



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION III
2443 WARRENVILLE ROAD, SUITE 210
LISLE, ILLINOIS 60532-4352

February 9, 2022

Mr. Michael Strope
Site Vice President
NextEra Energy Point Beach, LLC
6610 Nuclear Road
Two Rivers, WI 54241-9516

SUBJECT: POINT BEACH NUCLEAR PLANT – DESIGN BASIS ASSURANCE
INSPECTION (PROGRAMS) INSPECTION REPORT 05000266/2022010 AND
05000301/2022010

Dear Mr. Strope:

On February 3, 2022, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Point Beach Nuclear Plant and discussed the results of this inspection with Mr. M. Holzmann, Site Operations Director and other members of your staff. The results of this inspection are documented in the enclosed report.

No findings or violations of more than minor significance were identified during this inspection.

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 Title 10 of the *Code of Federal Regulations* 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

A handwritten signature in cursive script, reading "Karla Stodter", is positioned below the word "Sincerely,".

Signed by Stodter, Karla
on 02/09/22

Karla K. Stodter, Chief
Engineering Branch 2
Division of Reactor Safety

Docket Nos. 05000266 and 05000301
License Nos. DPR-24 and DPR-27

Enclosure:
As stated

cc w/ encl: Distribution via LISTSERV®

Letter to Michael Strobe from Karla K. Stoedter dated February 9, 2022.

SUBJECT: POINT BEACH NUCLEAR PLANT – DESIGN BASIS ASSURANCE
INSPECTION (PROGRAMS) INSPECTION REPORT 05000266/2022010 AND
05000301/2022010

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U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report

Docket Numbers: 05000266 and 05000301

License Numbers: DPR-24 and DPR-27

Report Numbers: 05000266/2022010 and 05000301/2022010

Enterprise Identifier: I-2022-010-0017

Licensee: Nextera Energy Point Beach, LLC

Facility: Point Beach Nuclear Plant

Location: Two Rivers, WI

Inspection Dates: January 10, 2022 to February 03, 2022

Inspectors: K. Barclay, Reactor Inspector
J. Benjamin, Senior Reactor Inspector
B. Jose, Senior Reactor Inspector

Approved By: Karla K. Stoedter, Chief
Engineering Branch 2
Division of Reactor Safety

Enclosure

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting a design basis assurance inspection (programs) inspection at Point Beach Nuclear Plant, 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.

List of Findings and Violations

No findings or violations of more than minor significance were identified.

Additional Tracking Items

| Type | Issue Number | Title | Report Section | Status |
|------|----------------------------------|--------------------------------------------------------------------------------------------------------|----------------|--------|
| URI | 05000266,05000301/ 2022010-01 | Potential Inadequate Basis/Justification for Motor-Operated Valve Rate-of-Loading Assumptions | 71111.21N.02 | Open |

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.02 - Design-Basis Capability of Power-Operated Valves Under 10 CFR 50.55a Requirements

POV Review (IP Section 03) (8 Samples)

The inspectors:

- a. Determined whether the sampled power operated valves (POVs) are being tested and maintained in accordance with NRC regulations along with the licensee's commitments and/or licensing bases.
 - b. Determined whether the sampled POVs are capable of performing their design-basis functions.
 - c. Determined whether testing of the sampled POVs is adequate to demonstrate the capability of the POVs to perform their safety functions under design-basis conditions.
 - d. Evaluated maintenance activities including a walkdown of the sampled POVs (if accessible).
-
- (1) 1SI-00866B; Safety Injection (SI) Pump 1P-15 Discharge to Reactor Coolant System (RCS) Cold Leg Motor Operated Valve (MOV)
 - (2) 1SI-00851A; Residual Heat Removal (RHR) Pump P-10A Suction from Containment Sump B MOV
 - (3) 2SI-00850A; Unit 2 RHR Pump 10A Suction from Containment Sump B Hydraulically Operated Valve (HOV)
 - (4) 2AF-04002; Turbine Driven Auxiliary Feedwater (TDAFW) Pump 2P-29 Recirculation Flow Control Air Operated Valve (AOV)
 - (5) 1AF-04000; AFW Pump 1P-29 Discharge to Steam Generator 1B, Heat Exchanger Inlet Isolation MOV
 - (6) 2RC-00430; T-1 Pressurizer Power Operated Relief AOV
 - (7) 2SI-00860A; Unit 2 Containment Spray Pump P-14A Discharge MOV
 - (8) 2SI-00852B; Unit 2 Low Head SI Core Deluge Isolation MOV

INSPECTION RESULTS

| | | |
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| Unresolved Item (Open) | Potential Inadequate Basis/Justification for Motor-Operated Valve Rate-of-Loading Assumptions URI 05000266,05000301/2022010-01 | 71111.21 N.02 |
| <p><u>Description:</u></p> <p>During the inspection of MOV 1AF-4000, a discharge valve associated with the 1P-29 turbine-driven auxiliary feedwater pump, an Unresolved Item was identified.</p> <p>During the review of calculation 2003-0014, "MOV Operating Parameters," the inspectors found the rate of loading (ROL) value assigned to valve 1AF-4000 was zero. The inspectors questioned the low ROL value and reviewed the supporting reference, licensee internal correspondence PBM 92-1200, "Rate of Loading/Stem-To-Stem Nut Coefficient of Friction," dated October 7, 1992. The inspectors and NRC MOV subject matter experts from the Office of Nuclear Reactor Regulation found the licensee's methodology for incorporating the ROL effects into their MOV program was not consistent with existing industry methods.</p> <p>A review of correspondence between the NRC and the licensee found that the Agency's concern with ensuring proper validation of the ROL methodology dated back to the inspection and closeout of NRC Generic Letter (GL) 89-10, "Safety-Related Motor-Operated Valve Testing and Surveillance," and GL 96-05, "Periodic Verification of Design-Basis Capability of Safety-Related Motor-Operated Valves."</p> <p>NRC Inspection Report 50-266/95007 (DRS); 50-301/95007 (DRS), dated July 13, 1995, which inspected the licensee's response to GL 89-10, stated, "The licensee developed a method to predict the effects of rate of loading for valves without a dynamic test; however, in-plant test data was inconclusive to fully support the method. Based on dp [differential pressure] test results, the method used plots taken during static testing which correlated torque from the stem thrust versus spring pack deflection. The inspectors encouraged the licensee to continue their research but were concerned with the inconclusive data from the valves that had been tested and the lack of data used to verify the method. The licensee committed to continue to compile data from periodic verification tests, both static and dynamic, to validate the rate of loading assumptions and prediction methodology."</p> <p>On March 17, 1997, the licensee submitted a letter titled, "Response to NRC Generic Letter 96-05 Periodic Verification of Design-Basis Capability of Safety-Related Motor-Operated Valves," to the NRC. This letter stated, in part, "NRC Inspection Reports 50-266/95007 (DRS) and 50-301/95007 (DRS), dated July 13, 1995, document our commitments in response to the GL 89-10 closeout inspection items. As documented in this report, the following commitments were made and will be completed within five years of that inspection report:", "3. We will collect and trend further static and dynamic periodic results to validate the valve factor study and rate of loading assumptions and prediction methodology."</p> <p>NRC Inspection Reports 50-266/99012 (DRS) and 50-301/99012 (DRS), dated July 14, 1999, which inspected the licensee's response to GL 96-05, stated, "The inspectors reviewed the status of the long-term MOV actions planned following completion of GL 89-10 close-out inspection. In particular, the licensee had not completed the overall review of the assumptions for valve factor and load sensitive behavior because of the limited progress made in performing dynamic testing as part of the long-term MOV program." The report stated further, "With respect to the long-term GL 89-10 issues, the licensee had not adhered to its efforts to</p> | | |

implement planned dynamic tests, to perform an overall evaluation of program assumptions for valve factor or load sensitive behavior, or to perform qualitative and quantitative trending of MOV performance.”

The inspectors requested the information and data used to validate the ROL assumptions and prediction methodology. The licensee found historical MOV program trend reports that stated there were no valves identified that exhibited rate-of-loading effects; however, the licensee was unable to locate formal documentation detailing the methods used to make these determinations or details of the test data evaluations that validated the rate-of-loading assumptions and predication methodology.

Planned Closure Actions: The inspectors need to review the data, methodology and results of the licensee's rate-of-loading study to determine if assigning a ROL value of zero is appropriate and whether a performance deficiency exists.

Licensee Actions: The licensee entered the issue into their Corrective Action Program (CAP) and created an initial corrective action to perform a Rate-of-Loading (ROL) study to document the basis for the ROL assumptions in calculation 2003-0014. Additionally, the licensee applied an MOV margin penalty to support a reasonable assurance of operability while the ROL study is being performed.

Corrective Action References: AR 2417688; 2022 POV Inspection - Calc 2003-0014 RE. MOV Rate of Loading

EXIT MEETINGS AND DEBRIEFS

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

- On February 3, 2022, the inspectors presented the design basis assurance inspection (programs) inspection results to Mr. M. Holzmann, Site Operations Director and other members of the licensee staff.

DOCUMENTS REVIEWED

| Inspection Procedure | Type | Designation | Description or Title | Revision or Date |
|----------------------|-------------------------------------------------------|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|------------------|
| 71111.21N.02 | Calculations | 01109-C-005 | Auxiliary Feedwater (AFW) Air Operated Valve (AOV) Functional and Maximum Expected Differential Pressure (MEDP) Calculation | 1 |
| | | 01109-C-018 | AOV Component Level Calculation; 0AF-04007, 0AF-04014, 1AF-04002, and 2AF-04002 | 1 |
| | | 2001-0056 | Turbine Driven Auxiliary Feedwater Pump (TDAFP) Mini-Recirculation Valve (1/2AF-4002) Instrument Air Accumulator Sizing | 5 |
| | | 2003-0014 | Motor Operated Valve (MOV) Operating Parameters, Group 15 | 8 |
| | | 2004-0002 | Alternating Current (AC) Electrical System Analysis | 6 |
| | | 97-0041 | Functional Times for Emergency Safeguards Equipment to Be Used in Point Beach Accident Analysis | 3 |
| | | N-93-086 | 1 (2) AF-4000, AF-4001 (Group 30) MOV Differential Pressure Calculation | 0 & 0A |
| | | N-94-019 | Determination of Conditions for MOV Pressure Locking and Thermal Binding | 04/13/1994 |
| | | P-89-031 | Voltage Drop Across MOV Power Lines | 13 |
| | | P-90-017 | MOV Undervoltage Stem Thrust and Torque | 23 |
| | | P-94-004 | MOV Thermal Overload Evaluation | 14 |
| | | P-94-004; EC 294777 Pending Change A | MOV Overload Heater Evaluation | 14 |
| | | P-94-005 | Motor Stem Thrust Calculation | 11 |
| | | Powell 01-12-1988 | Maximum Thrust Calculations - Point Beach Nuclear Plant (Wisconsin Electric) | 01/12/1988 |
| | Corrective Action Documents | AR 2231511 | 1SI866B Overthrust Event | 11/17/2017 |
| | Corrective Action Documents Resulting from Inspection | AR 2416029 | Alarm Response Book (ARB) for 2RC-0430, Low Temperature Over Pressure (LTOP) Defined Incorrectly | 01/13/2022 |
| | | AR 2416280 | Calculation P-94-005, Use of Torque Reaction Factor Inversed | 01/17/2022 |

| Inspection Procedure | Type | Designation | Description or Title | Revision or Date |
|----------------------|----------|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| | | AR 2416353 | 1SI-866B 2017 as Left Test Review, as Left Close Thrust Below Minimum Required and No Evaluation Performed | 01/18/2022 |
| | | AR 2416888 | The Work Plan for Work Order 4072625-03 Step 5 Directs Performer to Circle the PMT Done of Two Listed and None Circled | 01/24/2022 |
| | | AR 2416904 | Work Order Documentation for 1AF-04000; RMP9376-2 for 03/09/2010 Recorded 180 Foot Pounds for Mounting Bolts Instead of 88 Foot Pounds | 01/24/2022 |
| | | AR 2416916 | MOV Design Basis Review of Valve Family 30 Shows Medium Risk Vs. Actual Low Risk | 01/24/2022 |
| | | AR 2416967 | Drawing Discrepancy; Stem Speed for 1/2AF-04000 Shown as 4.21 Inches/Minute Vs 7.375 Inches/Minute | 01/25/2022 |
| | | AR 2416984 | Training Work Request Written Against Operations Procedure OM 3.20 to Remind Operators that 24 Demand Valves Have No Seal-In Contacts, Therefore Hold the Control Switch until Full Open/Close | 01/25/2022 |
| | | AR 2416997 | Model Number for New Solenoid 2AF-4002-S Not Updated in Component Database | 01/25/2022 |
| | | AR 2417022 | Criterion Error in MOV Test Software | 01/25/2022 |
| | | AR 2417028 | Air Operated Valve (AOV) Trending Spread Sheet Error, Close Thrust for AOV 2AF-04002 Listed as 4180 Pounds Vs 4039 Pounds | 01/25/2022 |
| | | AR 2417137 | Validate 2AF-04002 Spring Parameters | 01/26/2022 |
| | | AR 2417139 | No Evaluation for 2011 and 2017 AOV Test Spring Rate Found Below Acceptance Criteria | 01/26/2022 |
| | | AR 2417419 | Documentation Provided to NRC in Request for Information 1.17 for 1AF-4000 Was Medium Risk Vs Actual Low Risk | 01/28/2022 |
| | | AR 2417688 | 2022 Power Operated Valve (POV) Inspection, Calculation 2003-0014 MOV Rate of Loading | 02/01/2022 |
| | Drawings | 499B466 Sheet 1801 | Elementary Wiring Diagram Turbine Driven Auxiliary Feedwater Pump Discharge 1AF-4000 | 0 |
| | | 499B466 Sheet 868 | Elementary Wiring Diagram Steam to TDAFP 2MS2020 | 24 |

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|----------------------|-------------------------|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| | | 499B466 Sheet 869 | Elementary Wiring Diagram Turbine Driven Auxiliary Feedwater Pump Mini Recirculation Control Valve 2AF-4002 | 14 |
| | | M-217 Sheet 1 | Piping & Instrumentation Diagram (P&ID) Auxiliary Feedwater System | 107 |
| | | WM Powell Sheet 035115 | FIG 19051WE 3" - 900 Pound "Y" Globe Valve | 02/26/1968 |
| | Engineering Changes | EC 11683 | Modification for Flow Control to Prevent Residual Heat Removal (RHR) Pump Excessive Flow with Containment Spray Aligned during Recirculation Phase | 3 |
| | | EC 292094 | Replace 1(2) DPIS-4002, DPIS-4007, DPIS-4014 Differential Pressure Indicator Switches | 5 |
| | Engineering Evaluations | EQCK-LIMIT-001 | Environmental Qualification (EQ) Assessment of Limitorque SMB Valve Actuators with H/RH Motor Insulation | 4 |
| | | PE 433789 | Item Equivalency Evaluation; ASCO Valve Part Number NPEF8300141EF | 0 |
| | Miscellaneous | | AOV Margin Review Worksheet; 2AF-04002; Last Valve Test Data: March 31, 2017 | 0 & 1 |
| | | | NRC Request for Information 1.17: Point Beach Power Operated Valve (POV) Data Submittal | |
| | | 01108-TR-003 | Nuclear Management Company Air Operated Valve Program Calculation Guideline | 1 |
| | | AR 1901191 | Operating Experience Evaluation Form; NRC Information Notice 2013-14: Potential Design Deficiency in Motor-Operated Valve Control Circuitry | 10/11/2013 |
| | | Group 30 AF-4000 | Individual MOV Periodic Verification Report | 06/06/2007 |
| | | IST Appendix B | Inservice Testing Program Valve Relief Requests | 2 |
| | | IST Appendix F | Inservice Testing Program Technical Positions | 12 |
| | | IST Program Document | Point Beach Nuclear Plant (PBNP) Inservice Testing Program 5th Interval | 9 |
| | | IST Program Table - AF | Inservice Testing Program Table - AF | 8 |

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|----------------------|------------|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| | | NRC-92-085 | Letter from Wisconsin Electric Power Company to U.S. NRC; Dockets 50-266 and 50-301 In-Service Testing Pump and Valve Program Third 10-Year Program Safety Evaluation Report Point Beach Nuclear Plant, Units 1 and 2 | 07/30/1992 |
| | | PBM 92-1200 | Rate of Loading / Stem-To-Stem Nut Coefficient of Friction Evaluation | 10/07/1992 |
| | | Specification 6118-M-91 | Motor Operated Valves | 2 |
| | Procedures | 2-PT-AF-3 | 2P-29 Turbine-Driven AFW Pump Backup Air System Pressure Decay Test (Refueling) Unit 2 | 12 |
| | | ARB 2C042C4-11 | ARB, 2RC-0430 or 0431C Pressurizer Power Operated Relief Valve (PORV) Not Shut | 5 |
| | | CMP 2.2 | Motor Operated Valves | 9 |
| | | CMP 2.2.1 | Determination of the Set-Up Parameters for Motor Operators | 2 |
| | | CMP 2.2.16 | Joint Owners Group (JOG) Periodic Verification (PV) Classification | 1 |
| | | CMP 2.2.2 | Design Basis Review of Valves Driven by Motor Operators | 2 |
| | | CMP 2.2.6 | Analysis of Test Signatures Taken during Differential Pressure (DP) Test | 2 |
| | | CMP 2.2.8.18 | MOV Design Basis Review for Valve Family 18 | 4 |
| | | CMP 2.2.8.30 | MOV Design Basis Review for Valve Family 30 | 5 |
| | | CMP 2.2.9 | MOV Overthrust/Overtorque Review Guidance | 0 |
| | | CMP 2.5 | Point Beach Nuclear Plant AOV Program Document | 5 |
| | | CMP 2.5.1 | Point Beach AOV Scoping Methodology | 2 |
| | | CMP 2.5.2 | Setup Parameters for Air Operated Valves | 2 |
| | | CMP 2.5.2.1 | Setup Parameters for Category 1 Air Operated Valves | 15 |
| | | EC 13398 | Repower Valves for TDAFW PUMP 1P-29 | 0 |
| | | ER-AA-100 | Air Operated Valve Program | 4 |
| | | ER-AA-100-1000 | Air Operated Valve Program Implementation | 0 |
| | | ER-AA-100-1001 | AOV Design Basis Review | 3 |
| | | ER-AA-103 | In-Service Test (IST) Program | 3 |
| | | IT 08A | Cold Start of Turbine-Driven Auxiliary Feedwater Pump | 86 |

| Inspection Procedure | Type | Designation | Description or Title | Revision or Date |
|----------------------|-------------|----------------|-----------------------------------------------------------------------------------------|------------------|
| | | | and Valve Test (Quarterly) Unit 1 | |
| | | IT 09A | Cold Start of Turbine-Driven Auxiliary Feedwater Pump and Valve Test (Quarterly) Unit 2 | 77 |
| | | MA-AA-100-1014 | Limatorque MOV Testing and Actuator Inspections | 6 |
| | | MA-AA-100-1021 | Motor Operated Valve Stem Lube and Actuator Gearbox Grease Inspection | 1 |
| | | OI 128 | Safety Injection (SI) System Fill and Vent Unit 1 | 21 |
| | | OM 3.20 | MOV/AOV/Manual Valve Operating Requirements | 19 |
| | | RMP 9141 | Air-Operated Valve Testing and Adjustment | 19 |
| | Work Orders | 00219460 03 | SI-00850-0 Inspection/Rebuild | 10/10/2006 |
| | | 366848 | MOV Actuator Check-Out | 03/28/2010 |
| | | 366848 | RMP 9376-2 Limatorque MOV Static/DP Testing for Gate and Globe Valves | 03/09/2010 |
| | | 383027 01 | MCTW-141 Calibration | 08/24/2010 |
| | | 389729 | 2AF-04002-O / Replace Actuator Base Capscrews | 06/17/2011 |
| | | 40208015 | 2AF-4002-S - Replace Solenoid Valve | 04/05/2014 |
| | | 40253633 | 1AF-04000-O – Valve Stem Clean & Lubricate | 10/19/2014 |
| | | 40418959 | 2AF-04002 / Minor Air Leak Around Diaphragm | 05/10/2017 |
| | | 40453229 | 2AF-4002-O – Diagnostic Check | 04/20/2017 |
| | | 40543620 | Diagnostic Test Valve 2SI-00852B | 10/15/2018 |
| | | 40543723 | 2SI-00852B; Stem Lube and Actuator Gear Box Grease Replacement | 01/24/2019 |
| | | 40573109 | 1AF-04000-O – MOV Actuator Check-Out | 04/26/2019 |
| | | 40573109 02 | 1AF-04000-O / OPS RTS-PMT | 04/11/2019 |
| | | 40573198 | 1AF-04000-O / Stem Lube & Actuator Gearbox Grease | 04/11/2019 |
| | | 40644388 | 2RC-00430 - Rebuild Valve Actuator | 04/30/2020 |
| | | 40693383 01 | 1AF-04000-O; Clean and Inspect Torque Switch Contacts | 10/18/2020 |
| | | 40693383 02 | 1AF-04000-O: OPS RTS-PMT | 10/19/2020 |
| | | 40706080 | 1AF-04002-O/Replace Air Supply Hose | 05/26/2020 |
| | | 40726250 | 2AF-4002-S – Replace Solenoid Valve | 10/13/2021 |
| | | 40726905 | 2SI-00860A MOV Actuator Diagnostics and Inspections | 10/31/2021 |
| | | 40726906 | 2SI-00860A MOV Stem Lube and Gear Box Grease Inspections | 11/30/2021 |

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|----------------------|------|----------------|----------------------------------------------------------------------------------------------------------|------------------|
| | | 9925456-001 | Perform Actuator Refurbishment Every 15 Years per Environmental Qualification Maintenance Request (EQMR) | 11/09/2000 |
| | | WO 00354830 | 1SI-0086B Repack Valve | 09/15/2018 |
| | | WO 0215178 | SI-00851A MOV Actuator Checkout | 04/01/2004 |
| | | WO 0387601 | 1SI-00866B Valve Stem Clean and Lube | 02/11/2013 |
| | | WO 40472723 03 | SI-00866B-O Actuator Checkout - Inspection and Test | 10/07/2017 |
| | | WO 9948609 | MOV Actuator Checkout | 10/01/2002 |