UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
475 ALLENDALE RD, STE 102
KING OF PRUSSIA, PENNSYLVANIA 19406-1415

August 22, 2022

Eric Carr
President and Chief Nuclear Officer
PSEG Nuclear, LLC
P.O. Box 236
Hancocks Bridge, NJ 08038

SUBJECT: SALEM NUCLEAR GENERATING STATION, UNITS 1 AND 2 – REQUEST FOR INFORMATION TO SUPPORT TRIENNIAL BASELINE DESIGN - BASIS CAPABILITY OF POWER-OPERATED VALVES INSPECTION; INSPECTION REPORT 05000272/2022011 and 05000311/2022011

Dear Eric Carr:

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 your Salem Units 1 and 2. Kevin Mangan, 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 Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a Requirements," dated July 26, 2019 (ADAMS Accession No. ML19067A240).

The inspection will assess the reliability, functional capability, and design bases of risk-important power-operated valves (POV) as required by 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 August 17, 2022, with Harry Balian, Regulatory Assurance, we confirmed arrangements for an information gathering and the two-week onsite inspection. The schedule is as follows:

- Information gathering visit: Remotely complete be October 10, 2022
- Onsite inspection: Weeks of November 14 and November 28, 2022

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.

Insofar as possible, this information should be provided electronically to the lead inspector at the NRC Region I Office by September 26, 2022. 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) 337-5234 or via email at Kevin.Mangan@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 Title 10 of the *Code of Federal Regulations*, Part 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Thank you in advance for supporting this engineering inspection.

Sincerely,

Melvin K. Gray

Digitally signed by Melvin K. Gray
Date: 2022.08.22 10:08:08 -04'00'

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

Docket Nos. 05000272 and 05000311
License Nos. DPR-70 and DPR-75

Enclosure:
Document Request for Power-Operated Valves Inspection

cc: Distribution via ListServ ®

SUBJECT: SALEM NUCLEAR GENERATING STATION, UNITS 1 AND 2 – REQUEST FOR INFORMATION TO SUPPORT TRIENNIAL BASELINE DESIGN-BASIS CAPABILITY OF POWER-OPERATED VALVES INSPECTION; INSPECTION REPORT 05000272/2022011 and 05000311/2022011 DATED AUGUST 22, 2022

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DOCUMENT NAME: https://usnrc.sharepoint.com/teams/Region-I-EB1/Inspections/DBAI (Programs)/Salem POV/Salem POV RFI Letter Aug 2022.docx
ADAMS ACCESSION NUMBER: ML22234A036

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DOCUMENT REQUEST: POWER-OPERATED VALVES INSPECTION

Inspection Report:	05000272/2022011 and 05000311/2022011
Onsite Inspection Dates:	November 14 through November 18, 2022; and November 28 through December 2, 2022
Inspection Procedure:	Inspection Procedure 71111.21N.02, Design-Basis Capability of Power-Operated Valves Under 10 CFR 50.55a Requirements
Lead Inspector:	Kevin Mangan, Senior Reactor Inspector (610) 337-5234 Kevin.Mangan@NRC.gov

I. Information Gathering

After the requested information is provided, we will finalize POV samples for this inspection. The primary valve types to be reviewed for this inspection include motor-operated valves (MOV) and air-operated valves (AOV); and additional valve types that may include hydraulic-operated valves (HOV), solenoid-operated valves (SOV), and pyrotechnic-actuated (squib) valves. During our review, 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.

II. Information Requested for Selection of Power-Operated Valves

The following information is requested by September 26, 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, preferably on some portable electronic media (e.g., CD-ROM, DVD, online). 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 Update Final Safety Analysis Report. If not available in a single file, 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. List of corrective action documents related to the MOV and AOV programs since July 1, 2018 (include document No., title/short description, date).

4. List of significant modifications, repairs, or replacement of safety related POVs completed since July 1, 2018, including date completed (include document No., title, date completed).

5. Any self-assessments or quality assurance type assessments of the MOV/AOV programs (performed since June 1, 2015).

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

7. List of Abnormal Operating Procedures.

8. 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.

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

   - S1CC-11CC16 272 Component Cooling Water System - RHR HX COMP CLG OUT
   - S1CC-12CC3 272 Component Cooling Water System - 12-13 HEADER X-OVER VALVE
   - S1CC-1CC136 272 Component Cooling Water System - RCP BRG
   - S1CN-13BF22 272 Steam Generator Feed & Condensate System - 13 MAIN FEED WATER STOP CHECK VALVE
   - S1CS-11CS36 272 Containment Spray System - RHR CS STOP VALVE
   - S1CVC-1CV68 272 Chemical & Volume Control System - CHG HDR STOP
   - S1RHR-11RH4 272 Residual Heat Removal System - RHR PUMP SUCT
   - S1SJ-12SJ44 272 Safety Injection System - CONT SUMP SUCT VALVE,
   - S1SJ-12SJ45 272 Safety Injection System - RHR TO CHG SI PMPS STOP
   - S2CC-21CC16 311 Component Cooling Water System - RHR HX COMP CLG OUT
   - S2CC-2C118 311 Component Cooling Water System - RCP CC MOT OP INLET VALVE
   - S2RC-2PR7 311 Reactor Coolant System - PZR PWR OP RELIEF STOP VALVE
   - S2RHR-21RH44 311 Residual Heat Removal System - RHR PUMP SUCT VALVE
   - S2RHR-22RH29 311 Residual Heat Removal System - RHR PUMP MIN FLOW VALVE
   - S2RHR-2RH1 311 Residual Heat Removal System - RHR COMMON SUCT VALVE
   - S2RHR-2RH26 311 Residual Heat Removal System - HOT LEG ISOL VALVE
   - S2SJ-22SJ49 311 Safety Injection System - RHR DISCH TO COLD LEGS
   - S2SW-21SW17 311 Service Water System - APPR SW PUMP DISCH HDR X-OVER 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*	

10. For each of the following AOVs, provide the information listed in the table below.

- S1MS-13MS167 272 Main Steam System - MS ISOL VALVE STM
- S1MS-1MS132 272 Main Steam System - 13 AF PMP START/STOP VALVE
- S1SW-12SW380 272 Service Water System - 12A HX INLET VALVE AOV
- S1SW-12SW39 272 Service Water System - 1B DG SW INLET TO COOLER
- 2MS-22MS10 311 Main Steam System - MS POWER RELIEF VALVE
- S2CN-24BF19 311 Steam Generator Feed & Condensate System - SG FW CONT VALVE
- S2SW-22SW122 311 Service Water System - CC HX SW INLET VALVE
- S2SW-25SW223 311 Service Water System - CV FANS SW OUTLET V

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*	

11. For each of the following miscellaneous POVs, provide the information listed in the table below.

    - S2MS-21MS43 311 Main Steam System - SGFP HIGH PRESS STEAM STOP V
    - S1RC-1RC40 272 Reactor Coolant System - HEAD VENT SOLENOID VALVE SOV
    - S1RC-1SV1198 272 Reactor Coolant System - 1 REACT COOL PZR LOSS OF AIR SUPPLY SV

Item	Parameter/Information*
1	Safety Function
2	Fail safe position (open/close/as-is)
3	Valve manufacturer, type, and size
4	Actuator manufacturer, type, and size
5	Valve ASME Class
6	Risk significance
7	Design-basis differential pressure and flow (close/open)
8	Minimum required Voltage at the POV
9	Available voltage at the POV
10	Environmental Qualification harsh environment (Y/N)
11	Normally energized (Y/N)
12	Time in service
**Specify Not Applicable (NA) as appropriate*	