



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

July 26, 2022

Mr. David P. Rhoades
Senior Vice President
Constellation Energy Generation, LLC
President and Chief Nuclear Officer (CNO)
Constellation Nuclear
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: NINE MILE POINT NUCLEAR STATION, UNITS 1 AND 2 – INFORMATION REQUEST TO SUPPORT TRIENNIAL BASELINE DESIGN-BASIS CAPABILITY OF POWER-OPERATED VALVES INSPECTION; INSPECTION REPORT 05000220/2022010 AND 05000410/2022010

Dear David 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 Nine Mile Point Nuclear Station, Units 1 and 2. Paul Cataldo, 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 video conference on July 20, 2022, with Jeremy Aiello, Regulatory Specialist, Sean Guthrie, Engineering Analyst, and Peter Logar, Engineering Programs Manager, we confirmed arrangements for an information gathering visit and the two-week onsite inspection. Depending on site access conditions, the information gathering visit and the inspection weeks may be performed onsite, remotely, or a hybrid approach. Additionally, the schedule is as follows:

- Information gathering visit: Week of August 29, 2022
- Onsite weeks: Weeks of October 17 and October 31, 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 review aspects of the programs including any specific applicable regulatory commitments made by your facility and your use of NRC Regulatory Guides or industry standards. Dave Werkheiser, a Region I Senior Risk Analyst, will support Paul Cataldo during the information-gathering visit to review probabilistic risk assessment data and identify the final POV samples to be examined during the inspection.

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 by the information gathering week of August 29, 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. 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 603-395-5536 or via e-mail at Paul.Cataldo@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,

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

Docket Nos. 05000220 and 05000410
License Nos. DPR-63 and NPF-69

Enclosure:
Document Request for Design Bases
Assurance Inspection

cc: Distribution via ListServ ®

SUBJECT: NINE MILE POINT POWER STATION, UNITS 1 AND 2 – INFORMATION REQUEST TO SUPPORT TRIENNIAL BASELINE DESIGN-BASIS CAPABILITY OF POWER-OPERATED VALVES INSPECTION; INSPECTION REPORT 05000220/2022010 AND 05000410/2022010 DATED JULY 26, 2022

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ADAMS ACCESSION NUMBER: ML22207A216

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OFFICE	RI/DORS	RI/DORS			
NAME	PCataldo	MGray			
DATE	7/25/22	7/26/22			

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DOCUMENT REQUEST FOR DESIGN BASES ASSURANCE INSPECTION

Inspection Report: 05000220/2022010 and 05000410/2022010

Onsite Inspection Dates: Weeks of October 17, 2022, and October 31, 2022

Inspection Procedure: Inspection Procedure 71111.21N.02, Design-Basis Capability of Power-Operated Valves Under 10 CFR 50.55a Requirements

Lead Inspector: Paul Cataldo, Senior Reactor Inspector
603-395-5536
Paul.Cataldo@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), and solenoid-operated valves (SOVs). 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, performed remotely through a series of Microsoft Teams, or a hybrid of the two. 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, as well as access to a printer.

II. Information Requested for Selection of Power-Operated Valves

The following information is requested by the week of August 29, 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, Word, Excel, or other searchable formats, utilizing your typical Sharepoint file-sharing applications. The files should contain descriptive names and be indexed and/or 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, TS, and TRM. 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 the site (corporate) procedures for the AOV program.
3. Site evaluation, response(s), and activities regarding NRC Generic Letter (GL) 95-07, Pressure Locking and Thermal Binding of Safety-Related Power-Operated Gate Valves.

Enclosure

DOCUMENT REQUEST FOR DESIGN BASES ASSURANCE INSPECTION

4. Site evaluation, response(s), and activities regarding NRC GL 96-05, Periodic Verification of Design-Basis Capability of Safety-Related Motor-Operated Valves.
5. Site evaluation to NRC IN 2006-26, Failure of Magnesium Rotors in Motor-Operated Valve Actuators, NRC IN 2008-20, Failure of Motor Operated Valve Actuators with Magnesium Alloy Rotors, and any actions/current plant activities associated with BWROG-TP-09-005, Inspection of Motor Operated Valve Limitorque AC Motors with Magnesium Rotors.
6. Site evaluation and/or activities regarding NRC Information Notice 2012-14, MOV Inoperable due to Stem-Disc Separation.
7. List of corrective action documents related to the MOV and AOV programs since January 1, 2018 (include document No., title/short description, date).
8. List of corrective action documents related to each of the 30 POVs listed below since January 1, 2018 (include document No., title/short description, date).
9. List of significant modifications, repairs, or replacement of safety-related POVs completed since January 1, 2018, including date completed (include document No., title, date completed). If the result is zero, or minimal, please provide a list of modifications on the same population of valves, looking back an additional 5 years.
10. List of POVs removed from the In-Service Test program since January 1, 2018.
11. Any self-assessments or quality assurance type assessments of the MOV and AOV programs (performed since January 1, 2018). If none, please provide the most recent version.
12. Most recent POV (e.g., MOV, AOV, SOV) program health report(s).
13. List and electronic copy of all Emergency Operating Procedures.
14. List of Abnormal Operating Procedures.
15. Identify and provide 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 (EPRI/JOG, etc.) to which the station has committed with respect to POV capability and testing.
16. Identify which of the valves listed in items #17 and #18 (below) are located in harsh environment areas and subject to Environmental Qualification (EQ) requirements.

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17. For each of the MOVs listed on pages 5 and 6, please provide the information listed in the table below.

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 (RAW, Birnbaum, FV, etc)
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	<i>Basis for Design-Basis Capability:</i>
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)
<i>*Specify Not Applicable (NA) as appropriate</i>	

DOCUMENT REQUEST FOR DESIGN BASES ASSURANCE INSPECTION

18. For each of the AOVs/SOVs/HOVs listed on pages 5 and 6, please provide the information listed in the table below.

Item	Parameter/Information*
1	AOV/SOV/HOV 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	<i>Basis for Design-Basis Capability:</i>
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)
<i>*Specify Not Applicable (NA) as appropriate</i>	

DOCUMENT REQUEST FOR DESIGN BASES ASSURANCE INSPECTION

PLANT	SYS	ID	POV
Nine Mile Point 1	Liquid Poison - #11 SQUIB	EV-42-35	Squib
Nine Mile Point 1	Main Steam System - INBOARD IV	IV-01-01	MOV
Nine Mile Point 1	Combustible Gas Control System - DW V&P INBOARD IV	IV-201-32	AOV
Nine Mile Point 1	Feedwater System - INBOARD IV	IV-31-07	MOV
Nine Mile Point 1	Reactor Water Cleanup System - RETURN INBOARD IV	IV-33-01R	MOV
Nine Mile Point 1	Emergency Cooling System - OUTBOARD IV	IV-39-06	AOV
Nine Mile Point 1	Emergency Cooling System - INBOARD IV	IV-39-07R	MOV
Nine Mile Point 1	Emergency Cooling System - OUTBOARD IV	IV-39-09R	MOV
Nine Mile Point 1	Core Spray - INBOARD IV	IV-40-01	MOV
Nine Mile Point 1	Control Rod Drive System - SDV DRAIN OUTBOARD IV	IV-44.2-17	AOV
Nine Mile Point 1	Containment Spray - SUCTION IV	IV-80-01	MOV
Nine Mile Point 1	Containment Spray - INLET OUTBOARD IV	IV-80-15	AOV
Nine Mile Point 1	Containment Spray - SUCTION IV	IV-80-21	MOV
Nine Mile Point 1	Waste Disposal System - DWEDT INBOARD IV	IV-83.1-09	MOV
Nine Mile Point 1	Automatic Depressurization System - (PSV-A) ADS-3	PSV-01-102A	SOV

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PLANT	SYS	ID	POV
Nine Mile Point 2	Reactor Building Closed Loop Cooling - RCS Pump A Cooling Water Return	2CCP*MOV15A	MOV
Nine Mile Point 2	Containment Atmosphere Monitoring - CMS from Suppression Chamber to H2O2 Analyzer	2CMS*SOV26C	SOV
Nine Mile Point 2	Primary Containment Purge System - Suppression Chamber Vent - Exhaust	2CPS*AOV109	AOV
Nine Mile Point 2	High Pressure Core Spray - HPCS Injection Valve	2CSH*MOV107	MOV
Nine Mile Point 2	Low Pressure Core Spray - LPCS Injection Valve	2CSL*MOV104	MOV
Nine Mile Point 2	Drywell Floor Drains - DWFD Tank Line	2DFR*MOV120	MOV
Nine Mile Point 2	Reactor Core Isolation Cooling - RCIC Turbine Steam Supply (F063); Outboard Isolation	2ICS*MOV121	MOV
Nine Mile Point 2	Main Steam System - Main Steam Isolation Valve; Inboard Isolation	2MSS*AOV6D	AOV
Nine Mile Point 2	Main Steam System - Main Steam Isolation Valve; Outboard Isolation	2MSS*AOV7D	AOV
Nine Mile Point 2	Residual Heat Removal - Shutdown Cooling Supply; PIV	2RHS*MOV113	MOV
Nine Mile Point 2	Residual Heat Removal - Containment Spray to Drywell; Outboard Isolation	2RHS*MOV15A	MOV
Nine Mile Point 2	Spent Fuel Pool Cooling - SFC Pump 1A Discharge Inter-Connection Valve	2SFC*HV18A	AOV
Nine Mile Point 2	Service Water System - SWP To RHR Pumps 2RHS*P1B, C Seal Cooler	2SWP*AOV20B	AOV
Nine Mile Point 2	Service Water System - SWP From Diesel Generator Cooler, EG1	2SWP*MOV66A	MOV
Nine Mile Point 2	Reactor Water Cleanup System - RWCU Return to FWS; Outboard Isolation	2WCS*MOV200	MOV