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

December 14, 2021

Mr. David P. Rhoades
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 – INFORMATION REQUEST TO SUPPORT TRIENNIAL BASELINE DESIGN-BASIS CAPABILITY OF POWER-OPERATED VALVES INSPECTION; INSPECTION REPORT 05000277/2022011 AND 05000278/2022011

Dear Mr. Rhoades:

The purpose of this letter is to notify you that the U.S. Nuclear Regulatory Commission (NRC) Region I staff will conduct a team inspection at Peach Bottom Atomic Power Station, Units 2 and 3. David Kern, a Senior Reactor Inspector from the NRC's Region I Office, will lead the inspection team. The inspection will be conducted in accordance with Inspection Procedure 71111.21N.02, "Design-Basis Capability of Power-Operated Valves Under 10 CFR 50.55a Requirements," dated October 9, 2020 (ADAMS Accession No. ML20220A667).

The inspection will assess the reliability, functional capability, and design bases of risk-important power-operated valves (POVs) as required by Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a, and Appendix A and B requirements. The inspectors will select a sample of POVs based on risk insights, safety significance, and operating margin.

During a telephone conversation on December 7, 2021, with Ms. Amy Huber, Senior Regulatory Engineer, we confirmed arrangements for an information gathering visit and the two-week onsite inspection. Depending on site access conditions, the information gathering visit may be onsite or may be performed remotely. The schedule is as follows:

- Information gathering visit: Week of January 3, 2022
- Onsite weeks: Weeks of March 21 and April 4, 2022

The purpose of the information gathering visit is to meet with members of your staff and to become familiar with your programs and procedures intended to ensure compliance with 10 CFR 50.55a for POVs. The lead inspector will discuss aspects of the programs including any specific applicable regulatory commitments made by your facility and your use of NRC regulatory guides or industry standards.

Experience with previous design basis team inspections of similar depth and length has shown this type of inspection is resource intensive, both for NRC inspectors and licensee staff. In order to minimize the inspection impact on the site and to ensure a productive inspection for both parties, we have enclosed a request for information needed for the inspection.

It is important that all of these documents are up-to-date and complete in order to minimize the number of additional documents requested during the preparation and onsite portions of the inspection. Insofar as possible, this information should be provided electronically to the lead inspector at the NRC Region I Office by January 3, 2022. Recognizing the timeframe, my staff will work with your staff to prioritize our document requests so these activities can be accomplished, as much as possible, in the normal course of your activities. Particularly considering the end of year timeframe, please do not hesitate to contact Mr. Dave Kern if there are challenges in document retrieval. We will work with your staff. Additional documents may be requested during the information gathering visit and/or during team preparation week (the week prior to the first onsite inspection week). The inspectors will minimize your administrative burden by specifically identifying only those documents required for the inspection.

If there are any questions about the inspection or the material requested in the enclosure, please contact the lead inspector at 610-337-6931 or via e-mail at David.Kern@nrc.gov.

This letter does not contain new or amended information collection requirements subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). Existing information collection requirements were approved by the Office of Management and Budget, Control Number 3150-0011. The NRC may not conduct or sponsor, and a person is not required to respond to, a request for information or an information collection requirement unless the requesting document displays a currently valid Office of Management and Budget Control Number.

This letter and its enclosure 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,

Melvin K. Gray Digitally signed by Melvin K. Gray
Date: 2021.12.14 12:55:34 -05'00'

Mel Gray, Chief
Engineering Branch 1
Division of Operating Reactor Safety

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

Enclosure:
Document Request for Design Bases Assurance Inspection

cc: Distribution via ListServ ®

SUBJECT: PEACH BOTTOM ATOMIC POWER STATION, UNITS 2 AND 3 – INFORMATION REQUEST TO SUPPORT TRIENNIAL BASELINE DESIGN-BASIS CAPABILITY OF POWER-OPERATED VALVES INSPECTION; INSPECTION REPORT 05000277/2022011 AND 05000278/2022011 DATED DECEMBER 14, 2021

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DOCUMENT REQUEST FOR DESIGN BASES ASSURANCE INSPECTION

Inspection Report:	05000277/2022011 and 05000278/2022011
Onsite Inspection Dates:	March 21 through March 25, 2022; and April 4 through 8, 2022
Inspection Procedure:	Inspection Procedure 71111.21N.02, Design-Basis Capability of Power-Operated Valves Under 10 CFR 50.55a Requirements
Lead Inspector:	David Kern, Senior Reactor Inspector 610-337-6931 David.Kern@nrc.gov

I. Information Gathering Visit

During this visit, we plan to obtain sufficient insights to finalize power-operated valve (POV) samples for this inspection. We would like to meet with POV specialists to discuss the upcoming inspection and our sample selection process. The primary valve types to be reviewed for this inspection include motor-operated valves (MOVs) and air-operated valves (AOVs); and additional valve types include hydraulic-operated valves (HOVs), solenoid-operated valves (SOVs), and pyrotechnic-actuated (squib) valves. During this visit, the lead inspector will: (a) discuss the scope of the planned inspection; (b) identify additional information needed to review in preparation for the inspection; (c) ensure that the information to be reviewed is available at the beginning of the inspection; and (d) verify that logistical issues will be identified and addressed prior to the team's arrival. Depending on the local COVID environment and potential travel restrictions, this visit may be either onsite or performed remotely through a series of skype video calls. If performed onsite, please reserve a room during the site visit with a telephone, wireless internet access, and a licensee computer with access to procedures, corrective action program documents, and a printer.

II. Information Requested for Selection of Power-Operated Valves

The following information is requested by January 3, 2022, to facilitate inspection preparation. Feel free to contact the lead inspector if you have any questions regarding this information request. Please provide the information electronically in "pdf" files, Excel, or other searchable formats. The files should contain descriptive names, and be indexed and hyperlinked to facilitate ease of use. Information in "lists" should contain enough information to be easily understood by someone who has knowledge of light water reactor technology and POVs.

1. A word-searchable Updated Final Safety Analysis Report. If not available in a single file for each unit, please ensure a collective table of contents is provided.

2. Site (and corporate if applicable) procedures associated with implementation of the MOV program required by 10 CFR 50.55a(b)(3)(ii) and/or ASME OM Code Mandatory Appendix III; and site (corporate) procedure for AOV program.

3. Site response(s) to NRC Generic Letter (GL) 95-07, Pressure Locking and Thermal Binding of Safety-Related Power-Operated Gate Valves.

4. Site response(s) to NRC GL 96-05, Periodic Verification of Design-Basis Capability of Safety-Related Motor-Operated Valves.

5. Site evaluation of NRC Information Notice 2012-14, MOV Inoperable due to Stem-Disc Separation.

6. List of corrective action documents related to the MOV and AOV programs since January 1, 2017 (include document No., title/short description, date).

7. List of corrective action documents related to each of the 30 POVs listed below since January 1, 2017 (include document No., title/short description, date).

8. List of significant modifications, repairs, or replacement of safety-related POVs completed since January 1, 2017, including date completed (include document No., title, date completed).

9. List of POVs removed from the In-Service Test program since January 1, 1990.

10. Any self-assessments or quality assurance type assessments of the MOV/AOV programs (performed since January 1, 2017).

11. Most recent POV (e.g., MOV, AOV, SOV) program health report(s).

12. List and electronic copy of all Emergency Operating Procedures.

13. List of Abnormal Operating Procedures.

14. Identify the edition of the ASME Operation and Maintenance of Nuclear Power Plants (OM Code) that is the Code of Record for the current 10-year Inservice Test Program interval, as well as any standards to which the station has committed with respect to POV capability and testing.

15. Identify which of the valves listed in items #16 and #17 are located in harsh environment areas and subject to Environmental Qualification (EQ) requirements.

16. For each of the following MOVs, provide the information listed in the table below.

- MO-0-33-0498 ESW Return to Discharge Pond
- MO-2-12-15 RWCU Inlet Inboard Isolation Valve
- MO-2-10-017 RHR Shutdown Cooling Suction Outboard Isolation Valve
- MO-2-10-026B RHR Loop ‘B’, Drywell Spray Outboard Isolation Valve
- MO-2-13-015 RCIC Steam Line Inboard Isolation Valve
- MO-2-14-012B Core Spray Loop ‘B’, Inboard Discharge Isolation Valve
- MO-2-23-016 HPCI Turbine Steam Line Outboard Isolation Valve
- MO-2-23-020 HPCI Pump Discharge Valve
- MO-3-02-053B Recirculation Pump Discharge Isolation Valve
- MO-3-10-013A RHR Pump 3AP035 Torus Suction Isolation Valve

- MO-3-10-018 RHR Pump Shutdown Cooling Suction Inboard Isolation Valve
- MO-3-10-025A RHR Loop 'A', Inboard Discharge Valve
- MO-3-10-039A RHR Loop 'A', Outer Block for Torus Cooling Spray
- MO-3-10-089A RHR HX 3AE024 HPSW Outlet Valve
- MO-3-13-016 RCIC Steam Line Outboard Isolation Valve
- MO-3-13-021 RCIC Pump Discharge to 'B' Feedwater Line
- MO-3-14-005D 'D' Core Spray Pump Minimum Flow Valve
- MO-3-23-014 HPCI Turbine Steam Supply Valve
- MO-3-23-015 HPCI Turbine Steam Line Inboard Isolation Valve

Item	Parameter/Information*
1	MOV Identification
2	Safety Function
3	Valve manufacturer, type, and size
4	Actuator manufacturer, type, and size
5	Motor manufacturer, type (AC/DC), and size
6	Valve ASME Class
7	Risk Significance
8	Control Switch Trip (CST) Application (Close/Open)
9	Design-Basis Differential Pressure (DBDP) and Flow (Close/Open)
10	Rising-Stem Valve: Assumed Valve Factor (VF)
11	Quarter-Turn Valve: Assumed bearing torque coefficient
12	Assumed Stem Friction Coefficient (SFC)
13	Assumed Load Sensitive Behavior (LSB) (%)
14	% Uncertainties (e.g., diagnostic equipment, CST repeatability, etc.)
15	Calculated Required Thrust/Torque (Close/Open)
16	Least Available Output (e.g., actuator, CST, rating, spring pack, weak link)
17	Test Conditions (e.g., fluid differential pressure (DP), system pressure, flow, and temperature; ambient temperature; and motor voltage) (Close/Open)
18	Thrust and torque required to overcome dynamic conditions (Close/Open)
19	Rising-Stem Valve: Measured VF (Close/Open)
20	Rising-Stem Valve: Available VF (Close/Open)
21	Measured SFC (Close/Open)
22	Measured LSB (%)
23	Quarter-Turn Valve: Measured bearing torque coefficient (Close/Open)
24	Determined % Margin (Close/Open)
25	*Basis for Design-Basis Capability:*
25.a	Dynamic test performed at design-basis DP/flow conditions
25.b	Extrapolation of dynamic test data
25.c	Justification from normal operation at or above design-basis conditions
25.d	Industry dynamic test methodology (such as EPRI MOV PPM)
25.e	Grouped with similar valves dynamically tested at plant
25.f	Grouped with similar valves dynamically tested at other plants
25.g	Valve qualification testing (such as ASME QME-1-2007)
25.h	Other (such as large calculated margin)
**Specify Not Applicable (NA) as appropriate*	

16. For each of the following AOVs/SOVs/HOVs, provide the information listed in the table below.

- AO-0-33-0241B ESW Outlet Block Valve from E2 DG Coolers
- AO-2-01A-080D Inboard 'D' MSIV
- AO-2-01A-086D Outboard 'D' MSIV
- AO-2-03-35B Scram Discharge Volume Outboard Isolation Vent Valve
- AO-2-03-36 Scram Discharge Volume Outboard Isolation Drain Valve
- AO-2-07B-2511 Torus 18" Vent Inboard Isolation Valve to SBGT/ATMOS
- AO-2-20-83 Drywell Floor Drain Sump Outboard Isolation Valve
- HO-2-13C-4495 Steam Supply to RCIC Turbine Governor Valve
- AO-3-01A-080A Inboard 'A' MSIV
- AO-3-16-5235 Instrument Nitrogen System Suction Isolation Valve
- HO-3-23C-5513 HPCI Turbine Stop Valve

Item	Parameter/Information*
1	AOV Identification
2	Safety Function
3	Fail safe position (open/close)
4	Valve manufacturer, type, and size
5	Actuator manufacturer, type, and size
6	Valve ASME Class
7	Risk Significance
8	Design-Basis Differential Pressure (DBDP) and Flow (Close/Open)
9	Rising-Stem Valve: Assumed Valve Factor (VF)
10	Quarter-Turn Valve: Assumed bearing torque coefficient
11	% Uncertainties (e.g., diagnostic equipment, CST repeatability, etc.)
12	Calculated Required Thrust/Torque (Close/Open)
13	Minimum allowable air pressure (Beginning/End Stroke)
14	Maximum allowable air pressure (Beginning/End Stroke)
15	Minimum allowable spring preload (Beginning/End Stroke)
16	Maximum allowable spring preload (Beginning/End Stroke)
17	Least Available Actuator Output (e.g., actuator capability, actuator limit, valve weak link limitation)
18	Test Conditions (e.g., fluid differential pressure (DP), system pressure, flow, and temperature; and ambient temperature) (Close/Open)
19	Thrust and torque required to overcome dynamic conditions (Close/Open)
20	Rising-Stem Valve: Measured VF (Close/Open)
21	Quarter-Turn Valve: Measured bearing torque coefficient (Close/Open)
22	Determined Margin (%) (Least margin for air stroke operation, spring stroke operation, maximum spring load, and structural capability)
23	*Basis for Design-Basis Capability:*
24.a	Dynamic test performed at design-basis DP/flow conditions
24.b	Extrapolation of dynamic test data
24.c	Justification from normal operation at or above design-basis conditions
24.d	Industry dynamic test methodology
24.e	Grouped with similar valves dynamically tested at plant
24.f	Grouped with similar valves dynamically tested at other plants

24.g	Valve qualification testing (such as ASME QME-1-2007)
24.h	Other (such as large calculated margin)
**Specify Not Applicable (NA) as appropriate*	