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

June 27, 2019

EA-18-107

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: PEACH BOTTOM ATOMIC POWER STATION, UNITS 2 AND 3 – SUPPLEMENTAL INSPECTION REPORT 05000277/2019040 AND 05000278/2019040 AND ASSESSMENT FOLLOW-UP LETTER

Dear Mr. Hanson:

On May 16, 2019, the U.S. Nuclear Regulatory Commission (NRC) completed a supplemental inspection at Peach Bottom Atomic Power Station (Peach Bottom), Units 2 and 3 using Inspection Procedure 95001, "Supplemental Inspection Response to Action Matrix Column 2 Inputs," and discussed the results of this inspection and the implementation of your corrective actions with Mr. Pat Navin, Site Vice President, and other members of your staff. The results of this inspection are documented in the enclosed report.

The NRC performed this inspection to review your station's actions in response to a White finding in the Mitigating Systems cornerstone, which was documented and finalized in NRC Inspection Reports 05000277/2018013 and 05000278/2018013. The finding involved a failure by Exelon Generation Company, LLC (Exelon) staff at Peach Bottom to establish measures to assure that conditions adverse to quality associated with the E-3 emergency diesel generator (EDG) scavenging air check valve were promptly identified and corrected, which resulted in a failure of the E-3 EDG on June 13, 2018. This finding involved an apparent violation of Title 10 of the *Code of Federal Regulations* Part 50, Appendix B, Criterion XVI, "Corrective Action." Additionally, as a consequence of the failed E-3 EDG, Exelon also violated Peach Bottom Units 2 and 3 Technical Specification 3.8.1, "Electrical Power Systems - AC Sources – Operating," since the E-3 EDG was determined to be inoperable for a period greater than the technical specification allowed outage time.

This supplemental inspection was conducted to provide assurance that Exelon adequately identified the root and contributing causes of the event resulting in the E-3 EDG's failure on June 13, 2018. In addition the inspectors verified that the extent of condition and extent of cause of any performance issues were identified, and the corrective actions for any performance issues were sufficient to address the causes in addition to preventing recurrence.

The NRC determined your staffs' evaluation appropriately identified the root and contributing causes of the White finding. The first root cause was determined to be inadequate work instructions that resulted in an inadequate repair being performed on the scavenging air check valve on April 1, 2017, during an E-3 EDG preventative maintenance window. A second root cause was determined to be inadequate use of operating experience to assist in development of the repair plan. Your staff reviewed the extent of condition for all Peach Bottom EDGs, and no additional degraded conditions were identified. Your staff determined the extent of cause was inadequate preventive maintenance work instructions, which resulted in a review of other station maintenance procedures used for major maintenance, with a focus on check valve and butterfly valve maintenance. Peach Bottom's extent of cause evaluation also identified opportunities for other vendor documents and operating experience to be incorporated into station programs.

The corrective actions to prevent recurrence included revising the EDG maintenance procedure to provide additional detail to identify and correct scavenging air check valve degradation. Additionally, Exelon incorporated the operating experience directly into the diesel engine maintenance procedure to enhance awareness should Exelon personnel identify a degraded inlet air check valve in the future.

The NRC determined that completed and/or planned corrective actions were sufficient to address the performance issues that led to the White finding. Therefore, the performance issue will not be considered as an Action Matrix input after the end of the second calendar quarter of 2019. Based on the results of this inspection and our Action Matrix assessment, the NRC has determined that Peach Bottom, Units 2 and 3 will be transitioned to the Licensee Response Column (Column 1) on July 1, 2019, in accordance with the guidance provided in NRC Inspection Manual Chapter 0305, "Operating Reactor Assessment Program."

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 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

/RA/

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:
Inspection Report 05000277/2019040 and
05000278/2019040

cc w/encl: Distribution via ListServ

SUBJECT: PEACH BOTTOM ATOMIC POWER STATION, UNITS 2 AND 3 – SUPPLEMENTAL INSPECTION REPORT 05000277/2019040 AND 05000278/2019040 AND ASSESSMENT FOLLOW-UP LETTER DATED JUNE 27, 2019

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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:	05000277/2019040 and 05000278/2019040
Enterprise Identifier:	I-2019-040-0000
Licensee:	Exelon Generation Company, LLC
Facility:	Peach Bottom Atomic Power Station, Units 2 and 3
Location:	Delta, Pennsylvania
Inspection Dates:	May 13, 2019 to May 16, 2019
Inspectors:	E. Miller, Senior Resident Inspector N. Warnek, Senior Allegations Coordinator S. Ghrayeb, Project Engineer (Observer)
Approved By:	Jonathan E. Greives, Chief Reactor Projects Branch 4 Division of Reactor Projects

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) reviewed the licensee's planned and completed corrective actions to address a White finding by performing a supplemental inspection using Inspection Procedure 95001, "Supplemental Inspection Response to Action Matrix Column 2 Inputs," at Peach Bottom, 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.

The inspectors determined that Peach Bottom appropriately evaluated and understood the root and contributing causes of the significant performance issue. The inspectors also determined that completed or planned corrective actions were sufficient to address the performance issue that led to the White finding.

Additional Tracking Items

Type	Issue number	Title	Report Section	Status
LER	05000277/2018-002-01	Emergency Diesel Generator Air Inlet Check Valve Failure Results in a Condition Prohibited by Technical Specifications	71153	Closed
NOV	05000277/2018013-01 and 05000278/2018013-01 EA-18-107	Inadequate Corrective Actions Result in the Failure of the E-3 Emergency Diesel Generator	N/A	Closed

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 https://www.nrc.gov/reading-rm/doc-collections/insp-manual/inspection-procedure/. 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 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.

OTHER ACTIVITIES—TEMPORARY INSTRUCTIONS, INFREQUENT AND ABNORMAL

95001—Supplemental Inspection Response to Action Matrix Column 2 Inputs

The inspectors reviewed Exelon's root causes, contributing causes, extent of condition, and extent of cause determinations taken in response to a White Violation of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Appendix B, Criterion XVI, "Corrective Action." The inspectors assessed whether Exelon's corrective actions to address the root and contributing causes were sufficient to prevent recurrence. Additionally, as a consequence of the failed E-3 emergency diesel generator (EDG), Exelon also violated Peach Bottom Units 2 and 3 Technical Specification (TS) 3.8.1, "Electrical Power Systems - AC Sources – Operating," since the E-3 EDG was determined to be inoperable for a period greater than the TS allowed outage time. The highlights of the performance review and NRC's assessment are documented below. Exelon's analysis was documented under root cause analysis (RCA) for Issue Report (IR) 4155110, "E-3 EDG Failure."

INSPECTION RESULTS

1. Problem Identification:

The inspectors assessed the licensee's evaluation to determine:

- Who identified the issue and under what conditions the issue was identified;
- How long the issue existed and prior opportunities for identification; and
- Significant plant-specific consequences, as applicable, and compliance concerns associated with the issue.

Observation	95001
Peach Bottom identified that the self-revealing failure of the E-3 EDG occurred on June 13, 2018, when a pin from the scavenging air check valve became dislodged and entered the turbocharger of the EDG. Peach Bottom operations personnel secured the engine after observing increased exhaust temperatures and hearing an abnormal noise at the engine. Peach Bottom determined the pin failure was the result of an inadequate repair on April 1, 2017, after the station identified looseness of the valve during preventative maintenance. There were prior opportunities to identify the potential failure mode dating back to 1994, when a similar failure occurred following a repair at the H.B. Robinson Nuclear Station. Peach Bottom concluded that the station did not have an adequate EDG	

maintenance procedure to identify degraded portions of the inlet air check valve, which would have allowed the station to develop an adequate repair plan.

Peach Bottom also identified that Exelon personnel did not adequately use operating experience to assist in development of the repair plan. Technical human performance behavior tools such as questioning-attitude, challenge, and management involvement were also determined to have been contributing causes that could have ensured proper application of the operating experience and use of the maintenance planning process to develop a repair with appropriate level of reviews.

Peach Bottom assessed the risk associated with the event and determined the condition resulted in a change in core damage frequency (delta-CDF) of 5.41E-06 and a change in large early release frequency (delta-LERF) of 2.17E-07. These values are calculated using probabilistic risk analysis models that also account for test and maintenance of the other diesels through failures that are calculated based on current testing practices. The risk important sequences were dominated by external fire risk, specifically, a postulated fire in the 4kV switchgear rooms. The internal event risk was dominated by a weather-related loss of offsite power, operator failure to establish a Conowingo tie line setup, failure of the E-2 EDG to run, failure to recover an EDG, failure to cross tie emergency busses, failure to recover offsite power, and a failure of reactor core isolation cooling (RCIC).

The E-3 EDG failure resulted in a White Violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action." The inspectors assessed whether the licensee's corrective actions to address the root and contributing causes were sufficient to prevent recurrence. Additionally, as a consequence of the failed E-3 EDG, Exelon also violated Peach Bottom Units 2 and 3 TS 3.8.1, "Electrical Power Systems - AC Sources – Operating," since the E-3 EDG was determined to be inoperable for a period greater than the TS allowed outage time. The highlights of the performance review and NRC's assessment are documented below. Licensee Event Report (LER) 05000277/2018-002-01, Emergency Diesel Generator Air Inlet Check Valve Failure Results in a Condition Prohibited by Technical Specifications, was also submitted to the NRC, and reviewed as part of this inspection.

Based on the inspectors' review of the root cause, information related to the event, and interviews with Exelon staff, the NRC determined that Peach Bottom's RCA adequately determined who identified the issue and under what conditions the issue was identified; how long the issue existed and prior opportunities for identification; and significant plant-specific consequences, as applicable, and compliance concerns associated with the issue.

2. Root Cause, Extent of Condition, and Extent of Cause Evaluation:

The inspectors assessed the licensee's evaluation to determine if:

- The problem was evaluated using a systematic methodology to identify the root and contributing causes;
- The root cause evaluation was conducted to a level of detail commensurate with the significance of the problem;
- The root cause evaluation included a consideration of prior occurrences of the problem and knowledge of prior operating experience;

- The root cause evaluation addressed the extent of condition and the extent of cause of the problem; and

- The root cause, extent of condition, and extent of cause evaluations appropriately considered the safety culture traits in NUREG-2165, "Safety Culture Common Language," referenced in IMC 0310, "Aspects Within Cross-Cutting Areas."

Observation	95001

The inspectors determined that Peach Bottom performed the RCA using a systematic methodology to identify the root and contributing causes. The techniques used included, but were not limited to: TapRoot, an Event and Causal Factor Chart, Failure Modes and Effects Analysis, a Support/Refute Matrix, a Cause and Effect Analysis, and a Line of Sight Causal Analysis Tool.

The RCA was conducted to a level of detail commensurate with the safety/risk significance of the problem. For example, the RCA explored the organizational aspects that led to the failure, including quality of maintenance performed, adherence to Exelon procedures and processes, and technical human performance behaviors that contributed to the event. The RCA resulted in the identification of two root causes and one contributing cause.

The first root cause was determined to be inadequate work instructions that resulted in an inadequate repair plan on April 1, 2017, during an E-3 EDG preventative maintenance window. The revision used to conduct maintenance on April 1, 2017, did not provide adequate direction to allow station personnel to identify scavenging air check valve bushing and shaft-to-disc wear, leading to an inadequate repair plan. A second root cause was determined to be inadequate use of operating experience to assist in development of the repair plan. The extent of condition included a review of all Peach Bottom EDGs. Exelon confirmed that no repairs had been performed to any of the other scavenging air check valves, and there was no indication of check valve degradation on the other EDGs. The extent of condition was determined to not be applicable to the E-2 EDG due to the scavenging air check valve being a different design. Exelon's extent of cause evaluation reviewed other station maintenance procedures, specifically those used for major maintenance, with a focus on safety-related check valve and butterfly valve maintenance, to ensure they contained adequate work instructions. Peach Bottom's extent of cause evaluation also identified opportunities for vendor documents and operating experience to be incorporated into station programs. Specifically, Peach Bottom determined that recommendations from the Fairbanks Morse Owner's Group and RCIC Terry Turbine Owner's Group documents should be included as part of station documentation. Peach Bottom also identified a contributing cause of inadequate use of technical human performance behaviors during the April 1, 2017, preventative maintenance window. Specifically, Exelon staff did not maintain a questioning-attitude or effectively challenge and involve management in decisions. This resulted in failure to utilize the work planning process in accordance with MA-AA-716-010, "Maintenance Planning," when conducting the repair.

The RCA also assessed the impact of an oil leak on the scavenging air check valve dashpot assembly. The NRC determined that the oil leak observed by the inspectors on September 20, 2017, and documented in IR 0405092, was a condition adverse to quality, which should have been promptly identified and corrected in accordance with 10 CFR Part 50, Appendix B, Criterion XVI, as discussed in NRC Inspection Reports 05000277/2018013 and 05000278/2018013. Peach Bottom reviewed the leaking dashpot as part of the RCA

analysis. The purpose of the dashpot is to dampen movement of the valve such that variation in differential pressure produced by the turbocharger doesn't cause uncontrolled movement. The RCA concluded the oil level was low enough to produce approximately one half-inch of un-dampened movement during the initial open stroke. It was determined that the leaking dashpot contributed to increased vibration and stress; however, it was not considered to be causal to the failure. Peach Bottom determined that a proper repair, which would have addressed bushing wear, shaft-to-disc wear, and proper pin replacement would have allowed the inlet check valve to withstand influence of any un-dampened movements. The inspectors' review included review of the root cause, interviews with maintenance, engineering, and operations personnel, and review of design drawings and specifications of the dashpot. The inspectors determined that Peach Bottom's assessment appeared reasonable. Notwithstanding this, Exelon took action to replace the leaking dashpot assembly and reviewed a sampling of other condition reports to ensure that actions taken were sufficient and timely to correct the associated conditions adverse to quality.

The RCA appropriately conducted a Safety Culture Assessment by comparing safety culture traits and cross-cutting aspects to the causes that were identified and assess actions addressing the traits and aspects that were affected.

Based on review of the root cause, information related to the event, and interviews with Exelon staff, the inspectors determined Peach Bottom adequately ensured the problem was evaluated using a systematic methodology to identify the root and contributing causes; the root cause evaluation was conducted to a level of detail commensurate with the significance of the problem and included a consideration of prior occurrences of the problem and knowledge of prior operating experience; and the root cause evaluation addressed the extent of condition, the extent of cause and safety culture traits in NUREG-2165, "Safety Culture Common Language," referenced in IMC 0310, "Aspects Within Cross-Cutting Areas."

3. Corrective Actions:

The inspectors assessed the licensee's evaluation to determine if:

- Appropriate corrective actions are specified for each root and contributing cause or that the licensee has an adequate evaluation for why no corrective actions are necessary;

- Corrective actions have been prioritized with consideration of significance and regulatory compliance;

- Corrective actions taken to address and preclude repetition of significant performance issues are prompt and effective;

- Appropriate quantitative or qualitative measures of success have been developed for determining the effectiveness of planned and completed corrective actions; and

- The Notice of Violation (NOV) related to the supplemental inspection is adequately addressed, either in corrective actions taken or planned.

Observation	95001

The first root cause was determined to be inadequate work instructions that resulted in an inadequate repair plan on April 1, 2017, during an E-3 EDG preventative maintenance window. For corrective actions to prevent recurrence, Peach Bottom revised M-052-002, "Diesel Engine Maintenance," to include operating experience from an inadequate repair of an inlet air check valve in 1994 at the H.B. Robinson Nuclear Station and the E-3 EDG at Peach Bottom. The station also revised the M-052-002 procedure to include steps directing personnel to assess the inlet air check valve bushing for wear and to assess the shaft-to-disc for wear. The inspectors determined that these changes were reasonable and provided assurance that the extent and scope of valve degradation would be identified. The revised procedure also stated if the air inlet check valve disc, shaft, or pins do not meet the requirements of the procedure, the valve should be replaced.

The inspectors noted the revised procedure also stated, "if it is not possible to replace the valve, then develop a repair plan and obtain Engineering and Maintenance director approval prior to implementation and document the decision in an Operating Decision-Making (ODM) document." The inspectors determined that this aspect of the corrective action to prevent recurrence left the station vulnerable to performing an inadequate repair. Specifically, the station had not made readily available detailed information regarding previous repair experience or technical details. Through interviews, the inspectors determined that the following information was necessary to provide assurance that a repair plan could be successfully developed if the valve could not be replaced:

- Instructions to consult Fairbanks Morse engineering subject matter experts prior to any repair and obtain design documents, if available;
- Instructions to identify material specifications and finishes that would be used for a repair if replacement parts were to be manufactured; and
- Instructions to remove the valve assembly and conduct a repair in the shop versus in-field.

The inspectors determined this information not being readily available was a weakness associated with the corrective action to prevent recurrence. The inspectors assessed this issue further for consideration of a possible significant weakness, and determined that it was not a significant weakness because:

- The revision to M-052-002, "Diesel Engine Maintenance," included steps to identify inlet air check valve bushing, pin, and shaft-to-disc wear, which would allow Exelon staff to more effectively identify issues to be included in a repair;
- The inspectors determined during interviews with Exelon staff at Peach Bottom, that the station is committed to valve replacement with an Original Equipment Manufacturer part, before needing to execute a repair plan as a last resort;
- Exelon established in the EDG maintenance procedure that Engineering and Maintenance director approval is required before a repair plan will be implemented, as an additional measure to ensure that the maintenance planning process is adhered to and that a proper repair plan will be developed prior to implementation;
- The decision to conduct a repair would be assessed for risk and documented in an Operational Decision-Making document before a repair plan is implemented; and

- Corrective actions taken as part of the contributing cause of inadequate technical human performance behaviors discussed below would provide additional assurance that the decision made regarding the scope and type of corrective maintenance would be appropriate.

Peach Bottom generated IR 04249183 to address the inspectors' concerns, and plans to generate more specific guidance to facilitate a future repair plan.

A second root cause was determined to be inadequate use of operating experience to assist in development of the repair plan. Specifically, Exelon staff did not effectively understand that a flawed repair at the H.B. Robinson Nuclear Station in 1994 resulted in a similar failure, which should have been considered before conducting a repair at Peach Bottom. Exelon also found that subject matter experts familiar with the H.B. Robinson event were not included in the repair plan discussions on April 1, 2017, as required by the maintenance planning process. The RCA also identified that, over the years, a number of revisions to the Fairbanks Morse Owners Group document occurred, and the information should have been reviewed for consideration to include in station maintenance procedures. Exelon developed corrective actions to incorporate the operating experience directly into M-052-002, "Diesel Engine Maintenance," procedure to enhance awareness should Exelon personnel identify a degraded inlet air check valve. Corrective actions also included incorporating the applicable recommendation from the Fairbanks Morse Owners group directly into the Peach Bottom EDG maintenance procedure.

The RCA also identified a contributing cause of inadequate use of technical human performance behaviors during the April 1, 2017, preventative maintenance window. Specifically, Exelon staff did not maintain a questioning-attitude or effectively challenge and involve management in the repair decision. This resulted in failure to utilize the work planning process in accordance with MA-AA-716-010, "Maintenance Planning." Corrective actions included development of a one-time training for all Engineering and Maintenance staff. Based on review of the training and interviews with some attendees, the inspectors determined that the training for developing and improving technical human behaviors appeared to be effective. The inspectors determined that, given the effectiveness of the training, Peach Bottom should consider recurring implementation to ensure long term behaviors are consistently reinforced and to account for future staff turnover. Peach Bottom entered this into the corrective action program to evaluate for consideration as IR 04249874.

Exelon assessed the other EDGs for inadequate repair plans as part of the extent of condition review. No degraded conditions were identified with the scavenging air check valves or dashpot assemblies for the other EDGs. Notwithstanding this, additional corrective actions were developed to upgrade the design of the scavenging air check valve to reduce the likelihood of the failure mode. The extent of condition was determined to not be applicable to the E-2 EDG due to the scavenging air check valve being a different design.

To address extent of cause, Exelon reviewed other station maintenance procedures used for major maintenance, with a focus on check valve and butterfly valve maintenance. Peach Bottom's extent of cause evaluation also identified opportunities for other vendor documents to be incorporated into station programs, such as the RCIC Terry Turbine Owner's Group manual.

The inspectors also reviewed planned effectiveness reviews that Peach Bottom established for each corrective action. The inspectors identified that some effectiveness reviews did not

meet PI-AA-125-1004, “Effectiveness Review Manual,” Revision 2, Section 4.2.2 which directs Peach Bottom staff to determine if actions were adequately challenged. Effectiveness reviews for both corrective actions to prevent recurrence did not establish criteria or metrics for Peach Bottom staff to assess effectiveness. Peach Bottom generated IR 04249340, and reviewed the inspectors concern during a Management Review Committee meeting. The station determined that the effectiveness review should be updated to provide clarity. The revision included direction to measure effectiveness of the procedure changes made to ensure that adequate inspection, and if necessary, corrective action is taken during check valve maintenance. The inspectors observed the Management Review Committee meeting, and determined that the proposed changes to the effectiveness review were reasonable. The inspectors assessed whether the failure to identify appropriate measures to evaluate the effectiveness of corrective actions amounted to a significant weakness. The inspectors determined that this did not impact the ability to meet the inspection objectives because, as previously discussed, the causes identified and corrective actions taken provided reasonable assurance that the performance issue which resulted in the EDG failure would not recur. The inspectors determined the change to the effectiveness review was appropriate.

Based on review of the root cause, information related to the event, and interviews with Exelon staff, the inspectors determined Peach Bottom adequately developed appropriate corrective actions for each root and contributing cause. In addition, the inspectors determined that corrective actions have been prioritized commensurate with the significance and regulatory compliance, corrective actions taken were prompt and effective, and that each Notice of Violation (NOV) related to the supplemental inspection is adequately addressed. The inspectors also determined that corrective action plans appear to direct prompt actions to effectively address and preclude repetition of significant performance issues. The station has also taken prompt action to address the inspectors observation related to effectiveness reviews not providing specific content to ensure corrective actions have been effective.

LER	LER 05000277/2018-002-01, Emergency Diesel Generator Air Inlet Check Valve Failure Results in a Condition Prohibited by Technical Specifications	71153 Follow-up of Events and Notices of Enforcement Discretion

Description: On June 13, 2018, the E-3 EDG experienced higher than normal exhaust temperatures and abnormal noises were heard during a surveillance test, resulting in the engine being shutdown. Inspection identified damage to the scavenging inlet air check valve due to a pin failure from the main disc. The pin had become dislodged and traveled to the turbocharger, where it damaged the associated blades. Repairs were performed and the EDG was restored on June 23, 2018.

Further evaluation determined that that the E-3 EDG may not have been able to perform its design function for the seven day mission time, and considered the EDG inoperable for a total of 443 days, exceeding TS 3.8.1, “Electrical Power Systems - AC Sources – Operating,” allowed outage time of 14 days and submittal of an LER in accordance with 10 CFR 50.73(a)(2)(i)(B) for a condition prohibited by TSs.

Planned Closure Actions: The inspectors did not identify any further issues during the review of the LER. This LER is closed.

Licensee Actions: Exelon conducted a root cause evaluation following the reactor scram. The cause evaluation identified that an inadequate repair was performed in April 2017. The root cause investigation identified that work instructions used during preventative maintenance were not adequate to allow identification of applicable operating experience at another nuclear station, bushing wear, and shaft-to-disc wear which all contributed to the pin become dislodged.

As part of corrective actions, Exelon updated the EDG maintenance procedure to include steps to make Exelon personnel aware of applicable operating experience regarding repairs to the inlet air check valve, and to include steps to assess for bushing wear and shaft-to-disc wear.

Corrective Action Reference: IR 04195110

NRC Tracking Number: 05000277/2018-002-01

This LER is Closed.

EXIT MEETINGS AND DEBRIEFS

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

- On May 16, 2019, the inspectors presented the results to Mr. Pat Navin, Site Vice President, and other members of the licensee staff.

- On May 16, 2019, the NRC also held a regulatory performance meeting with Peach Bottom staff as required by IMC 0305, Section 10.01.a. The meeting was attended by the Branch Chief, Division of Reactor Projects, Projects Branch 4, who has oversight of Peach Bottom; the Site Vice President; and other senior licensee staff. The NRC and licensee discussed the issues related to the White finding/Violation, including the causes, corrective actions, and extent of condition and extent of cause. The criteria for returning to the Licensee Response Column of the Action Matrix was also discussed.

DOCUMENTS REVIEWED

Procedures
CC-AA-204, Control of Vendor Equipment Manuals, Revision 12
HU-AA-101, Human Performance Tools and Verification Practices, Revision 10
HU-AA-1010, Technical Human Performance Practices, Revision 8
HU-AA-1212, Technical Task Risk/Rigor Assessment, Pre-Job Brief, Independent Third-Party Review, and Post-Job Review, Revision 8
M-052-002, Diesel Engine Maintenance, Revision 49
MA-AA-716-010, Maintenance Planning, Revision 28
OP-AA-106-101-1006, Operation Decision Making Process, Revision 21
PI-AA-115, Operating Experience Program, Revision 4
PI-AA-120, Issue Identification and Screening Process, Revision 8
PI-AA-125, Corrective Action Program (CAP) Procedure, Revision 6
PI-AA-125-1001, Root Cause Analysis Manual, Revision 3
PI-AA-125-1003, Corrective Action Program Evaluation Manual, Revision 4
PI-AA-125-1004, Effectiveness Review Manual, Revision 2
PI-AA-125-1006, Investigation Techniques Manual, Revision 4

Issue Reports (*written as a result of NRC inspection)
03992819
04054092
04146926
04149747
04195110
04209875
04249183*
04249152*
04249340*
04249874*

Miscellaneous
Engineering Change 0618948, Dowel for the Turbo Inlet Valve, Revision 0