



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

March 14, 2019

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

SUBJECT: PEACH BOTTOM ATOMIC POWER STATION UNITS 2 AND 3 – DESIGN
BASES ASSURANCE INSPECTION (PROGRAMS) REPORT
05000277/2019011 AND 05000278/2019011

Dear Mr. Hanson:

On February 1, 2019, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Peach Bottom Atomic Power Station Units 2 and 3 and discussed the results of this inspection with Mr. Pat Navin, Peach Bottom Site Vice President and other members of your staff. The results of this inspection are documented in the enclosed report.

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

If you contest the violation or 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.

If you disagree with a cross-cutting aspect assignment in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region I; and the NRC resident inspector at Peach Bottom.

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/

Glenn T. Dentel, Chief
Engineering Branch 2

Docket Nos.: 05000277 and 05000278

License Nos.: DPR-44 and DPR-56

Enclosure:

Inspection Report 05000277/2019011 and
05000278/2019011

cc w/ encl: Distribution via ListServ

SUBJECT: PEACH BOTTOM ATOMIC POWER STATION UNITS 2 AND 3 – DESIGN BASES ASSURANCE INSPECTION (PROGRAMS) REPORT 05000277/2019011 AND 05000278/2019011 DATED MARCH 14, 2019

DISTRIBUTION w/encl: (via E-mail)

- DLew, RA (R1ORAMAIL Resource)
- RLorson, DRA (R1ORAMAIL Resource)
- DCollins, DRP (R1DRPMAIL Resource)
- MShams, DRP (R1DRPMAIL Resource)
- JYerokun, DRS (R1DRSMAIL Resource)
- BWelling, DRS (R1DRSMAIL Resource)
- MFerdas, DRP
- JGreives, DRP
- GCroon, DRP
- MRossi, DRP
- DBeacon, DRP
- JHeinly, DRP, SRI
- BSmith, DRP, RI
- SSchmitt, AA
- MMcCoppin, RI OEDO
- RidsNrrPMPeachBottom Resource
- RidsNrrDorLpl1 Resource
- ROPreports Resource

DOCUMENT NAME: G:\DRS\Engineering Branch 2\Environmental Qualification (EQ)\EQ Insp Reports (Region 1 only)\PB EQ 19-011.docx
 ADAMS ACCESSION NUMBER: ML19073A288

<input checked="" type="checkbox"/> SUNSI Review		<input checked="" type="checkbox"/> Non-Sensitive <input type="checkbox"/> Sensitive		<input checked="" type="checkbox"/> Publicly Available <input type="checkbox"/> Non-Publicly Available	
OFFICE	RI/DRS	RI/DRS	RI/DRP	RI/DRS	
NAME	DKern	CCahill	JGrievs	GDentel	
DATE	3/5/19	3/11/19	3/10/19	3/14/19	

OFFICIAL RECORD COPY

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

Docket Numbers: 05000277 and 05000278

License Numbers: DPR-44 and DPR-56

Report Numbers: 05000277/2019011 and 05000278/2019011

Enterprise Identifier: I-2019-011-0012

Licensee: Exelon Generation Co., LLC

Facility: Peach Bottom, Units 2 and 3

Location: Delta, Pennsylvania

Inspection Dates: January 14, 2019 to February 1, 2019

Inspectors: D. Kern, Senior Reactor Inspector
J. Kulp, Senior Reactor Inspector
J. Brand, Reactor Inspector
S. Elkhiamy, Reactor Inspector

Approved By: Glenn T. Dentel, Chief
Engineering Branch 2
Division of Reactor Safety

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring Exelon's performance by conducting a Design Bases Assurance Inspection of the Environmental Qualification Program implementation 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. Findings and violations being considered in the NRC's assessment are summarized in the table below. Licensee-identified non-cited violations are documented in report sections: 71111.21N.

List of Findings and Violations

Drywell Local Temperature Exceeds Analyzed Environmental Qualification (EQ) Value, Shortening Qualified Life for Several EQ Components			
Cornerstone	Significance	Cross-cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000278,05000277/2019011-01 Open/Closed	[H.7] - Documentation	71111.21N
The inspectors identified a finding of very low safety significance (Green) and associated non-cited violation (NCV) of Title 10 of the <i>Code of Federal Regulations</i> (10 CFR) Part 50.49(j) and 10 CFR Part 50.49(d), Environmental Qualification (EQ) of Electric Equipment Important to Safety for Nuclear Power Plants, because Exelon did not ensure EQ files included accurate and bounding normal service temperature values for EQ components located in drywell Zone 2. Therefore, the supporting analysis, including evaluation of equipment thermal aging, was inaccurate and did not verify EQ components located in drywell Zone 2 were qualified for the normal service temperature at the location where the equipment must perform their specified performance requirements up to the end of their qualified life.			

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 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

71111.21N - Design Bases Assurance Inspection (Programs)

The inspectors evaluated EQ program implementation through the sampling of the components listed below. The inspectors also performed an in-depth corrective action program review of Issue Report 2480628, EQ Relay Life May Have Been Exceeded; including Unit 2, HPSW Crosstie Normal Power Transfer Relay (2-32-K001), Unit 2, Under-Voltage Relay for MO-2-10-025A (2-10-27-21025A), Unit 3, RPS Reactor High Pressure Relay (3-5A-K027A), and Unit 3, RHR High Drywell Pressure Relay (3-10A-K10A-K158D).

02.01 Select Sample Components to Review - Primary Containment (Inside Containment) (2 Samples)

- (1) Unit 2, 'B' Main Steam Line Inboard Isolation Valve (AO-2-01B-080B) [backup DC solenoid valve, AC solenoid valve, position limit switches, instrument cable]
- (2) Unit 2, HPCI Inboard Steam Supply Isolation Valve actuator (MO-2-23-15) [motor operated valve actuator, power supply breaker, power cable]

02.01 Select Sample Components to Review - Risk Significant/Low Design (Inside/Outside Containment) (7 Samples)

- (1) Unit 2, HPCI Turbine Governor Actuator (EG-R-23)
- (2) Unit 2, HPCI Turbine Exhaust Drain Pot Isolation Valve (SV-2-23-054) [target rock solenoid valve, terminal block]
- (3) Unit 2, 'A' Main Steam Line Differential Pressure Transmitter (DPT-2-02-116A) [transmitter, flow switch, instrument cable]
- (4) Unit 3, 'B' Main Steam Line ADS/Safety Relief Valve (RV-3-02-071B) [solenoid]
- (5) Unit 3, 'B' Main Steam Line ADS/RV acoustic monitor (POT-3-02-07B) [sensor, pre-amplifier]
- (6) Unit 3, 'A' RHR Room Unit Cooler/Fan Motor (3AV025-DR) [motor, Raychem heatshrink]
- (7) Unit 3, 'A' Main Steam Line Leak Detection Temperature Element (TE-4931A) [sensor, conduit seal]

INSPECTION RESULTS

Drywell Local Temperature Exceeds Analyzed Environmental Qualification (EQ) Value, Shortening Qualified Life for Several EQ Components			
Cornerstone	Significance	Cross-cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000278,05000277/2019011-01 Open/Closed	[H.7] - Documentation	71111.21N
<p>The inspectors identified a finding of very low safety significance (Green) and associated NCV of 10 CFR Part 50.49(j) and 10 CFR Part 50.49(d), Environmental Qualification (EQ) of Electric Equipment Important to Safety for Nuclear Power Plants, because Exelon did not ensure EQ files included accurate and bounding normal service temperature values for EQ components located in drywell Zone 2. Consequently, the supporting analysis, including evaluation of equipment thermal aging, was inaccurate and did not verify EQ components located in drywell Zone 2 were qualified for the normal service temperature at the location where the equipment must perform their specified performance requirements up to the end of their qualified life.</p> <p><u>Description:</u> Normal service temperature is a factor in thermal aging and life qualification of components within the environmental qualification process. Exelon established a normal service temperature of 150F for all main steam line safety relief valves (SRVs) and 145F for all remaining EQ components inside the Unit 2 and Unit 3 primary containment/drywells.</p> <p>On January 15, 2019, engineers informed the inspectors that drywell bulk average temperature was used to verify the normal service temperature of all EQ components located inside the drywell. The drywell bulk average temperature is calculated monthly per RT-O-40C-530-2(3), "Drywell Temperature Monitoring," to verify satisfactory operating temperature conditions as described in Technical Specifications section 3.6.1.4, "Drywell Air Temperature." This specification requires the drywell average temperature shall be \leq 145 degrees Fahrenheit (F). The drywell bulk average temperature is obtained from 17 separate thermowells and associated temperature elements located at five different Zones inside the drywell. The inspectors noted Exelon had not considered potential effects of possible localized hot spots/areas within the drywell.</p> <p>The inspectors requested additional data to determine whether there were EQ components within drywell zones where actual temperatures were above the qualified service life temperatures (150F for SRVs, 145F for all other EQ components). To address the inspectors' concerns, engineers reviewed applicable drywell temperature data for the last 4 years and determined that actual ambient temperature for portions of drywell Zone 2 consistently exceeded 145F (Unit 2 4-year average was 155.6F, Unit 3 was 153.7F). The inspectors independently verified the highest actual Unit 2 drywell Zone 2 temperature element was 166F and increasing, and Unit 3 was 156F and increasing at the conclusion of this inspection. Environmentally qualified components located in drywell Zone 2 included: 11 SRV solenoid pilot valves located on the main steam lines within the drywell which provide a safety function to prevent nuclear system over-pressurization and to depressurize the system to support core cooling; reactor water cleanup inboard containment isolation valve (MO-2(3)-12-15); and the main steam inboard (AO-2(3)-02-316) and recirculation inboard (AO-2(3)-02-039) sample valves which provide a containment isolation safety function. The associated limiting sub-component and impact on qualified life is</p>			

described below:

- All 11 SRVs on each unit were affected. The limiting sub-component was a viton gasket on the AVCO pilot solenoid valve. Qualified life was reduced from 18.9 years to 7.1 years.
- The limiting sub-component on MO-2-12-15 was the Class RH insulation on the limitorque motor operator. Qualified life was reduced from 60 years to 33.6 years.
- The limiting sub-component on MO-3-12-15 was the nordel o-ring on the EGS quick disconnect connector on the limitorque motor operator. Qualified life was reduced from 14.8 years to 8.5 years.
- The limiting sub-component on AO-2-02-039 was the EPDM o-rings on the NAMCO EA740 series position limit switch. Qualified life was reduced from 23 years to 11.8 years.
- The limiting sub-component on AO-3-02-039 and AO-3-02-316 was the viton elastomer seat on the ASCO model NP8300142ERF solenoid valve. Qualified life was reduced from 23 years to 10.2 years.
- The limiting sub-component on AO-2-02-316 was the viton elastomer seat on the ASCO model NP8300142ERF solenoid valve. Qualified life was reduced from 23 years to 7.8 years.

The inspectors reviewed maintenance records and determined Exelon has replaced all SRV solenoid pilot valves on a 6-year periodicity to align this work activity with the 6-year American Society of Mechanical Engineers (ASME) Code requirement for periodic SRV pressure testing. Therefore, the SRVs were replaced more frequently than required by the revised EQ analysis (7.1 year qualified life) and remained qualified.

The inspectors also noted that Exelon had not performed required reviews of station ambient temperature data for all EQ zones inside the drywell. Procedure CC-MA-203-1001, section 3.4, requires the station EQ engineer to perform annual reviews of station ambient temperature conditions and revise qualification data to incorporate changing ambient temperature conditions as required. The EQ engineer will document this annual review in an engineering technical evaluation. However, the inspectors identified that although EQ zones temperatures within the reactor building were verified quarterly, no procedure existed to perform the required verification of EQ zones within the primary containment/drywell. Exelon's assumption that drywell bulk average temperature bounded the highest normal service temperature for all EQ components in the drywell was incorrect. As a result, drywell Zone 2 temperature exceeded the analyzed normal temperature of 145F (150F for SRVs), resulting in a shorter qualified life for several EQ components as stated above.

Corrective Actions: Exelon staff entered the issue into their corrective action program and performed a technical evaluation to determine a more accurate average ambient temperature for drywell Zone 2 and to requalify the affected components. Exelon determined none of the components were currently beyond their revised qualified life and all remained qualified. The inspectors reviewed the evaluations and determined they were technically sound. Additionally, Exelon initiated action to assess the programmatic impact of this issue, develop procedure revisions to properly monitor the local temperature of all EQ zones, and schedule drywell Zone 2 EQ component replacement activities consistent with their respective revised analyzed qualified life.

Corrective Action References: Issue Reports 04211923 and 04212231

Performance Assessment:Performance Deficiency:

Exelon did not ensure EQ files included accurate and bounding normal service temperature values for EQ components located in drywell zone 2 as required by 10 CFR 50.49, "Environmental Qualification." Consequently, the supporting analysis, including equipment thermal aging, was inaccurate and did not verify the EQ components located in drywell zone 2 were qualified for the normal service temperature at the location where the equipment must perform their specified performance requirements up to the end of their qualified life.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Design Control attribute of the Mitigating Systems cornerstone. The objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage) was adversely impacted. Specifically, failure to verify and analyze actual drywell Zone 2 normal service temperature, resulted in several EQ components having significantly shorter qualified lives than previously analyzed and supported by the existing EQ preventive maintenance replacement schedule.

Significance: The inspectors assessed the significance of the finding using Appendix A, "Significance Determination of Reactor Inspection Findings for At - Power Situations." The performance deficiency affected the qualification of Mitigating Systems cornerstone components. Because these components maintained their functionality, the deficiency screened to green; very low safety significance.

Cross-cutting Aspect: H.7 - Documentation: The organization creates and maintains complete, accurate and up-to-date documentation. The finding had a cross-cutting aspect in the area of Human Performance, Documentation, because Exelon did not create and maintain complete and accurate procedures for verifying drywell EQ zones' normal service temperatures. Procedure CC-MA-203-1001, required the station EQ engineer to perform annual reviews of station ambient temperature conditions and revise qualification data to incorporate changing ambient temperature conditions as required. However, although EQ zones temperatures within the reactor building were verified quarterly (per procedure RT-O-40C-530-2(3)), no procedure existed to perform the required normal service temperature verification of zones within the primary containment/drywell, the radwaste building, and the turbine building. [H.7]

Enforcement:

Violation: Title 10 CFR Part 50.49(d), Environmental Qualification of Electric Equipment Important to Safety for Nuclear Power Plants, states in part, the licensee shall prepare a qualification file which shall include the environmental conditions at the location where the equipment must perform as specified. Additionally, 10 CFR Part 50.49(j), states in part, the record of qualification must permit verification that the component is qualified for its application and meets its specified performance requirements up to the end of its qualified life. Contrary to the above, since February 22, 1983, environmental qualification files for components inside Zone 2 of the primary containment/drywell, EQ-PB-019A (AVCO Pilot Solenoid Valve for all MSL Safety Relief Valves), EQ-PB-42B (NAMCO Limit Switch EA740 Series), and EQ-PB-46A (Limitorque Valve Operators with AC Motors Class RH Insulation), did not include the correct environmental conditions (temperature) at the location where the equipment must perform as specified. Therefore the record of qualification, including analysis of equipment thermal aging, was inaccurate and did not verify the EQ components located in

drywell Zone 2 were qualified for their application and would meet specified performance requirements up to the end of their qualified life.

Enforcement Action: This violation is being treated as a Non-Cited Violation, consistent with Section 2.3.2 of the Enforcement Policy.

Licensee-Identified Non-Cited Violation	71111.21N
<p>This violation of very low safety significance was identified by the licensee and has been entered into the licensee corrective action program and is being treated as a Non-Cited Violation, consistent with Section 2.3.2 of the Enforcement Policy.</p>	
<p>Violation:</p> <p>Title 10 CFR Part 50.49(e)(5), Environmental Qualification (EQ) of Electric Equipment Important to Safety for Nuclear power Plants, requires in part, that equipment must be replaced or refurbished at the end of this designated life unless ongoing qualification demonstrates that the item has additional life.</p> <p>Contrary to the above, since June 2008, Exelon did not replace equipment or demonstrate additional qualification prior to the end of designated qualified life. Specifically, in 2015, Exelon identified that eight reactor pressure high scram relays and two Rosemount high pressure trip units exceeded their designated life without prior evaluation demonstrating additional qualified life. In 2017 and 2019, Exelon identified additional EQ components that exceeded their qualified life prior to their required replacement including a drywell temperature element, four pressure switch relays, eight drywell torus connectors, and four high pressure service water cross-tie transfer switches.</p> <p>Significance: Green.</p> <p>The inspectors determined the performance deficiency was more than minor because it was associated with the equipment performance attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective of ensuring the reliability and capability of systems that response to initiating events to prevent undesirable consequences (i.e., core damage).</p> <p>The inspectors assessed the significance of the finding using IMC 0609.04, "Initial Characterization of Findings," and IMC 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions." The inspectors determined that this finding was a deficiency affecting the design or qualification of mitigating structures, systems, or components, where the structures, systems, or components maintained its operability or functionality. Therefore, the inspectors determined the finding to be of very low safety significance (Green). Specifically, for 26 of the 27 abovementioned components, operability and qualification was subsequently demonstrated through a technical evaluation which extended the EQ life. Additionally, the remaining component (TE-3105-36A) provided backup indication of drywell temperature. The primary drywell temperature indications remained unaffected. The inspectors determined the loss of environmental qualification for TE-2105-36A did not adversely affect operators' ability to assess or mitigate consequences of an accident.</p> <p>Corrective Action References: Issue Reports 2480628, 2538737, 4005664, 4017436, 4026616, and 4179677</p>	

EXIT MEETINGS AND DEBRIEFS

The inspectors verified no proprietary information was retained or documented in this report. The inspectors confirmed that proprietary information was controlled to protect from public disclosure.

- On February 1, 2019, the inspector presented the Design Bases Assurance – Environmental Qualification Program inspection results to Mr. Pat Navin, Peach Bottom Site Vice President and other members of the licensee staff.

DOCUMENTS REVIEWED

Environmental Qualification Files

EQ-PB-001A, Rosemount Pressure Transmitter, Model 1153, Revision 0
 EQ-PB-002A, Pre-Amplifier of the NDT International Safety Relief Valve Relief Valve Position Indication System, Revision 2
 EQ-PB-002B, Acoustic Monitor Sensor Cable Assembly of the NDT International Safety Relief Valve Relief Valve Position Indication System, Revision 2
 EQ-PB-004A, AGASTAT Power Relay, EGP Series, Revision 0
 EQ-PB-004B, AGASTAT Timing Relay, E7024 Series, Revision 0
 EQ-PB-010, PYCO Temperature Elements, Revision 0
 EQ-PB-015E, ASCO Tri-point Pressure Switch Transducer Assembly, Revision 0
 EQ-PB-016, Target Rock Solenoid Valves, Revision 13
 EQ-PB-017A, Buchanan Model NQB Series 100 Terminal Block, Revision 0
 EQ-PB-019A, Automatic Valve Corp (AVCO) Pilot Solenoid Valves for SRV, Revision 0
 EQ-PB-019B, Automatic Valve Corp (AVCO) Pilot Solenoid Valves for MSIV Actuators, Model 6910-010, Revision 0
 EQ-PB-019D, Automatic Valve Corp (AVCO) Pilot Solenoid Valves for MSIV Actuators, Model 6910-020 DC Coils, Revision 0
 EQ-PB-020A, Rockbestos 600V Pyrotrol Firewall III Irradiation XLPE Cable, Revision 0
 EQ-PB-020D, Rockbestos Radiation Type Silicone Rubber Cables, Revision 0
 EQ-PB-021, Rosemount Model 710DU Trip Units, Revision 0
 EQ-PB-022, Target Rock Solenoid Valves, Revision 0
 EQ-PB-032, EGB GRAYBOOT Connector Models GB-1, GB-2 and GB-3, Revision 0
 EQ-PB-040A, HPCI Turbine Assembly Subcomponents, Revision 0
 EQ-PB-042B, NAMCO Limit Switch EA740 Series, Revision 0
 EQ-PB-043, General Electric Co. Electric Penetration Assembly, Revision 0
 EQ-PB-044A, 480 Volt AC and 250 Volt DC Motor Control Centers, Revision 0
 EQ-PB-046A, LIMITORQUE Valve Operators with AC Motors Class RH Insulation, Revision 1
 EQ-PB-049, NUTHERM Transfer Switch Assembly Model 73022, Revision 1

Modification Packages

EC 04-00123, U/2: Install Quick Disconnect Connectors – Acoustic Sensors, Revision 0
 EC 626943, PS-2502A Pressure Switch Past EQ Qualification, Revision 0
 EC 04-00123, U/2: Install Quick Disconnect Connectors – Acoustic Sensors, Revision 0
 EC626943, PS-2502A Pressure Switch Past EQ Qualification, Revision 0

Calculations & Analysis

E-1998-1, Qualified Life Calculation for Coil and Silicone O-Rings in Target Rock SVs, Revision 0
 LE-071, Arrhenius Calculation to Determine Qualified Life of EPR O-Rings in Target Rock Solenoid Valves, Revision 0
 L-T-08 & P-T-08, Electrical Equipment Environmental Qualification Program, Revision 7
 ME-0164, Specification for Environmental Service Conditions, Peach Bottom Atomic Power Stations Units 2 and 3, Revision 6
 ME-0457, Develop a Calculation Method to Determine the Drywell Average Space Temperature, Revision 0
 NE-00164, Specification for Environmental Service Conditions, Revision 6
 UFCCF 91-8615, PBAPS Drywell Average Temperature Increase to 145F, 10 CFR 50.59 Review, completed 10/30/92

Drawings

6280- M-205-D-3, Target Rock Project Technical Manual, Revision 0
 6280-HISO-2305, HPCI Steam Supply, Revision 1
 6280-M-1-S-36, Sht. 15, Electrical Schematic Diagram-High Pressure Coolant Injection System, Revision 80
 6280-M-1-S-54, Sht. 28, Electrical Schematic Diagram-Reactor Protection System, Revision 86
 6280-M-1-S-54, Sht. 48, Electrical Schematic Diagram-Reactor Protection System, Revision 70
 6280-M-1-S-65, Sht. 12, Electrical Schematic Diagram-Residual Heat Removal System, Revision 99
 6280-M-1-S-65, Sht. 37, Electrical Schematic Diagram-Residual Heat Removal System, Revision 99
 6280-M-1-S-65, Sht. 68, Electrical Schematic Diagram-Residual Heat Removal System, Revision 101
 6280-M-205-D-21, Target Rock Model 73AA-003 Solenoid Valve Assembly, Revision 7
 6280-M-365, Sht. 1, P&ID High Pressure Coolant Injection System, Units 2 and 3, Revision 63
 6280-M-381, Reactor Building Ventilation Supply Temperature control Diagram, Revision 48
 6280-M-390, Sht. 1, P&ID Drywell Cooling Flow Diagram, Revision 28
 CA00787, Crane-ALOYCO, Inc. Gate Valve Assembly W/SMB-1-60 Motor Operator, Revision 0
 E-197, RCIC, HPCI, & RHR Components & Core Spray Pump Room Coolers, Revision 30
 E-1315, Conduit and Cable Trays Symbols, Notes and Details PECO Energy Company, Peach Bottom Atomic Power Station Units 2&3, Revision 9
 E-1615, PBAPS Units 2 and 3, Single Line Meter & Relay Diagram, E124 & E224 Emergency L.C, E124-RG & E224-RB Reactor MCC and E124-T-B & E224- T-B Turbine MCC, 480 V. U-2, Revision 83

Surveillance and Modifications Acceptance Tests

RT-I-094-800-2, Reactor Building Ambient Temperature Data Collection, completed 02/27/11
 RT-I-094-800-3, Reactor Building Ambient Temperature Data Collection, completed 11/27/16
 RT-O-40C-530-3, Drywell Temperature Monitoring, completed 11/28/18
 RT-O-40C-530-2, Drywell Temperature Monitoring, completed 12/04/18
 SI2T-2-2501-A1CS, Calibration Check of Drywell Temperature Instruments TT-2501 and TI-2501, completed 11/13/18
 SI2T-2-3501-A1CS, Calibration Check of Drywell Temperature Instruments TT-3501 and TI-3501, completed 05/17/18

Procedures

4303142-02, Reinstall POT-3-02-71A-L and POT-3-02-70A-C, Revision 0
 CC-AA-102, EQ Program, Revision 13
 CC-AA-203, Environmental Qualification Program, Revision 13
 CC-MA-203-1001, Environmental Qualification Engineering, Revision 6
 CC-AA-204, Control of Vendor Equipment Manuals, Revision 12
 CC-AA-204-1001, Control of Vendor Equipment Manuals Guideline, Revision 2
 ER-AA-200-1001, Equipment Classification, Revision 4
 IC-11-00704, Calibration of Acoustic Emission Fluid Flow Detection System (Valve Position Monitoring Systems), Revision 7
 ON-120, High Drywell Temperature, Revision 9
 OP-AA-108-118, Operability Determinations, Revision 21
 PI-AA-120, Issue Identification and Screening Process, Revision 2
 PI-AA-120, Issue Identification and Screening Process, Revision 8
 PI-AA-125, Corrective Action Procedure, Revision 2
 PI-AA-125, Corrective Action Procedure, Revision 6

RT-0-40C-530-3, Drywell Temperature Monitoring, Revision 7
 RT-I-094-800-2, Reactor Building Ambient Temperature Data Collection, Revision 4
 RT-I-094-800-3, Reactor Building Ambient Temperature Data Collection, Revision 2
 WC-AA-101-1002, Online Scheduling Process, Revision 20
 WC-AA-106, Work Screening and Processing, Revision 18
 WC-AA-120, PM Database Revision Requirements, Revision 4

Work Orders

01409680	02820609	04241711	04272072	04280745	04280751
04280757	04284590	04327254	04790153	04837387	4303142-02
A0385267	R0477333	R0755671	R0758995	R0777704	R0786827
R0794762	R0929187	R1038642	R1089358	R1090066	R1098861
R1106378	R1283651	R1310555	R1317797	R1317799	R1317801

Vendor Manuals

563-A-VC-1, Vendor Technical Manual, AGASTAT Control Relays-Series GP Power Relays, Revision 2
 A-613-VC-1, Maintenance Instructions MSIV Manifolds, Revision 1
 A-613-VC-5, Automatic Valve Corp. Servicing Procedure D7170-004 Rev. B Valve Model No: 6910-020, Revision 0
 A-613-VC-5, Automatic Valve Servicing, Installation and Maintenance, Revision D-CN9012 D7179-005, Servicing Procedure & Maintenance C5450-5-110, Revision D-CN-632B
 FFDS-01, Technical Manual for the NDT International Fluid Flow Detection system Utilized for Position Monitoring of Relief Valves, Revision 2
 L-200-VC-1, Vendor Technical Manual, LIMITORQUE SMB Series/SB Series, Installation Operation Maintenance, Revision 2
 M-1-JJ-16-3, Safety Relief Valve Model 67F for RPV, dated 03/1985
 N-068-VC-1, Operation and Technical Manual for the NDT International Inc. Fluid Flow Detection System, Revision 1
 Operations Manual Trip/Calibration System Model 710DU - Rosemount
 T-009-VC-1, Vendor Technical Manual, TYCO-AMP 7000 Series 2-Pole Timing Relay, Revision 0
 Woodward Product Manual 37710, EG-3C and EG-R Actuators, Revision K

Condition Reports

1164652	1359061	1422221	1644142	1687188	2165306
2395345	2404945	2480017	2480628	2490441	2492131
2534963	2538737	2591443	2648763	2704451	2742204
3997737	4005532	4005664	4017436	4026616	4027062
4044799	4079488	4126297	4129583	4146368	4177660
4179677	4209448	4214060*	4215449*	4216165*	4211601*
4211923*	4212231*	4216354*	4211167*	4211601*	4211923*
4212231*	4215449*	4216062*	4216165*	4216354*	

Miscellaneous

557-1475, Nuclear Environmental Qualification Report of Twelve (12) 480 Volt AC Motor Control Centers and Five (5) 250 Volt DC Motor Control Centers for Peach Bottom Atomic Power Station Units 2 & 3, dated 03/7/84
 61997.1, Nuclear Environmental Qualification Report for General Electric Disconnect Switches with Integral Handle P/N: THMC31V1 & THMC33V1, dated 10/02/95

6280-P-7-1, Report on Qualification Tests for Firewall III Irradiation Cross-Linked Polyethylene Constructions for Class 1E Service in Nuclear Generating Stations, Revision 1
74130, Nuclear Environmental Qualification Report for Molded Case Circuit Breakers, dated 04/21/94
CEQP-007, Environmental-Qualification of Snap-Lock Limit Switches Manufactured by Namco Control Inc, dated 12/19/99
E124-R-C (3608), HVCS Transfer Switch ECR-PB-03-00037, Evaluate Various ASCO Solenoid Valve Replacements with AVCO Solenoids, Revision 1
EC-000620026, Technical Evaluation EQ of CAQ/CAD Bendix Connectors in Panels 2(3)A(B)C872, Revision 0
LSL-2-02-3-072A, RPV Instrument Deleted per MOD-1457
NEDC-31822P, Environmental Qualification Report for MSIV Limit Switch, EA740-50100, Namco Controls, dated 7/31/90
NRC Information Notice 86-49, Age/Environment Induced Cable Failures, dated 6/16/86
NRC Information Notice 89-23, Environmental Qualification of Litton VEAM CIR Series Electrical Connectors, dated 3/3/89
NRC Information Notice 89-30, Supplement 1, High Temperature Environments at Nuclear Power Plants, dated 11/1/90
PBAPS Unit 2 Technical Specifications, Amendment 278
PBAPS Unit 3 TRM, Revision 6
Pre-NRC Design Bases Assurance (DBA) Inspection of Environmental Qualification Program, dated 12/04/18
QR-042081-1, Nuclear Logistics Inc. Arrhenius Calculation for Determining Thermal Aging Time on Qualification of AGASTAT Relays, dated 04/02/2002
U-2, HPCI System, 23/23A/23B/23C, Maintenance Rule System Basis Status
U-2, HPSW, Maintenance Rule System Basis Status
U-3, Reactor Pressure Vessel Instrumentation (RPVI), 02B/2F/2G, Maintenance Rule System Basis Status
U-3, RPS-Reactor Protection System, Maintenance Rule System Basis Status