



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

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

May 3, 2021

Mr. Peter Dietrich
Senior VP and Chief Nuclear Officer
DTE Electric Company
Fermi 2 – 260 TAC
6400 North Dixie Highway
Newport, MI 48166

SUBJECT: FERMI POWER PLANT, UNIT 2 – DESIGN BASIS ASSURANCE INSPECTION
(PROGRAMS) INSPECTION REPORT 05000341/2021010

Dear Mr. Dietrich:

On March 19, 2021, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Fermi Power Plant, Unit 2 and discussed the results of this inspection with Eric Olsen, Site Vice President 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,

/RA/

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

Docket No. 05000341
License No. NPF-43

Enclosure:
As stated

cc w/ encl: Distribution via LISTSERV®

Letter to Peter Dietrich from Karla K. Stoedter dated May 3, 2021.

SUBJECT: FERMI POWER PLANT, UNIT 2 – DESIGN BASIS ASSURANCE INSPECTION
(PROGRAMS) INSPECTION REPORT 05000341/2021010

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| DATE | 04/30/2021 | 05/03/2021 | | | |

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

Docket Number: 05000341

License Number: NPF-43

Report Number: 05000341/2021010

Enterprise Identifier: I-2021-010-0012

Licensee: DTE Electric Company

Facility: Fermi Power Plant, Unit 2

Location: Newport, MI

Inspection Dates: January 11, 2021 to March 19, 2021

Inspectors: M. Farnan, Mechanical Engineer
B. Jose, Senior Reactor Inspector
E. Sanchez Santiago, Senior Reactor Inspector

Approved By: Karla K. Stodter, 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 Fermi Power Plant, Unit 2, 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

None.

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.

Starting on March 20, 2020, in response to the National Emergency declared by the President of the United States on the public health risks of the Coronavirus Disease (COVID-19), regional inspectors were directed to begin telework. During this time regional baseline inspections were evaluated to determine if all or portions of the objectives and requirements stated in the IP could be performed remotely. In some cases, portions of an IP were completed remotely and on-site. For the inspection documented below it was determined that the objectives and requirements stated in the IP could be completed remotely.

REACTOR SAFETY

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

POV Review (IP Section 03) (9 Samples)

The inspectors:

- a. Determined whether the sampled 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. Evaluate maintenance activities including a walkdown of the sampled POVs (if accessible).
-
- (1) C4104F004A; Standby Liquid Control Explosive Valve
 - (2) E4150F006; High Pressure Coolant Injection Main Pump Outlet Valve
 - (3) E5150F013; Reactor Core Isolation Cooling Pump Supply to Feed Water Header Isolation Valve
 - (4) E4150F012; High Pressure Core Spray Main Pump Minimum Flow to Suppression Chamber Isolation Valve
 - (5) G3352F001; Reactor Water Cleanup Reactor Vessel Primary Containment Drain Line Recirculation Valve
 - (6) T2300F409; Primary Containment Suppression Chamber Reactor Building Vacuum Breaker Valve
 - (7) P4400F603A; Division 1 Reactor Building Component Cooling Water Supply Isolation Valve
 - (8) E2150F005A; Division 1 Core Spray Inboard Isolation Valve

(9) B2103F022A; Main Steam Line "A" Inboard Primary Containment Isolation Valve

INSPECTION RESULTS

No findings were identified.

EXIT MEETINGS AND DEBRIEFS

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

- On March 19, 2021, the inspectors presented the design basis assurance inspection (programs) inspection results to Eric Olsen, Site Vice President and other members of the licensee staff.

DOCUMENTS REVIEWED

| Inspection Procedure | Type | Designation | Description or Title | Revision or Date |
|----------------------|-----------------------------|---------------|---|------------------|
| 71111.21N.02 | Calculations | 021 014 AW1 | DSN. 021 014 AW1/DC-5719 Vol I / DC-6083 Vol I / TSR-37565 | 8 |
| | | 455597 | Reevaluation of Thrust Capacities for Powell Valves | 09/14/1994 |
| | | 729190 | Survivable Thrust Capacities for Powell Valves | 08/30/1994 |
| | | A31-00 | Gate and Globe Valve Efficiency Chart | I |
| | | DC-5040 | MOV Torque Switch Setting Calculation Input | B |
| | | DC-5401 | Maximum Expected Differential Pressure for Valves E2150F005A and E2150F005B | 0 |
| | | DC-5405 | Third Party Review for Thrust Capabilities of Wm Powell Co. MOVs | I |
| | | DC-5719 | Minimum Required Target Thrust (MRTT) for Generic Letter 89-10 Gate, Globe and Quarter-turn Valves (Torque) | W |
| | | DC-5812 | Evaluation of Thrust Requirements for E4150F7004 Using the EPRI MOV Methods | 0 |
| | | DC-5814 | Evaluation of Thrust Requirements for E4150F042 Using the EPRI MOV Methods | 0 |
| | | DC-5817 | Evaluation of Thrust Requirements for G3352F001 and G3352F004 Using the EPRI MOV Methods | 0 |
| | | DC-6397 | MOV Terminal Voltage Calculation Results | D |
| | | DE-FR-004 | MOV Weak Link Allowable Thrust for Continuous Operation | 00 |
| | | DE-M-001 | MOV - P4400F603A Allowable Thrust | 0 |
| | Corrective Action Documents | CARD 01-16089 | Actuator Allowable Torque Values Exceeded During WR 870940929 | 06/28/2001 |
| | | CARD 15-23250 | PILAR for AOV Actuator Maintenance | 05/06/2015 |
| | | CARD 15-24958 | Non-Training Solutions Identified for AOV Actuator Maintenance | 07/17/2015 |
| | | CARD 16-22049 | Lessons Learned for Troubleshooting Efforts | 03/04/2016 |
| | | CARD 16-26535 | 2016 CDBI: Potential Discrepancies with EDG LOP/LOCA Acceptance Criteria and R3000 System Monitoring Plan | 08/17/2016 |
| | | CARD 16-26536 | 2016 CDBI: EDG12 and EDG14 LOP/LOCA Minimum | 08/17/2016 |

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|----------------------|---|----------------|---|------------------|
| | | | Voltage Values Do Not Meet Reg Guide 1.9 Criteria | |
| | | CARD 18-28164 | Cracking Visually Observed on Squib Valve A Wiring Harness | 10/11/2018 |
| | | CARD 18-303308 | P4400F603A Negative Analytical Torque Margin under Design Conditions per DC-5719 Vol 1 | 12/21/2018 |
| | | CARD 19-23863 | 2019 DBAI: Margin Issues with AC Motor Operated Valves | 05/20/2019 |
| | | CARD 19-23915 | 2019 DBAI: Methodology Error Found in MOV Torque Calculation | 05/21/2019 |
| | | CARD 19-23915 | 2019 DBAI: Methodology Error Found in MOV Torque Calculation | 05/21/2019 |
| | | CARD 20-22360 | P4400F603A Did Not Stroke Closed | 03/03/2020 |
| | | CARD 20-23884 | E2150F005A - Update CECO for Maximum TSS | 04/05/2020 |
| | | CARD 20-25272 | SLC Squib Primer Service Life Will Expire Prior to RF22 (Fall 2023) | 04/27/2020 |
| | | CARD 20-33247 | P4400F606A Negative Analytical MOV Torque Margin | 12/29/2020 |
| | Corrective Action Documents Resulting from Inspection | CARD 21-20233 | Squib Valve B Qualified Life Will Expire before RF21 | 01/07/2021 |
| | | CARD 21-20235 | MOV Stall Times during Large LOCA Motor Starts on EDGs Not Addressed in a Calculation | 01/07/2021 |
| | | CARD 21-20407 | 2021 NRC DBA-POV Inspection - MGA11-100 Process Improvement Needed | 01/13/2021 |
| | | CARD 21-20408 | 2021 NRC DBA-POV Inspection - NRC Identified - Conservative E4150F012 Design Temp in MPR Calc. 021 014 AW1 | 01/13/2021 |
| | | CARD 21-20410 | 2021 NRC DBA-POV Inspection - TSR-36713 Torque Values for G3352F001 Hex Head Hub | 01/13/2021 |
| | | CARD 21-20412 | 2021 NRC DBA-POV Inspection - Conservative Calculated Actuator Torque Capacity (Open) for E4150F012 Identified in DC-5719 Vol 1 | 01/13/2021 |
| | | CARD 21-20413 | 2021 NRC DBA-POV Inspection - NRC Identified - E4150F012 Overall Gear Ration Discrepancy in MPR Calculation 021 014 AW1 | 01/13/2021 |
| | | CARD 21-20489 | 2021 NRC DBA-POV Inspection - NRC Identified - Process Discrepancy Between Measured Packing Loads and Updates to CECO and MPR Calculation 021 014 | 01/15/2021 |

| Inspection Procedure | Type | Designation | Description or Title | Revision or Date |
|----------------------|-------------------------|---------------|---|------------------|
| | | | AW1 | |
| | | CARD 21-20756 | 2021 NRC DBA-POV Inspection - NRC Identified - Minor Conservative Discrepancy in E2150F005A Post-Test Analysis | 01/26/2021 |
| | | CARD 21-20778 | 2021 NRC DBA-POV Inspection - Update DC-5719 Vol 1 Max Open/Close TSS for E2150F005A | 01/27/2021 |
| | | CARD 21-20796 | 2021 NRC DBA POV Inspection - NRC Identified - Update DC-5405 Vol 1 Document Interface Summary and Section 2.0 Summary of Results and Conclusion Table for E2150F005A | 01/27/2021 |
| | | CARD 21-20816 | 2021 NRC DBA-POV Inspection - NRC Identified - Revise DSN: MOV JOG Classification for E4150F004, E4150F041, and E4150F042 | 01/27/2021 |
| | | CARD 21-20889 | 2021 NRC DBA-POV Inspection - NRC Identified - Revise PEP03 for Clarity Regarding Long Torque Switch Bypass | 01/29/2021 |
| | | CARD 21-20890 | 2021 NRC DBA-POV Inspection - NRC Identified - Revise MOP01 for Guidance on Manually Stroking Quarter Turn MOVs | 01/29/2021 |
| | | CARD 21-20894 | 2021 NRC DBA-POV Inspection - Evaluate Vendor Manual Maintenance Recommendations for Jamesbury Butterfly Valves | 01/29/2021 |
| | | CARD 21-21112 | 2021 NRC DBA-POV Inspection - NRC Observation - Document Quality | 02/05/2021 |
| | | CARD 21-21130 | 2021 NRC DBA-POV Inspection - NRC Observation - Procedure Clarity | 02/05/2021 |
| | | CARD 21-22456 | 2021 NRC DBA-POV Inspection - NRC Identified - G3352F001 Potential Green Non-Cited Violation | 03/18/2021 |
| | Drawings | 5M721-6038 | 12" - 900# OSY Gate Valve with Limitorque Operator | 0 |
| | | 61721-2131-01 | Schematic Diagram, SLC Pumps C4103C001A & B | K |
| | | 6M721-2082 | Piping and Instrumentation Diagram (P&ID), SLC System | AB |
| | Engineering Changes | EDP 27422 | Engineering Design Package (EDP) for Pressure Locking Mitigation for Valve E4150F006 | 0 |
| | Engineering Evaluations | Card 19-23915 | Methodology Error Found in MOV Torque Calculation White Paper | 2 and 3 |

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|----------------------|---|---|---|------------------|
| | | CARD 20-33247 | P4400F606A Negative Analytical MOV Torque Margin White Paper | 0 |
| | | D64061 | Design Analysis Report for 6", 900# Gate Valve with Limitorque SMB-0-25 Operator | 2 |
| | | EDP-26355 | Replacement of Valve B2103F016 | 0 |
| | | EDP-26858 | Actuator and Motor Change on Motor Operated Valve G3352F001 | B |
| | | TE-ANL-10-035 | Motor Operated Valve Risk Ranking for PSA Model Fermi V9 | A |
| | | TSR-3671 | Revise BCDDs for Removed Handwheel on Valve G3352F001 | 0 |
| | | TSR-36940 | Evaluate Valve Factor Impact on B2103F016 & F019 due to Change of Solid Wedge to a Flex Wedge | 0 |
| | Miscellaneous | TMIS-19-0030 | AOV Population for AOV Program Categorization Update | 10/03/2019 |
| | | TSR-27122 | Technical Service Request (TSR); Gearing Change for MOV E5150F013 | 0 |
| | | TSR-38303 | Technical Service Request Document for DC-5719 Vol 1 | 0 |
| | | TU 92-01 | Limitorque Technical Update: Thrust Rating Increase | 11/25/1991 |
| | | TU 98-01 | Technical Update 98-01 and Technical Update 98-01 Supplement 1 | 07/17/1998 |
| | | White Paper 125 | Installed Motor Capability Evaluation | 3 |
| | Procedures | 23.707 | Reactor Water Cleanup | 150 |
| | | 24.139.03 | Standby Liquid Control (SLC) Manual Initiation, Reactor Water Cleanup (RWCU) Isolation and Storage Tank Heater Operability Test | 47 |
| | | 24.202.05 | HPCI System Cold Shutdown Valve Operability Test | 48 |
| | | 29.ESP.05 | Emergency Support Procedure - Reactor Pressure Vessel (RPV) Injection Using SLC Test Tank | 7 |
| | | 35.139.002 | SLC System Explosive Valve Insert Replacement | 31 |
| | | 43.401.100 | Integrated Leak Rate Test - Type A - General | 33 |
| | | 43.401.200 | Local Leakage Rate Test Type B - General | 36 |
| | | 43.401.300 | Local Leakage Rate Test Type C - General | 55B |
| 43.401.303 | | Local Leakage Rate Testing for Penetration X-9A | 37 | |
| 43.401.510 | Local Leakage Rate Test, Purge, and Vent Valves | 28B | | |

| Inspection Procedure | Type | Designation | Description or Title | Revision or Date |
|----------------------|-------------|--------------------|---|--|
| | | 43.401.511 | Local Leakage Rate Test, Bypass Leakage Valves | 41B |
| | | 47.306.01 | Analysis of Motor Operated Valves | 42 |
| | | 47.306.01 | Springpack Correction Guidelines | N/A |
| | | 47.306.03 | MOV MCC Based Testing | 12 |
| | | 47.306.06 | MOV Diagnostic Testing with the Quiklook 3 System | 2 |
| | | MES15 | Design Calculations | 29 |
| | | MES28 | Leakage Reduction and Primary Containment Leakage Rate Programs | 22 |
| | | MOP01 | Conduct of Operations | 41 |
| | | MOP03 | Fermi Policy on Preconditioning | 40 |
| | | PEP03 | MOV Program Manual | 10 |
| | | ST-OP-315-0014-001 | Operations Training Procedure - Standby Liquid Control | 20 |
| | | TE-ANL-10-035 | Motor Operated Valve Risk Ranking | C |
| | | TRVEND | MOV JOG Classification | 3 |
| | | Shipping Records | 44240567 | Perform 24.203 Sec-5.1 CSS Cold Shutdown Valve Operability |
| | 57151446 | | Perform 24.203.04 Sec 5.1 Div 1 Core Spray Valve Operability and Position Verification Test | 07/08/2020 |
| | 57518249 | | Perform 24.137.03 Sec 5.2 & 5.4 MSIV Cold Shutdown Stroke Time Logic Functional | 07/22/2020 |
| | F337110100 | | Inspect/Test 480VAC MCC 72C-3A POS 7D | 09/14/2011 |
| | Work Orders | 34797737 | Perform MOV Thrust (Viper) Testing Per GL 96-05 Program G3352F001 | 07/19/2012 |
| | | 36245763 | Perform MOV Thrust Testing per GL 96-05 Program for E5150F013 Valve | 03/24/2014 |
| | | 36245806 | Perform MOV Thrust (Viper) Testing per GL 96-05 Program | 03/18/013 |
| | | 3672660 | Perform MOV Thermal O/L Test P4400F603A | 03/09/2015 |
| | | 37545524 | Final 43.401.303 LLRT for X-9A (Test 2: B2100F076A and E4150F006) | 10/21/2015 |
| | | 38117535 | Stem Nut Replacement for MOV E5150F013 | 02/05/2016 |
| | | 38117535 | Stem Nut Replacement for E5150F013 RF17 | 03/05/2014 |

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|----------------------|------|-------------|---|------------------|
| | | 38199743 | Perform RCIC Cold Shutdown Valve Operability Test | 03/27/2015 |
| | | 44151592 | Perform 24.20.04 SEC-5.3 Div 1 CSS Local Valve Position Indication Verification | 03/27/2017 |
| | | 47500473 | Perform RCIC Valve Position Indication Verification/Manual Initiate | 10/21/2018 |
| | | 47510367 | Perform 24.202.05 Section 5.2 & 5.3; HPCI Local Valve Position Indication Verification | 10/21/2018 |
| | | 47548208 | Final RCIC Pressure Isolation Valve Leakage Test E5150F013 | 04/13/2020 |
| | | 47548556 | Final 43.401.514; HPCI Pressure Isolation Valve Leakage Test - 1: E4150F006 | 05/24/2020 |
| | | 50349522 | Perform Mini Periodic MOV Inspection | 09/03/2019 |
| | | 52180413 | Final 43.401.500 LLRT for X-7A B2103F022A & F028A | 03/21/2020 |
| | | 53088670 | Perform MOV Thrust Testing (E2150-F005A) | 01/29/2019 |
| | | 56864247 | P4400F603A Division 1 EECW Supply Isolation Valve Did Not Stroke Close | 03/03/2020 |
| | | E394060100 | Perform MOV Thrust Testing per GL 96-05 Program G352F001 | 03/13/2006 |
| | | E439060100 | Perform MOV Thrust Testing per GL 96-05 Program for E4150F006, HPC I Main Pump Outlet Valve | 05/26/2010 |
| | | G202970107 | Perform MOV Thrust Verification Testing G3352F001 | 07/06/1998 |
| | | Q870080100 | Perform Maxi Periodic MOV Inspection and Diagnostic Strike Test | 12/16/2008 |