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

February 12, 2020

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

SUBJECT: PEACH BOTTOM ATOMIC POWER STATION, UNITS 2 AND 3 – INTEGRATED INSPECTION REPORT 05000277/2019004 AND 05000278/2019004

Dear Mr. Hanson:

On December 31, 2019, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Peach Bottom Atomic Power Station, Units 2 and 3. On January 8, 2020, the NRC inspectors discussed the results of this inspection with Mr. Pat Navin, Site Vice President, and other members of your staff. The results of this inspection are documented in the enclosed report.

One Severity Level IV violation without an associated finding is documented in this report. We are treating this violation as a non-cited violation (NCV) consistent with Section 2.3.2 of the Enforcement Policy.

If you contest the violation or the significance or severity of the violation documented in this inspection report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region I; the Director, Office of Enforcement; and the NRC Resident Inspector at Peach Bottom Atomic Power Station, Units 2 and 3.

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 at the NRC Public Document Room in accordance with Title 10 of the *Code of Federal Regulations* 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

X /RA/

Signed by: Jonathan E. Greives

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

Docket Nos. 05000277 and 05000278
License Nos. DPR-44 and DPR-56

Enclosure:
As stated

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U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report

Docket Numbers:	05000277 and 05000278
License Numbers:	DPR-44 and DPR-56
Report Numbers:	05000277/2019004 and 05000278/2019004
Enterprise Identifier:	I-2019-004-0037
Licensee:	Exelon Generation Company, LLC
Facility:	Peach Bottom Atomic Power Station, Units 2 and 3
Location:	Delta, Pennsylvania
Inspection Dates:	October 1, 2019 to December 31, 2019
Inspectors:	J. Heinly, Senior Resident Inspector P. Boguszewski, Resident Inspector D. Beacon, Resident Inspector L. Casey, Senior Project Engineer Z. Hollcraft, Senior Reactor Operations Engineer K. Mangan, Senior Reactor Inspector M. Orr, Reactor Inspector S. Rutenkroger, Senior Resident Inspector B. Smith, Nuclear Systems Engineer A. Turilin, Reactor Inspector
Approved By:	Jonathan E. Greives, Chief Reactor Projects Branch 4 Division of Reactor Projects

Enclosure

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting an integrated inspection at Peach Bottom Atomic Power Station, Units 2 and 3, 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.

List of Findings and Violations

Failure of Reactor Mode Switch Results in Condition Prohibited by Technical Specifications			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Not Applicable	NCV 05000278/2019004-01 Open/Closed	Not Applicable	71153
A Severity Level IV non-cited violation (NCV) of Unit 3 Technical Specification (TS) 3.3.1.1, "Reactor Protection System (RPS) Instrumentation," was self-revealed when the Unit 3 reactor mode switch failed to place RPS in shutdown and did not scram the reactor as anticipated. Specifically, Exelon determined that between October 10, 2018, and October 21, 2019, the reactor mode switch was inoperable and therefore unable to perform its safety function.			

Additional Tracking Items

Type	Issue Number	Title	Report Section	Status
LER	05000278/2019-001-00	LER 2019-001-00 for Peach Bottom Atomic Power Station (PBAPS) Unit 3, Failure of Reactor Mode Switch Results in Condition Prohibited by Technical Specifications	71153	Closed

PLANT STATUS

Unit 2 began the inspection period at rated thermal power. On December 6, 2019, operators reduced power to approximately 76 percent rated thermal power to perform a control rod pattern adjustment and turbine valve testing. Unit 2 returned to rated thermal power on December 7, 2019, and remained at or near rated thermal power until December 27, 2019, when operators reduced power to approximately 60 percent rated thermal power to perform condenser maintenance. The unit was returned to rated thermal power on the evening of December 27, 2019, and remained at or near rated thermal power for the remainder of the inspection period.

Unit 3 began the inspection period at rated thermal power. On October 21, 2019, operators took the unit offline for a planned refueling outage. Following the refueling outage, Unit 3 returned to rated thermal power on November 8, 2019, and remained at or near rated thermal power 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 licensee performance and compliance with Commission rules and regulations, license conditions, site procedures, and standards.

REACTOR SAFETY

71111.04Q - Equipment Alignment

Partial Walkdown Sample (IP Section 03.01) (5 Samples)

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

(1) Unit 3 'B' core spray (CS) during 'A' CS inoperability on November 12, 2019
(2) Unit 3 high-pressure coolant injection (HPCI) following refuel outage maintenance window on November 12, 2019
(3) E-1, E-2, E-3, and E-4 emergency diesel generators (EDGs) during offsite power source 3EA cable replacement on November 13, 2019
(4) E-13, E-23, E-33, and E-43 4 kV bus and switchgear during offsite power source 3EA cable replacement on November 14, 2019
(5) Unit 2 HPCI on December 3, 2019

71111.04S - Equipment Alignment

Complete Walkdown Sample (IP Section 03.02) (1 Sample)

(1) The inspectors evaluated system configurations during a complete walkdown of the Unit 3 'A' residual heat removal (RHR) system on November 4, 2019

71111.05A - Fire Protection (Annual)

Annual Inspection (IP Section 03.02) (1 Sample)

(1) The inspectors evaluated fire brigade performance in Unit 2 turbine building, 116' elevation, main corridor on November 27, 2019

71111.05Q - Fire Protection

Quarterly Inspection (IP Section 03.01) (6 Samples)

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

(1) Unit 3 north isolation valve room on October 22, 2019
(2) Unit 3 drywell area on October 22, 2019
(3) Unit 3 south isolation valve room on October 22, 2019
(4) Unit 3 reactor building, 135' elevation on October 24, 2019
(5) Unit 3 torus room on October 28, 2019
(6) Unit 3 recirc pump motor generator set room on December 3, 2019

71111.08G - Inservice Inspection Activities (BWR)

BWR Inservice Inspection Activities Sample - Nondestructive Examination and Welding Activities (IP Section 03.01) (1 Sample)

(1) The inspectors verified that the reactor coolant system boundary, reactor vessel internals, risk-significant piping system boundaries, and containment boundary are appropriately monitored for degradation and that repairs and replacements were appropriately fabricated, examined and accepted by reviewing the following activities from October 23, 2019, to October 29, 2019:

03.01.a - Nondestructive Examination and Welding Activities.

1. Manual ultrasonic testing of reactor recirculation inlet nozzle to vessel weld N2D.
2. Manual ultrasonic testing of reactor recirculation inlet nozzle inner radius N2D-IRS.
3. Manual phased array ultrasonic testing of reactor recicrculation safe end to nozzle weld 2-BDH-8.
4. Manual ultrasonic testing of reactor water cleanup pipe to elbow weld 12-8-21.
5. Magnetic Particle testing of emergency service water 12 inch elbow to pipe and tee to elbow welds MO-3-33-3972.
6. Containment coating and moisture barrier general visual inspection.

71111.11Q - Licensed Operator Requalification Program and Licensed Operator Performance

Licensed Operator Performance in the Actual Plant/Main Control Room (IP Section 03.01) (1 Sample)

(1) The inspectors observed and evaluated licensed operator performance in the main control room during the Unit 3 turbine overspeed trip testing and sync to the grid on October 29, 2019

Licensed Operator Requalification Training/Examinations (IP Section 03.02) (1 Sample)

(1) The inspectors observed and evaluated licensed operator training in the simulator. The training scenarios included a simulated loss of instrument air and operator response to a anticipated transient without scram on November 18, 2019

71111.12 - Maintenance Effectiveness

Routine Maintenance Effectiveness Inspection (IP Section 02.01) (2 Samples)

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

(1) Unit 3 HPCI gland seal condenser on November 19, 2019
(2) Unit 3 motor-operated valve program valve MO-3-077 on December 9, 2019

Quality Control (IP Section 02.02) (1 Sample)

The inspectors evaluated maintenance and quality control activities associated with the following equipment performance activities:

(1) Unit 3 HPCI major overhaul during refueling outage on October 30, 2019

71111.13 - Maintenance Risk Assessments and Emergent Work Control

Risk Assessment and Management Sample (IP Section 03.01) (7 Samples)

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

(1) Unit 2 'B' RHR cross-tie valve failure on October 9, 2019
(2) Unit 3 main steam isolation valve safe load path on October 21 through October 30, 2019
(3) Unit 3 'C' RHR system outage window on October 15, 2019
(4) Unit 3 (Yellow) outage risk (inventory) on October 21, 2019
(5) Unit 3 outage risk (containment) on October 28, 2019
(6) Unit 2 and Unit 3 (Yellow) outage risk for station blackout on November 6 through November 7, 2019
(7) Unit 2 and Unit 3 (Yellow) for emergency auxiliary transformer outage on November 14 and 15, 2019

71111.15 - Operability Determinations and Functionality Assessments

Operability Determination or Functionality Assessment (IP Section 02.02) (6 Samples)

The inspectors evaluated the following operability determinations and functionality assessments:

(1) Unit 3 shield block/equipment hatch heavy lift on October 21, 2019
(2) Unit 3 HPCI unloaded spring can on November 1, 2019
(3) Unit 2 and Unit 3 E-1 EDG lube oil storage tank low level on February 28, April 6, and November 6, 2019
(4) Unit 3 main steam line drain valve driven into back seat on November 13, 2019
(5) Unit 2 and Unit 3 E-3 EDG blower drive gear indications on November 14, 2019
(6) Unit 2 'D' RHR heat exchanger leak on December 19, 2019

71111.18 - Plant Modifications

Temporary Modifications and/or Permanent Modifications (IP Section 03.01 and/or 03.02) (2 Samples)

The inspectors evaluated the following temporary or permanent modifications:

(1) Unit 3 temporary modification of the reactor mode switch on October 22, 2019
(2) Unit 3 temporary modification of the HPCI sensing line instrumentation left in containment on November 19, 2019

71111.19 - Post-Maintenance Testing

Post-Maintenance Test Sample (IP Section 03.01) (9 Samples)

The inspectors evaluated the following post-maintenance tests:

(1) Unit 2 'B' RHR heat exchanger cross tie valve switch replacement on October 15, 2019
(2) Unit 3 'C' RHR on October 20, 2019
(3) Unit 3 MSIV closure timing on October 29, 2019
(4) Unit 3 HPCI 175 psig test on November 5, 2019
(5) Unit 3 HPCI discharge valve pressure seal leakage on November 7, 2019
(6) Unit 3 'A' control rod drive discharge check valve after inspection and repairs on November 14, 2019
(7) Unit 2 'A' fuel pool cooling pump check valve on November 25, 2019
(8) Unit 3 emergency aux transformer cable replacement on December 6, 2019
(9) Unit 2 and Unit 3 emergency cooling tower 'A' high-pressure service water inlet valve testing on December 18, 2019

71111.20 - Refueling and Other Outage Activities

Refueling/Other Outage Sample (IP Section 03.01) (1 Sample)

(1) The inspectors evaluated the P3R22 Refueling Outage from October 21, 2019 to November 5, 2019

71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

Surveillance Tests (other) (IP Section 03.01) (4 Samples)

(1) Unit 2 and Unit 3 E-1 EDG emergency core cooling system signal actuation test on October 1, 2019
(2) Unit 2 RPS logic functional test on October 22, 2019
(3) Unit 3 125V battery discharge test on October 23, 2019
(4) Unit 3 E-43 4kV emergency bus loss of coolant accident/loss of offsite power testing on October 29, 2019

Inservice Testing (IP Section 03.01) (1 Sample)

(1) Unit 3 'B' standby liquid control injection on November 1, 2019

Containment Isolation Valve Testing (IP Section 03.01) (1 Sample)

(1) Unit 3 HPCI discharge to 'A' feedwater local leak rate test on November 4, 2019

71114.06 - Drill Evaluation

Drill/Training Evolution Observation (IP Section 03.02) (1 Sample)

The inspectors evaluated:

(1) Calvert Cliff/Peach Bottom dual scenario Technical Support Center & Force-on-Force on November 15, 2019

RADIATION SAFETY

71124.01 - Radiological Hazard Assessment and Exposure Controls

Instructions to Workers (IP Section 02.02) (1 Sample)

The inspectors evaluated instructions to workers including radiation work permits used to access high radiation areas.

(1) The inspectors reviewed the following:

Radiation Work Packages

- PB-C-19-00509 Unit 3 Drywell MSIV Activities
- PB-C-19-00510 Unit 3 Drywell Main Steam Safety Relief (MSSR) Valve Activities
- PB-C-19-00513 Unit 3 Drywell Under Vessel Push/Pull

Electronic Alarming Dosimeter Alarms

- No alarms occurred during the period of this inspection

Labeling of Containers

- The inspectors verified the labeling on various bags in the drywell and on the refuel floor.

Radiological Hazards Control and Work Coverage (IP Section 02.04) (1 Sample)

The inspectors evaluated in-plant radiological conditions during facility walkdowns and observation of radiological work activities.

(1) The inspectors also reviewed the following radiological work package for areas with airborne radioactivity:
    - No work packages were available for review during this inspection

Radiation Worker Performance and Radiation Protection Technician Proficiency (IP Section 02.06) (1 Sample)

(1) The inspectors evaluated radiation worker performance and radiation protection technician proficiency in the drywell and on the refuel floor

OTHER ACTIVITIES – BASELINE

71151 - Performance Indicator Verification

The inspectors verified licensee performance indicators submittals listed below:

MS05: Safety System Functional Failures (SSFFs) Sample (IP Section 02.04) (2 Samples)

(1) Units 2 (October 1, 2018 to September 30, 2019)
(2) Units 3 (October 1, 2018 to September 30, 2019)

MS06: Emergency AC Power Systems (IP Section 02.05) (2 Samples)

(1) Units 2 (October 1, 2018 to September 30, 2019)
(2) Units 3 (October 1, 2018 to September 30, 2019)

MS07: High Pressure Injection Systems (IP Section 02.06) (2 Samples)

(1) Units 2 (October 1, 2018 to September 30, 2019)
(2) Units 3 (October 1, 2018 to September 30, 2019)

MS08: Heat Removal Systems (IP Section 02.07) (2 Samples)

(1) Units 2 (October 1, 2018 to September 30, 2019)
(2) Units 3 (October 1, 2018 to September 30, 2019)

MS09: Residual Heat Removal Systems (IP Section 02.08) (2 Samples)

(1) Units 2 (October 1, 2018 to September 30, 2019)
(2) Units 3 (October 1, 2018 to September 30, 2019)

MS10: Cooling Water Support Systems (IP Section 02.09) (2 Samples)

(1) Units 2 (October 1, 2018 to September 30, 2019)
(2) Units 3 (October 1, 2018 to September 30, 2019)

OR01: Occupational Exposure Control Effectiveness Sample (IP Section 02.15) (1 Sample)

(1) Occupational Exposure Control Effectiveness for the period from October 2018 through September 2019.

PR01: Radiological Effluent Technical Specifications/Offsite Dose Calculation Manual Radiological Effluent Occurrences (RETS/ODCM) Radiological Effluent Occurrences Sample (IP Section 02.16) (1 Sample)

(1) Radiological Effluent TS/ODCM Radiological Effluent Occurrences for the period October 2018 through September 2019.

71152 - Problem Identification and Resolution

Semiannual Trend Review (IP Section 02.02) (1 Sample)

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

Annual Follow-up of Selected Issues (IP Section 02.03) (2 Samples)

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

(1) MSIV poppet stabilization on October 30, 2019
(2) Equipment reliability the week of November 12, 2019

71153 - Followup of Events and Notices of Enforcement Discretion

Event Followup (IP Section 03.01) (1 Sample)

(1) The inspectors evaluated the unusual event for the mode switch failure on October 21, 2019

Event Report (IP Section 03.02) (1 Sample)

The inspectors evaluated the following licensee event report (LER):

(1) LER 05000278/2019-001-00, Failure of Reactor Mode Switch Results in Condition Prohibited by Technical Specifications (TSs) (ADAMS Accession No. ML19354A927). The inspectors determined that it was not reasonable to foresee or correct the cause discussed in the LER, therefore no performance deficiency was identified. The circumstances surrounding this LER are documented in the Inspection Results.

INSPECTION RESULTS

Observation: Decreasing Trend in Equipment Reliability PI&R Sample	71152

The inspectors reviewed corrective actions completed by Exelon staff to address a decreasing trend in the performance of equipment associated with their Peach Bottom Equipment Reliability Indicator. The indicator was used to monitor the health of safety-related equipment and impacts on power generation. The individual deficiencies contributing to the decreasing trend had been previously entered in to the CAP; however, following several down powers and equipment failures, Exelon staff entered the issue into the CAP under IR 4155200 to address the decreasing trend. Exelon staff performed an “Analysis of Common Issues” evaluation to determine contributing causes for the trend and determine appropriate corrective actions. The analysis reviewed events that occurred between January 2015 and July 2018 to determine if there were common themes associated with each of the apparent causes for the events. Exelon staff concluded that they had not made, in some instances, effective decisions related to prioritization and evaluation of risk to resolve equipment reliability issues in a timely manner which was a common cause for several equipment problems. Exelon staff established corrective actions to address this identified cause including prioritization and implementation of modifications to address known deficiencies; training of their engineering staff and management; and a review of risk significant safety-related equipment to determine if unmonitored vulnerabilities or uncorrected known deficiencies existed in the systems.

The inspectors reviewed the root cause evaluation and determined that it adequately identified the contributing causes to the identified decreasing trend. The inspectors noted that over 30 modifications to address equipment reliability issues had been completed and 15 program reviews were conducted focused on equipment performance. Additionally, the inspectors found that training and case study reviews for Exelon staff had been completed. Finally, the inspectors noted Exelon's internal Equipment Reliability Indicator for Peach Bottom had reversed a downward trend although it had not recovered to previous levels. The inspectors review concluded that the proposed corrective actions appeared reasonable and effective to address the identified causes.

Observation: Semi-Annual Trend Review	71152

The inspectors evaluated a sample of issues and events that occurred over the course of the third and fourth quarters of 2019 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. Self-assessments were reviewed to ensure the licensee is self-identifying issues and taking appropriate corrective actions.

The station performed extensive corrective actions and implemented additional oversight measures to the CAP in early 2019. The inspectors noted moderate improvement in the quality and timeliness of corrective actions. Increased management oversight and accountability of quality CAP products has been effective in improving performance.

The station continues to identify equipment reliability as one of its three focus areas at the station. In particular, the station has experienced an increased number of safety-related equipment failures. Most notably, the E-1 EDG experienced a failure due to an output cable fault that could have been prevented had testing been appropriately been performed (Green NCV 2019003-01). Engineering, maintenance, and management has expended considerable effort to review and take actions to improve equipment performance. Specifically,

comprehensive reviews of safety system vulnerabilities, detailed in-field walkdowns, and CAP reviews were performed. The reviews resulted in a number of quality improvements to equipment preventive maintenance strategies and modifications to safety systems to improve reliability. The residents continue to monitor the CAP and maintenance effectiveness during routine inspection activities.

Observation: Main Steam Isolation Valve Poppet Stabilization	71152

The inspectors reviewed Exelon's evaluation report and corrective actions associated with the failure of the Unit 3 inboard MSIV AO-3-01A-080B to fully close during a plant shutdown as documented under AR04178993. The inspectors noted Exelon's evaluation for CR 4178993, concluded the problem was caused by turbulent steam flow resulting in the poppet vibrating, and the stem anti-rotation lugs wearing into the poppet cap. The inspectors further noted Exelon's evaluation report identified an organizational weakness in the area of risk management in that station personnel did not adequately apply operating experience and extent of cause considerations to manage MSIV performance. Specifically, this led to Peach Bottom staff not implementing a vendor-recommended modification in a timely fashion to stabilize the internal poppet assembly of the inboard MSIVs, reducing the effects of the flow induced vibration which caused the failure. Further details on the finding and an associated NCV of NRC regulatory requirements are documented in NRC Integrated Inspection Report 05000277;278/2019-001.

The inspectors interviewed the Peach Bottom/Limerick Valve Team staff during Peach Bottom's 2019 P3R22 Fall outage. The inspectors performed walkdowns of the accessible main steam lines in the Unit 3 drywell, observed the disassembly, mapping, repairs, component replacements and modifications to, and reassembly of the 80A and 80D Inboard MSIVs and the 80C Outboard MSIV. The inspectors reviewed and verified Exelon staff's evaluations of the safe load path and transport of the heavy loads (MSIV poppets and actuators) for water inventory control purposes. The inspectors reviewed the as-found conditions of these MSIVs, reviewed the corrective actions implemented or planned, observed machining and measurements and verification of new poppets being installed, and obtained and verified documentation for stabilization modification configurations of the MSIVs on both Unit 2 and Unit 3. The inspectors determined that Exelon staff plans to complete implementation of this modification on all MSIVs installed in Peach Bottom Units 2 and 3 by the planned Unit 3 Fall outage in 2021. This corrective action schedule was commensurate with the potential safety significance of the issue.

Failure of Reactor Mode Switch Results in Condition Prohibited by Technical Specifications			
Cornerstone	Severity	Cross-Cutting Aspect	Report Section
Not Applicable	Severity Level IV NCV 05000278/2019004-01 Open/Closed	Not Applicable	71153

A Severity Level IV non-cited violation (NCV) of Unit 3 Technical Specification (TS) 3.3.1.1, "Reactor Protection System (RPS) Instrumentation," was self-revealed when the Unit 3 reactor mode switch failed to place RPS in shutdown and did not scram the reactor as anticipated. Specifically, Exelon determined that between October 10, 2018 and October 21, 2019, the reactor mode switch was inoperable and therefore unable to perform its safety function.

Description: On October 21, 2019, Peach Bottom operators were performing a shutdown of Unit 3 for a planned refueling outage. With the unit at 5 percent rated thermal power, operators attempted to place the Unit 3 reactor mode switch in shutdown, in accordance with station procedures. When the reactor operator rotated the mode switch from run to shutdown, a reactor scram did not occur as anticipated. The operator promptly depressed the reactor scram push buttons, which inserted all the control rods into the reactor, successfully initiating a scram. In accordance with the site emergency plan procedures, a Notice of Unusual Event was declared on October 21, 2019, at 0050 hours. Exelon declared the mode switch inoperable and entered the appropriate TSs, including TS 3.3.1.1, "Reactor Protection System (RPS) Instrumentation." The station determined that although the mode switch was pointing towards shutdown, the switch drive shaft under the board had not rotated to the shutdown position. The switch mechanism was successfully rotated to the shutdown position on October 21, 2019, and the planned refueling outage commenced.

Exelon's evaluation determined the mode switch failure was caused by excessive wear of the switch coupling and excessive clearance between the handle assembly and the drive shaft of the switch. The mode switch was last successfully used on October 10, 2018.

The inspectors reviewed the Licensee Event Report (LER) and Exelon's causal evaluation of the event. The inspectors reviewed the event information and determined that the switch's failure was not within Exelon's ability to foresee and correct, and therefore was not a performance deficiency. Specifically, the switch had received appropriate preventative maintenance and no directly applicable station or industry operating experience existed.

Corrective Actions: The mode switch was replaced with a new mode switch and was tested satisfactorily.

Corrective Action References: IR 04289548

Performance Assessment: The NRC determined this violation was not reasonably foreseeable and preventable by the licensee and therefore is not a performance deficiency.

Enforcement: The Reactor Oversight Process's Significance Determination Process (SDP) does not specifically consider a violation without a finding in its assessment of licensee performance. Therefore, it is necessary to address this violation which does not have an associated performance deficiency using traditional enforcement.

Severity: The inspectors informed the significance of the mode switch failure using IMC 0609, Appendix A, “The SDP For Findings At-Power,” and determined that the condition represented very low safety significance, because the mode switch did not affect a single RPS trip signal to initiate a reactor scram and the function of other redundant trips or diverse methods of reactor shutdown, involve control manipulations that unintentionally added positive reactivity, or result in a mismanagement of reactivity by operator(s). Therefore, this violation is being characterized as Severity Level IV.

Violation: Peach Bottom TS 3.3.1.1 "Reactor Protection System (RPS) Instrumentation," requires, in part, that the Reactor Protection System Instrumentation functions listed in Table 3.3.1.1-1 be operable. Table 3.3.1.1-1 function 12 states, that if the reactor mode switch - shutdown is inoperable and cannot be restored in one hour, TS 3.3.1.1.G limiting condition for operation action statement requires Unit 3 to be in Hot Shutdown in 12 hours.

Contrary to the above, from October 10, 2018 until October 21, 2019, the Peach Bottom Unit 3 reactor mode switch was inoperable and was not restored within one hour in accordance

with TS 3.3.1.1.G, and Exelon did not place Unit 3 in at least hot shutdown within 12 hours. The disposition of this violation closes LER 05000278-2019-001-00.
Enforcement Action: This violation is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy.

EXIT MEETINGS AND DEBRIEFS

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

- On January 8, 2020, the inspectors presented the integrated inspection results to Mr. Pat Navin, Site Vice President, and other members of the licensee staff.
- On October 29, 2019, the inspectors presented the PB Unit 3 In-Service Inspection results to Mr. Patrick Navin, Site Vice President, and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.04Q	Corrective Action Documents Resulting from Inspection	04297578		
	Drawings	6280-M-366	Piping & Instrumentation Diagram HPCI Pump Turbine Details	53
	Procedures	SO 23.1.A-3	HPCI System Setup for Automatic or Manual Operation	24
71111.08G	Procedures	EPRI-DMW-PA-1	Procedure for Manual Phased Array Ultrasonic Examination of Dissimilar Metal Welds	6
		GEH-UT-300	Procedure for Manual Examination of Reactor Vessel Assembly Welds in Accordance with PDI	12
		GEH-UT-311	Procedure for Manual Ultrasonic Examination of Nozzle Inner Radius, Bore and Selected Nozzle to Vessel Regions	19
		PDI-UT-2	PDI Generic Procedure for the Ultrasonic Examination of Austenitic Pipe Welds	12
71111.12	Corrective Action Documents	04294913		
71111.13	Drawings	6280-S-1112, Sheet 1	MSIV Pick Point Locations and Details	Revision 3
	Miscellaneous	A1094327	Evaluation of Redundant Rigging Requirements Associated with the Temporary Suspended Loads of the Inboard MSIV Bonnets and Operators	Revision 2
		A1370641	Engineering Safeload Review of Heavy Load Lifting of MSIV Actuator/valve Assembly	Revision 1
		EC-629512	MSIV Heavy Load Drop Analysis	Revision 0
	Procedures	MA-PB-716-021	Rigging and Handling Heavy Loads	Revision 11
71111.19	Work Orders	4785550		
71124.01	Radiation Work Permits (RWPs)	PB-C-19-00509	Unit 3 Drywell MSIV Activities	
		PB-C-19-00510	Unit 3 Drywell Main Steam Relief Valve (MSRV) and Main Steam Safety Relief Valve (MSSR) Activities	
		PB-C-19-00513	Unit 3 Drywell Under Vessel Push/Pull	
		PB-C-19-00901	Unit 3 Refuel Floor - Reactor Disassembly / Reassembly	

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			Activities	
		PB-C-19-0506	Unit 3 Drywell Scaffold w/Associated Activities	
71152	Corrective Action Documents	04155200 04163382 04157162		
		4178993 4291226 4291525		
	Drawings	6280-M-1-R-12, Sheet 1	26” MSIV	Revision 6
		6280-M-1-R-12, Sheet 3	26” MSIV (Poppet Modification)	Revision 0
		6280-M-351, Sheet 3	P & I Diagram Nuclear Boiler	Revision 75
		6280-M-351, Sheet 4	P & I Diagram Nuclear Boiler	Revision 70
	Miscellaneous	PI-AA-125-1003, Attachment 2	Corrective Action Program Evaluation Report for CR 4178993, 80B Inboard MSIV Failure to Close	Report dated 1/17/19