluded that the condition was being worked under and could be closed to WO 4755435. Subsequently, the 2BD-003-1 issue was removed from the PWL.</p> <p>However, after March 19, 2018, during review of the in-service unloaded traces identified during troubleshooting, FIN identified that the frequency reading on the silicon-controlled</p>			

rectifier (SCR) bus was 180 Hz as opposed to the expected 360 Hz. FIN also observed that the gate pulses originating from the negative gate SCR driver board were approximately half the amplitude of the positive driver board, and consequently half the amplitude of what would be expected pulses from the negative board. Additionally, FIN observed that the fail light returned to being lit when the battery was unloaded. Following the troubleshooting, FIN concluded that the negative SCR gate driver board and/or the connectors on the harness of the driver board were degraded. FIN initiated a material request on April 3, 2018, to the station warehouse to obtain an in-stock negative gate SCR driver board for replacement. The inspectors identified that this new information that FIN had noted was not documented in a new IR, nor added to the existing IR 4116697, nor documented in the WO completion notes, but only kept on an unofficial record by the FIN lead technician. Therefore, Exelon missed the opportunity to place the issue back on their PWL, to evaluate the risk of a degraded negative SCR gate driver board, and to have work control assign a due date commensurate with Exelon's Procedure WC-AA-106, Attachment 1, Revision 18, "Priority Screening Matrix." Considering the part was in stock and work could be performed while 2BD-003-01 was not in-service, the inspectors determined it was reasonable for Exelon to have repaired the degraded condition before the condition worsened or the charger was placed back into service.

On June 5, 2018, Exelon attempted to place the 2BD-003-01 battery charger in service; however, voltage could not be maintained at 130 VDC. Exelon secured 2BD-003-01, entered Technical Specification (TS) 3.8.4, which required restoration of the Unit 2 DC electrical power subsystem within 2 hours and then to be in Mode 3 within 12 hours. Exelon subsequently placed the 2BD-003-02 battery charger in-service, and exited TS 3.8.4. IR 4144546 was then initiated and troubleshooting recommenced to determine why there was insufficient DC output on 2BD-003-01. Exelon determined that the negative SCR gate driver board had failed rendering 2BD-003-01 inoperable. The negative SCR gate driver board was replaced with the in-stock driver board, the battery charger was tested satisfactorily, and was returned to an operable status with no abnormalities being identified. Exelon subsequently captured the inspectors concerns regarding CAP documentation and prioritization in IR 4149360 written on June 21, 2018.

Corrective Actions: Exelon replaced the negative SCR gate driver board and restored the charger. Additionally, Exelon initiated IR 4149360 to address advocating an earlier repair window, communicating troubleshooting results in a formal manner to other departments (operations, work control, maintenance), and ensuring troubleshooting results are documented in a quality record.

Corrective Action Reference: IR 4149360

Performance Assessment:

Performance Deficiency: The inspectors determined that Exelon's failure to identify and promptly perform corrective actions commensurate with the safety significance of a degraded battery charger is a performance deficiency reasonably within Exelon's ability to foresee and correct. Specifically, Exelon missed an opportunity by not adequately prioritizing repairs of a degraded negative SCR gate driver board that eventually failed the 2BD-003-1 battery charger on June 5, 2018.

Screening: The finding is more than minor, because it is associated with the Equipment Performance attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone's objective to ensure the availability, reliability, and capability of systems that

respond to initiating events to prevent undesirable consequences (i.e., core damage) Specifically, 2BD-003-1 failed to perform its safety-related function as a result of Exelon not prioritizing repairs for a CAQ.

Significance: The inspectors evaluated the significance of the finding using IMC 0609, Appendix A, "Significance Determination Process for Findings at Power," Exhibit 2 – Mitigating Systems Screening Questions. The inspectors determined this finding was of very low safety significance (Green) because the finding was not a design deficiency, not a loss of a safety function, and was not the loss of function of a single train for longer than its TS allowed outage time.

Cross-Cutting Aspect: The inspectors determined this finding had a cross-cutting aspect in the area of Problem Identification and Resolution, Identification, because Exelon did not ensure the issue was entered in the CAP in sufficient detail to ensure it could be appropriately prioritized, trended, and assigned for resolution. [P.1]

Enforcement:

Violation: 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," requires that measures shall be established to assure conditions adverse to quality are promptly identified and corrected. Contrary to this requirement, from March 19, 2018, until June 5, 2018, Exelon did not promptly identify and correct a CAQ associated with a degraded battery charger 2BD-003-1. Specifically, Exelon did not appropriately prioritize repairs for a CAQ commensurate with its safety significance. As a result, battery charger 2BD-003-1 failed to operate when placed in service on June 5, 2018.

Disposition: This violation is being treated as an NCV, consistent with Section 2.3.2a of the Enforcement Policy.

Observations	71152
<p><u>Semi-Annual Trend Review</u></p> <p>The inspectors evaluated a sample of issues and events that occurred over the course of the first and second quarters of 2018 to determine whether issues were appropriately considered as emerging or adverse trends. The inspectors verified that these issues were addressed within the scope of the CAP or through department review.</p> <p>The inspectors review did not identify any new adverse trends; however, they did identify multiple condition reports that detail CAQs related to engineering programs that are intended to identify, manage, and retain plant design and safety margins. Specifically, the inspectors reviewed issues with the roles and responsibilities within the Structural Monitoring, GL 89-13, In-Service Testing, and Aging Management programs. The inspectors identified that elevated engineering turnover rate and substantial engineering department reorganization was a primary contributor to the documented issues. The inspectors determined that the issues were adequately documented in the CAP (IRs 4094922, 4097435) and reasonable actions have been created to address the issues. While most actions have not been in effect long enough to adequately assess their impact, the inspectors did note positive improvement in the structural monitoring program. The inspectors will continue to monitor the effectiveness of the corrective actions.</p>	

Exelon did identify an adverse trend in equipment reliability due to several safety-related and non-safety-related equipment failures in the past six months. These issues were documented in IRs 4155918 and 4155200. The inspectors reviewed the IR's; however, the actions associated have not been completed and will be reviewed under future inspection samples. The inspectors did not identify any issues of concern at this time.

Exelon performed a self-assessment of the CAP and identified one deficiency and multiple recommendations which were documented in IR 4072771. The deficiency related to the stations adequacy of actions to address an NRC-identified issue of concern documented in an IR. Specifically, the station identified that a required action was not created to address the concern and documented the issue in the CAP under IR 4142994. Furthermore, Exelon reviewed NRC-identified IRs that were closed to work requests that currently remained open. Exelon's review did not identify any immediate safety concerns or operability issues with the remaining work requests. The inspectors determined that Exelon's review was adequate and that the deficiency was minor. However, the inspectors noted that an NCV, 05000278/2018001-01, had been documented in Inspection Report 2018001 for the failure to perform timely corrective actions for an NRC-identified concern, similar to the deficiency noted above. In addition, the inspectors documented an NCV, 05000277/2018002-01, for failure to perform prompt corrective actions for a known degraded condition on the 2B battery charger in this report. The inspectors continue to review the corrective actions from these events and monitor the performance of the CAP to take timely corrective actions for known degraded conditions. No additional issues of concern were identified.

Observations	71152
<p><u>Cable Reliability Program</u></p> <p>The inspectors did not identify any findings during the review. However, the inspectors identified the following observations. Exelon missed two opportunities, in 2016 and in 2018, to replace cables associated with the Unit 3 emergency auxiliary transformer after testing results in 2014 concluded that the cables were in the 'action' range and required replacement at the next available work window. In 2018, the validity of the 2014 testing results was brought into question by Exelon. The inspectors noted that the invalid test results identified by the cable reliability program could have been identified and communicated as early as 2014. Since the communication did not take place until 2018, the station did not appropriately prioritize the replacement schedule given the true condition of the cables. The inspectors also noted that during the period between 2014 and 2018, Exelon's cable reliability program held four different program owners which contributed to less program ownership and program continuity than expected.</p> <p>The inspectors determined that these observations were minor, in that, there had not been an actual adverse impact regarding actual cable performance. Additionally, Exelon's cable reliability program had accomplished separate corrective actions to repair multiple underground vaults containing cables important to safety and these repairs had effectively limited the ingress of water into the vaults. The inspectors determined that these actions have adequately protected the medium voltage cables from degradation due to submergence in water. No issues of concern were identified.</p>	

Observations	71152
<p data-bbox="203 233 574 264"><u>Core Spray Motor Vibrations</u></p> <p data-bbox="203 300 1422 863">The inspectors reviewed Exelon’s corrective actions for an elevated vibration trend on the 2C core spray motor documented under IR 3999563 and NCV 05000277/2017008001. Exelon appropriately entered the issue into their CAP and developed actions to troubleshoot and correct the CAQ. The cause of the elevated vibrations were identified to be resonance vibration of the motor occurring at the normal running speed of the pump. This resonance has induced an elevated vibration in the motor. Exelon is currently performing interim actions to mitigate the resonance vibration while long term actions for the motor replacement can be accomplished. In addition, an extent of condition review was performed on all safety-related vertically mounted pumps which included RHR, high-pressure service water, and emergency service water. It was identified that additional core spray motors had symptoms of resonance vibration, although less significant than the 2C motor. Exelon has established corrective actions to replace these motors with refurbished motors on a staggered schedule. The inspectors determined that Exelon’s completed and proposed actions were reasonable. The inspectors noted that Exelon consulted with industry vibration experts to develop extensive and in-depth troubleshooting and mitigating actions. The actions appeared reasonable and commensurate with the safety significance of the issue. No additional issues of concern were identified.</p>	

#### **EXIT MEETINGS AND DEBRIEFS**

The inspectors verified no proprietary information was retained or documented in this report.

- On July 13, 2018, the inspectors presented the quarterly resident inspector inspection results to Mr. Matthew Herr, Plant Manager, and other members of the Exelon staff.

**DOCUMENTS REVIEWED****71111.01**Procedures

MA-AA-716-230-1003, Thermography Program Guide, Revision 5

SE-16, Attachment A, Generation Dispatch TSO Communications to Peach Bottom, Revision 11

**71111.04**Procedures

SO 48.7.A, Emergency Cooling Water System Makeup to Tower Using a High Pressure Service Water Pump, Revision 10

ST-O-51H-201-2, SBO Line TS 3.8.1 B.1 Verification, Revision 4

ST-O-054-951-2, Offsite and Onsite Electrical Power Breaker Alignment and Power Availability Check with a Start-Up source and/or EDG Inoperable, Revision 7

Drawings

6280-M-359, Sheet 1, RCIC System, Revision 50

6280-M-360, Sheet 1, RCIC Pump Turbine Details, Revision 56

**71111.05Q**Procedures

PF-5F, Unit 2 Reactor Building, CS Instrument Room, Elevation 116'-0", Revision 4

PF-5K, Unit 2 Reactor Building, General Area, Elevation 195', Revision 7

PF-136, ECT, General Area, Elevation 123'-0"/153'-0", Revision 3

PF-152, Unit 3 Main Transformer Yard, Revision 6

**71111.07**Procedures

ER-AA-340-1002, Service Water Heat Exchanger Inspection Guide, Revision 7

WC-AA-101-1004, E-4 EDG TSA – WW 1819/1820, Revision 8

**71111.13**Procedures

CC-AA-301, Engineering Standard Request Form, Revision 3

CC-MA-103-2001, Setpoint Methodology for PB and Limerick Generating Station, Revision 2

MA-MA-796-024-1001, Scaffolding Criteria for the Mid-Atlantic Stations, Revision 9

OP-PB-108-117-1000, PB Protected Equipment Tracking Sheet, Attachment 1

SI3P-13-72-ABCE, Calibration Check of RCIC Pump and Turbine Pressure Switches PS 3-13-67-1 and PS 3-13-72A/B, Revision 7

WC-AA-101-1006, On-line Risk Management and Assessment, Revision 2

Drawings

6280-M-1-S-42, Sheet 21, RCIC System, Revision 77

6280-M-359, Sheet 2, RCIC System, Revision 48

6280-M-360, Sheet 2, RCIC Pump Turbine Details, Revision 54



WOs

4260039

Miscellaneous

EC Number: 623997

**71111.15**

Procedures

ER-AA-321, IST Valve Evaluation Form, Revision 12  
OP-AA-108-115, Operability Determinations, Revision 21

Condition Reports

4120966      4130754

Drawings

6280-M-1-S-42, Sheet 17, RCIC System, Revision 74  
6280-M-359, Sheet 1, RCIC System, Revision 50

ARs

1311814

**71111.18**

Engineering Change

ECR PB 07-00031, MO-3-14-026A Not Able to Meet Minimum Thrust, Revision 0

**71111.19**

Procedures

MA-AA-716-004, Conduct of Troubleshooting, Revision 15  
MA-AA-716-234, FIN Team Process, Revision 12  
RT-O-052-254-2, E-4 Diesel Generator Inspection Post-Maintenance Functional Test, Revision 37  
ST-I-052-254-2, E-4 Diesel Generator Inspection Post-Maintenance Instrumentation and Logic Test, Revision 7  
ST-I-052-264-2, E-4 Diesel Generator Inspection Post-Maintenance Handswitch Logic Test, Revision 3  
ST-M-57B-762-2, Battery Charger 2BD003-1 and 2BD003-2 Capability Test, Revision 6  
ST-O-052-311-2, E-1 Diesel Generator Slow Start Full Load and IST Test, Revision 22  
ST-O-052-414-2, E-4 Diesel Generator Fast Start and Full Load Test, Revision 26  
ST-O-094-400-2, Stroke Time Testing of Valves for Pre-Maintenance or PMT, Revision 5  
WC-AA-106, Priority Screening Matrix, Attachment 1, Revision 18  
WC-AA-111-F-01, Surveillance WO Disposition Sheet, Revision 0

Condition Reports

2685664	3968502	4019553	4025384	4054307	4056725
4066576	4070794	4072646	4078903	4111441	4116697
4130767	4134248	4138230	4138464	4139205	4144536
4144592	4149360				

Drawings

D-11938-10, Wiring Diag. Charger 1, Model 130/200R3-S Battery Charger Power State,  
Sheet 1 of 1

WOs

04306095-01            04595788            04755435

Miscellaneous

Battery Information, 2BD003-1 dated June 6, 2018  
Log Entries Search Report dated June 5, 2018

**71111.22**Procedures

EN-AA-501, Controlled Material Storage Owner Inspection Checklist, Attachment 6, Revision 3  
SI3F-10-109-B1C2, Calibration Check of RHR 'B' Loop Flow Instruments FT-3-10-109B,  
FR-3-10-143, FI-3-10-139B, FT-3-10-111B, FT-3-10-91076B, FT-3-10-91076D,  
FI-3-10-91076B, FI-3-10-91076D, and FI-3-10-136B, Revision 7  
ST-I-40D-200-2, Control Room Emergency Ventilation LSFT, Revision 11

Miscellaneous

Pennsylvania Tier II Emergency and Hazardous Chemical Inventory, PB, dated January 1, 2017  
to December 31, 2017

Condition Reports

1668149            4125513            4314575

**71124.01**Procedures

RP-AA-401, Operational ALARA Planning and Controls, Revision 23  
RP-AA-463-1001, Fuel Surveillance Guidance, Revision 4  
RW-PB-570, Storage of Radioactive Material and Radiation Waste at the Low Radiation  
Storage Area, Revision 007  
SF-421, Radiation Protection Requirements for Spent Fuel Casks TN-68-01 through TN-68-44  
and TN-68-48 through TN-68-92 Loading and Transport Operations, Revision 008

Condition Reports

04079512    04084790    04098830    04099291  
04120191    04122576    04124748    04135486

Radiation Work Permits

PB-C-18-205  
PB-C-18-309  
PB-C-18-315

Documents

OP-AA-108-111, Attachment 1, Adverse Condition Monitoring and Contingency Plan, dated  
4/18/2018  
RP-AA-401, Attachment 2, Combined ALARA / Micro ALARA Plan, U-2 RWCU Sample Sink  
Chiller Work, dated 5/21/2018

RP-AA-401, Attachment 2, Combined ALARA / Micro ALARA Plan, Floor Drain and Waste Collector Pump, dated 4/16/2018  
 RP-AA-401, Attachment 2, Combined ALARA / Micro ALARA Plan, Tri-Nuke Filter Motor, dated 4/25/2018  
 RP-AA-441, Attachment 2, TEDE ALARA Evaluation of Screening Worksheet, Floor Drain and Waste Collector Pump, dated 4/25/2018  
 RP-AA-463-1001, Attachment 5, Radiation Protection Checklist for Nuclear Fuel Failures, dated 4/10/2018.

### **71124.02**

#### Procedures

NISP-RP-003, Nuclear Industry Standard Process – Radiological Air Sampling  
 RP-AA-300, Radiological Survey Program, Revision 16

#### Condition Reports

4068960      4070035

#### Documents

PB 2017, P3R21 Refuel Outage Report (10/232017-11/072017)  
 PB 2018-2022, Dose Excellence Plan, Revision 0

### **71124.04**

#### Condition Reports

4062440      4084790

### **71151**

#### Procedures

ST-O-020-560-2, Reactor Coolant Leakage Test, Revision 13

### **71152**

#### ARs

4000970

#### Condition Reports

3990487      4012283

#### Miscellaneous

PB-17-0027, Obtain Spare CS Motor

### **71153**

#### Procedures

SF-221, Spent Fuel Casks TN-68 Loading and Transport Operations, Revision 20  
 SF-421, Radiation Protection Requirements for Spent Fuel Casks TN-68-01 through TN-68-44 and TN-68-48 through TN-68-92 Loading and Transport Operations, Revision 8