



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**  
REGION III  
2443 WARRENVILLE ROAD, SUITE 210  
LISLE, ILLINOIS 60532-4352

November 7, 2023

EA-23-091

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–INTEGRATED INSPECTION REPORT  
05000341/2023003 AND 07200071/2023001**

Dear Peter Dietrich:

On September 30, 2023, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Fermi Power Plant, Unit 2. On October 20, 2023, the NRC inspectors discussed the results of this inspection with you and other members of your staff. The results of this inspection are documented in the enclosed report.

Two findings of very low safety significance (Green) are documented in this report. Two of these findings involved violations of NRC requirements one was determined to be Severity Level IV. We are treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2 of the Enforcement Policy.

If you contest the violations or the significance or severity of the violations documented in this inspection report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region III; the Director, Office of Enforcement; and the NRC Resident Inspector at Fermi Power Plant, Unit 2.

If you disagree with a cross-cutting aspect assignment in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region III; and the NRC Resident Inspector at Fermi Power Plant, Unit 2.

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,



Signed by Stoedter, Karla  
on 11/07/23

Karla K. Stoedter, Chief  
Engineering Branch 1  
Division of Operating Reactor Safety

Docket Nos. 05000341 and 07200071  
License No. NPF-43

Enclosure:  
As stated

cc w/ encl: Distribution via LISTSERV®

Letter to Peter Dietrich from Karla Stoedter dated November 7, 2023.

SUBJECT: FERMI POWER PLANT, UNIT 2-INTEGRATED INSPECTION REPORT  
05000341/2023003 AND 07200071/2023001

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

Docket Number: 05000341 and 07200071

License Number: NPF-43

Report Number: 05000341/2023003

Enterprise Identifier: I-2023-003-0052 and I-2023-001-0102

Licensee: DTE Electric Company

Facility: Fermi Power Plant, Unit 2

Location: Newport, MI

Inspection Dates: July 01, 2023 to September 30, 2023

Inspectors: T. Taylor, Senior Resident Inspector  
T. Briley, Senior Project Engineer  
J. Bozga, Senior Reactor Inspector  
L. Rodriguez, Senior Reactor Inspector  
E. Fernandez, Senior Reactor Inspector  
J. Gewargis, Resident Inspector  
T. Hooker, Health Physicist  
R. Ng, Senior Project Engineer  
J. Reed, Health Physicist  
D. Sargis, Health Physicist  
A. Shaikh, Senior Reactor Inspector

Approved By: Karla K. Stodter, Chief  
Engineering Branch 1  
Division of Operating Reactor Safety

## SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting an integrated 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

Mechanical Draft Cooling Tower Bolt Repair Lacks Engineering Documentation			
Cornerstone	Significance/Severity	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green Severity Level IV NCV 05000341/2023003-01 Open/Closed	[H.6] - Design Margins	71111.18
<p>The inspectors identified a Severity Level IV NCV of 10 CFR 50.59(d)(1), "Changes, Tests, and Experiments," for the licensee's failure to provide a written evaluation describing the basis for determining that the change to mechanical draft cooling tower (MDCT) fan 'D' anchorage completed on July 21, 2023, did not require a license amendment. Specifically, the licensee made a change to the MDCT fan 'D' anchorage design pursuant to 10 CFR 50.59(c). This change involved going from one existing American Society of Testing and Materials (ASTM) A36 anchor bolt as the anchorage design to the full penetration welding of an ASTM A193 Grade B7 anchor bolt to an existing damaged piece of ASTM A36 anchor bolt. However, no written evaluation was provided describing the basis for determining that this change would not result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system or component important to safety.</p>			

Inoperable Mechanical Draft Cooling Towers Following Modification to Brake Control Circuit			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000341/2023003-02 Open/Closed	None (NPP)	71152A
<p>A finding of very low safety significance (Green) with an associated non-cited violation of 10 CFR 50 Appendix B, Criterion III, "Design Control," was self-revealed when all four MDCTs were declared inoperable due to the licensee's failure to verify or check the adequacy of the design of new speed switches installed as part of Engineering Design Package 80072.</p>			

### Additional Tracking Items

Type	Issue Number	Title	Report Section	Status
URI	05000341/2023002-01	Review of Increasing Differential Pressures on the Division 1 Emergency Equipment Service Water/Emergency Equipment Cooling Water Heat Exchangers	71111.07A	Open

URI	05000341/2023003-03	Mechanical Draft Cooling Tower 'D' Inoperable due to High Vibrations	71153	Open

## **PLANT STATUS**

Unit 2 began the inspection period at or near 100 percent power. On July 23, 2023, power was reduced to approximately 88 percent following high temperatures on the center condenser pump motor. On July 31, power was further reduced to approximately 58 percent to facilitate repairs to the center condenser pump motor. Power was restored to 100 percent on August 3, following repairs. On August 6, power was reduced to approximately 90 percent and then returned to 100 percent as part of a planned rod pattern adjustment. On August 9, power was reduced to approximately 90 percent and returned to 100 percent for planned maintenance/testing. On August 19, power was reduced to approximately 23 percent to facilitate a search for increased drywell unidentified leakage. On August 20, the plant was shut down to repair the source of leakage in the drywell. The planned outage concluded on September 8, when the plant was synchronized to the grid. The plant returned to 100 percent power on September 9, 2023.

## **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 performed activities described in IMC 2515, Appendix D, "Plant Status," observed risk significant activities, and completed onsite portions of IPs. 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**

### 71111.04 - Equipment Alignment

#### Partial Walkdown Sample (IP Section 03.01) (1 Sample)

The inspectors evaluated system configurations during partial walkdowns of the following systems/trains:

- (1) Emergency diesel generator (EDG) division 1 and division 2 ventilation during hot weather on July 26, 2023

### 71111.05 - Fire Protection

#### Fire Area Walkdown and Inspection Sample (IP Section 03.01) (10 Samples)

The inspectors evaluated the implementation of the fire protection program by conducting a walkdown and performing a review to verify program compliance, equipment functionality, material condition, and operational readiness of the following fire areas:

- (1) Fire protection walkdown of EDG 12 engine room prior to slow start run during the week ending July 8, 2023

- (2) Auxiliary building (AB) 1 walkdown to include cable vaults after cable vault inspections during the week ending July 15, 2023
- (3) Reactor building, southeast corner room, basement and sub-basement during the week ending August 9, 2023
- (4) Residual heat removal (RHR) complex, EDG 14 room and fuel oil storage room during the week ending August 9, 2023
- (5) AB 2 and AB mezzanine walkdown with TRM requirement review of 28.505.09A/.09 during the week ending August 12, 2023
- (6) Turbine building, third floor during the week ending August 18, 2023
- (7) Turbine building, second floor during the week ending August 18, 2023
- (8) AB, division 2 switchgear room during the week ending August 18, 2023
- (9) Reactor building, first floor north during the week ending August 18, 2023
- (10) Reactor building, first floor south during the week ending August 18, 2023

Fire Brigade Drill Performance Sample (IP Section 03.02) (1 Sample)

- (1) The inspectors evaluated the onsite fire brigade training and performance during an announced fire drill of the turbine building second floor hydrogen seal oil unit during the week ending August 12, 2023

71111.07A - Heat Exchanger/Sink Performance

Annual Review (IP Section 03.01) (1 Partial)

The inspectors evaluated readiness and performance of:

- (1) (Partial)  
Inspectors continued review of issues associated with unexpectedly high differential pressures measured on the Division 1 emergency equipment service water (EESW)/emergency equipment cooling water (EECW) heat exchangers. The sample was opened in the second quarter (IR 05000341/2023002). Also refer to Unresolved Item (05000341/2023002-01).

71111.11Q - Licensed Operator Requalification Program and Licensed Operator Performance

Licensed Operator Performance in the Actual Plant/Main Control Room (IP Section 03.01) (1 Sample)

- (1) The inspectors observed and evaluated licensed operator performance in the control room during up power from 64 percent to 85 percent after the center condenser pump motor replacement on August 2, 2023

71111.13 - Maintenance Risk Assessments and Emergent Work Control

Risk Assessment and Management Sample (IP Section 03.01) (3 Samples)

The inspectors evaluated the accuracy and completeness of risk assessments for the following planned and emergent work activities to ensure configuration changes and appropriate work controls were addressed:



- (1) Reactor recirculation motor-generator controller replacement during the week ending July 22, 2023
- (2) Down power and at power drywell entry to investigate increasing drywell leakage during the week ending August 19, 2023
- (3) Center condenser pump motor replacement/wall removal, main steam isolation valve isolation temperature instruments, during the week ending September 30, 2023

#### 71111.15 - Operability Determinations and Functionality Assessments

##### Operability Determination or Functionality Assessment (IP Section 03.01) (3 Samples)

The inspectors evaluated the licensee's justifications and actions associated with the following operability determinations and functionality assessments:

- (1) EDG 12 lube oil flexible coupling leak degraded during EDG 12 run and governor level change and the damper challenges over the weekend of July 9, 2023
- (2) MDCT fan 'D' trip on July 18, 2023, in fast-mechanical issue/vibes during the week ending September 30, 2023
- (3) Reactor core isolation cooling outboard steam supply containment isolation valve E5150F008 steam leak on actuator/past operability during the week ending September 30, 2023

#### 71111.18 - Plant Modifications

##### Temporary Modifications and/or Permanent Modifications (IP Section 03.01 and/or 03.02) (1 Sample)

The inspectors evaluated the following temporary or permanent modifications:

- (1) Repair of MDCT 'D' bolt during the week ending September 30, 2023

#### 71111.20 - Refueling and Other Outage Activities

##### Refueling/Other Outage Sample (IP Section 03.01) (1 Sample)

- (1) The inspectors evaluated planned outage activities to repair 'B' recirculation sample line from August 20, 2023, to September 8, 2023.

#### 71111.24 - Testing and Maintenance of Equipment Important to Risk

The inspectors evaluated the following testing and maintenance activities to verify system operability and/or functionality:

##### Post-Maintenance Testing (PMT) (IP Section 03.01) (1 Sample)

- (1) Repair and testing of recirculation sample line weld during the week ending September 16, 2023

Surveillance Testing (IP Section 03.01) (2 Samples)

- (1) EDG 14 diesel generator service water (DGSW) diesel fuel oil transfer pump and valve operability test during the week ending August 15, 2023
- (2) EDG 13 fast start run operability test during the week ending August 15, 2023

**RADIATION SAFETY**

71124.07 - Radiological Environmental Monitoring Program

Environmental Monitoring Equipment and Sampling (IP Section 03.01) (1 Sample)

- (1) The inspectors evaluated environmental monitoring equipment and observed collection of environmental samples.

Radiological Environmental Monitoring Program (IP Section 03.02) (1 Sample)

- (1) The inspectors evaluated the implementation of the licensee's radiological environmental monitoring program.

GPI Implementation (IP Section 03.03) (1 Sample)

- (1) The inspectors evaluated the licensee's implementation of the Groundwater Protection Initiative program to identify incomplete or discontinued program elements.

**OTHER ACTIVITIES—BASELINE**

71151 - Performance Indicator Verification

The inspectors verified licensee performance indicators submittals listed below:

MS08: Heat Removal Systems (IP Section 02.07) (1 Sample)

- (1) Unit 2 (July 1, 2022 through June 30, 2023)

MS09: Residual Heat Removal Systems (IP Section 02.08) (1 Sample)

- (1) Unit 2 (July 1, 2022 through June 30, 2023)

MS10: Cooling Water Support Systems (IP Section 02.09) (1 Sample)

- (1) Unit 2 (July 1, 2022 through June 30, 2023)

## 71152A - Annual Follow-up Problem Identification and Resolution

### Annual Follow-up of Selected Issues (Section 03.03) (1 Sample)

The inspectors reviewed the licensee's implementation of its corrective action program related to the following issues:

- (1) Review of circumstances leading to inoperable overspeed protection circuits on the mechanical draft cooling towers.

## 71153 - Follow-Up of Events and Notices of Enforcement Discretion

### Notice of Enforcement Discretion (NOED) (IP Section 03.04) (1 Sample)

- (1) The inspectors evaluated the licensee actions surrounding Notice of Enforcement Discretion EA-23-091, which can be accessed at <http://www.nrc.gov/reading-rm/doc-collections/enforcement/notices/noedreactor.html>, on July 26, 2023.

## **OTHER ACTIVITIES—TEMPORARY INSTRUCTIONS, INFREQUENT AND ABNORMAL**

### 60855 - Operation of an ISFSI

#### Operation of an ISFSI (1 Sample)

- (1) The inspectors evaluated the licensee's independent spent fuel storage installation (ISFSI) cask loading activities from June 26 through June 30, 2023. Specifically, the inspectors observed the following activities during the loading of multipurpose canister (MPC) No. 728:
  - fuel loading
  - heavy load movement of loaded MPC out of the spent fuel pool
  - closure welding and non-destructive evaluations
  - canister processing including blowdown and vacuum drying
  - radiological field surveys

The inspectors performed walkdowns of the ISFSI pad and walkdowns of the ISFSI haul path.

The inspectors evaluated the following:

- spent fuel selected for loading into dry cask storage during this loading campaign
- selected corrective action program documents
- selected 72.48 screenings
- changes to the site's 72.212 report since the previous inspection

## INSPECTION RESULTS

Unresolved Item (Open)	Review of Increasing Differential Pressures on the Division 1 Emergency Equipment Service Water/Emergency Equipment Cooling Water Heat Exchangers URI 05000341/2023002-01	71111.07A
<p><u>Description:</u></p> <p>The inspectors continued their review of issues associated with unexpectedly high differential pressures measured on the Division 1 EESW/EECW heat exchangers as discussed in Inspection Report 05000341/2023002 and as part of Unresolved Item 05000341/2023002-01. Planned Closure Actions: The NRC will continue to assess the licensee's potential causes and evaluate the licensee's review of this issue. If a performance deficiency is identified, the NRC will perform an assessment to determine if the performance deficiency is more-than-minor and whether a violation exists/existed.</p> <p>Licensee Actions: The licensee cleaned and tested both the 'A' and 'C' Division 1 EESW/EECW heat exchangers (HXs) and instituted a formal monitoring plan to trend performance. Further, the 'D' HX on Division 2 was tested satisfactorily. The licensee plans to complete a root cause evaluation of this issue, which was still in progress as the third quarter closed.</p> <p>Corrective Action References: 2023-30619</p>		

Mechanical Draft Cooling Tower Bolt Repair Lacks Engineering Documentation			
Cornerstone	Significance/Severity	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green Severity Level IV NCV 05000341/2023003-01 Open/Closed	[H.6] - Design Margins	71111.18
<p>The inspectors identified a Severity Level IV NCV of 10 CFR 50.59(d)(1), "Changes, Tests, and Experiments," for the licensee's failure to provide a written evaluation describing the basis for determining that the change to MDCT fan 'D' anchorage completed on July 21, 2023, did not require a license amendment. Specifically, the licensee made a change to the MDCT fan D anchorage design pursuant to 10 CFR 50.59(c). This change involved going from one existing ASTM A36 anchor bolt as the anchorage design to the full penetration welding of an ASTM A193 Grade B7 anchor bolt to an existing damaged piece of ASTM A36 anchor bolt. However, no written evaluation was provided describing the basis for determining that this change would not result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system or component important to safety.</p>			
<p><u>Description:</u></p> <p>Fermi Updated Safety Analysis Report (UFSAR) Section 1.2.2.3.6, "Loss of Normal Heat Sink," states, "The natural-draft cooling towers provide the normal heat sink for the once-through-type main unit condenser and auxiliary systems. Should this heat sink be lost, the reactor can be safely shut down and maintained using the mechanical-draft cooling towers and the residual heat removal (RHR) reservoir as a heat sink."</p>			

Fermi UFSAR Section 9.2.5, "Ultimate Heat Sink," states, in part, "The ultimate heat sink is provided by the RHR complex, which contains the RHR service water (RHRSW) system, the [emergency equipment service water system] EESWS, the diesel generator service water system, the MDCTs, the emergency ac power system (diesel generators), and the reservoir."

Fermi UFSAR Table 3.2-1, "Structures, Systems, and Components Classification," delineates the MDCTs including structure fans and related hardware as Category I and meeting the Quality Assurance requirements of 10 CFR 50, Appendix B.

Fermi UFSAR Table 3.9-43, "Safety-Related Mechanical Components Not Covered by ASME Code," delineates that the MDCTs have a design specification for structural steel of American Institute of Steel Construction (AISC) and a design code of reinforced concrete as American Concrete Institute (ACI).

MDCT fan 'D' is anchored to its concrete pedestal via three mounting anchor bolts. The licensee identified during walkdowns that the front mounting anchor bolt was sheared off and not connected to the concrete pedestal. The licensee implemented Design Equivalent Change Package 700015, "Repair damaged anchor for E1156B002B MDCT 'D' gear reducer," Revision 0 that modified the MDCT fan 'D' anchorage.

The inspectors reviewed Design Equivalent Change Package 700015, Revision 0. The licensee made the determination in Design Equivalent Change Package 700015, Revision 0 that no written evaluation was needed to determine potential impacts related to the design change. This activity involved the full penetration welding of an ASTM A193 Grade B7 anchor bolt to an existing piece of damaged ASTM A36 anchor bolt. The inspectors identified that the design verification of the new anchor bolt configuration had not considered the following:

- 1) The full penetration welding of the new anchor bolt ASTM A193 Grade B7 material with the existing damaged ASTM A36 material has the potential to introduce weld residual stresses which can adversely affect the yield strength of the anchor bolt material.
- 2) The dissimilar bolt material condition may cause an accelerated corrosion process (one anchor bolt material will be noble-cathode and the other anchor bolt material will be sacrificial-anode) at the heat affected zones.
- 3) The standard specification for ASTM A193 specifies that Grade B7 shall be heat treated by quenching in a medium and tempering. The AISC 9<sup>th</sup> Edition specifies that an anchor bolt that is quenched and tempered should not be welded or heat treated. The full penetration welding to the ASTM A193 Grade B7 anchor bolt material can adversely affect the mechanical properties of the bolt material which include the yield strength, ultimate strength, elongation, hardness and area.

The licensee's decision to full penetration weld the aforementioned anchor bolt materials together, as evaluated under Design Change 700015, created an anchorage design that could result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component (SSC) important to safety previously evaluated in the updated final safety analysis report due to the considerations discussed above.

The licensee is permitted to make changes to the facility as described in the UFSAR without prior NRC approval provided that these changes would not result in more than a minimal increase in the likelihood of occurrence of a malfunction of structure, system or component

important to safety used in establishing the plant design bases. Regulatory Guide 1.187, "Guidance for Implementation of 10 CFR 50.59, Changes, Tests, and Experiments," states that the methods described in Nuclear Energy Institute (NEI) 96-07, "Guidelines for 10 CFR 50.59 Evaluations," Revision 1, are acceptable to the NRC staff for complying with the provisions of 10 CFR 50.59. NEI 96-07, Revision 1, Section 4.3.2, addresses "Does the Activity Result in More Than a Minimal Increase in the Likelihood of Occurrence of a Malfunction of an SSC Important to Safety?" The section states, in part: "although this criterion allows minimal increases, licensees must still meet applicable regulatory requirements and other acceptance criteria to which they are committed" (such as contained in regulatory guides and nationally recognized industry consensus standards, e.g., the ASME Boiler and Pressure Vessel Code and Institute of Electrical and Electronics Engineers standards). Further, departures from the design, fabrication, construction, testing and performance standards as outlined in the General Design Criteria (Appendix A to Part 50) are not compatible with a "no more than minimal increase standard." In addition, changes in design requirements for earthquakes, tornadoes and other natural phenomena should be treated as potentially affecting the likelihood of malfunction. Based upon the above, the inspectors concluded that the change would result in more than a minimal increase in the likelihood of occurrence of a malfunction of an SSC important to safety.

Corrective Actions: The licensee sent a mock-up of the modified anchorage configuration to a vendor for testing to address the weld residual stresses, mechanical properties and galvanic corrosion.

Corrective Action References: CR 2023-33153 and CR 2023-33264

Performance Assessment:

Performance Deficiency: The inspectors determined that the licensee's failure to provide a written evaluation describing the basis for determining that the change to the MDCT fan 'D' anchorage design, which was completed on July 21, 2023, did not require a license amendment was contrary to 10 CFR 50.59(d)(1) and was a performance deficiency. Specifically, the licensee made a change to the MDCT fan 'D' anchorage design pursuant to 10 CFR 50.59(c) and did not address the change in a full written evaluation.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Design Control attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. In addition, the associated violation was determined to be more than minor because the inspectors could not conclude that the changes would not result in a more than minimal increase in the likelihood of occurrence of a malfunction of an SSC important to safety used in establishing the MDCT fan 'D' anchorage design without further evaluation.

Significance: The inspectors assessed the significance of the finding using IMC 0609 Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Because violations of 10 CFR 50.59 are considered to be violations that potentially impede or impact the regulatory process, they are dispositioned using the traditional enforcement process instead of the Significant Determination Process (SDP). However, if possible, the underlying technical issue is evaluated under the SDP to determine the severity of the violation. The inspectors determined the finding could be evaluated using the SDP and used IMC 0609, Attachment 4, "Initial Characterization of Findings," issued December 13, 2019, and Appendix A, "The Significance Determination Process for Findings at Power," issued

November 30, 2020, to evaluate the technical issue. The finding was screened against the Mitigating Systems cornerstone. The finding screened as having very low safety significance (Green) because the MDCT fan 'D' anchorage maintained its operability to provide sufficient cooling to permit safe shutdown and cooldown of the plant in the event of a design-basis accident. As such, the finding corresponded to a Severity Level IV violation in accordance with Example 6.1.d.2 of the NRC Enforcement Policy.

Cross-Cutting Aspect: H.6 - Design Margins: The organization operates and maintains equipment within design margins. Margins are carefully guarded and changed only through a systematic and rigorous process. Special attention is placed on maintaining fission product barriers, defense-in-depth, and safety-related equipment. Specifically, the licensee failed to adequately evaluate the weld residual stresses, mechanical properties and galvanic corrosion due to the full penetration welding of an ASTM A193 B7 anchor bolt to an existing damaged ASTM A36 anchor bolt for the effect on the anchorage design margin.

Enforcement:

The ROP's significance determination process does not specifically consider the regulatory process impact in its assessment of licensee performance. Therefore, it is necessary to address this violation which impedes the NRC's ability to regulate using traditional enforcement to adequately deter non-compliance.

Severity: In accordance with Section 6.1.d.2 of the NRC's Enforcement Policy, the violation was classified as a Severity Level IV violation because the underlying technical issue was of very low risk significance.

Violation: Title 10 CFR 50.59, "Changes, Tests and Experiments," (d)(1) states, in part, a licensee shall maintain records of changes in the facility made pursuant to paragraph (c) of this section. These records must include a written evaluation that provides the bases for the determination that the change does not require a license amendment pursuant to 10 CFR 50.59(c)(2).

10 CFR 50.59(c)(2)(ii) states, in part, a licensee shall obtain a license amendment pursuant to 10 CFR 50.90 prior to implementing a proposed change, test, or experiment if the change, test, or experiment would result in more than a minimal increase in the likelihood of occurrence of a malfunction of an SSC important to safety previously evaluated in the final safety analysis report (as updated).

Fermi USAR Section 1.2.2.3.6, "Loss of Normal Heat Sink," states, "The natural-draft cooling towers provide the normal heat sink for the once-through-type main unit condenser and auxiliary systems. Should this heat sink be lost, the reactor can be safely shut down and maintained using the mechanical-draft cooling towers and the residual heat removal (RHR) reservoir as a heat sink."

Fermi UFSAR Section 9.2.5, "Ultimate Heat Sink," states, in part, "The ultimate heat sink is provided by the RHR complex, which contains the RHR service water (RHRSW) system, the [emergency equipment service water system] EESWS, the diesel generator service water system, MDCTs, the emergency ac power system (diesel generators), and the reservoir."

Fermi UFSAR Table 3.2-1, "Structures, Systems, and Components Classification," delineates the MDCTs including structure fans and related hardware as Category I and meeting the Quality Assurance requirements of 10 CFR 50, Appendix B.

Fermi UFSAR Table 3.9-43, "Safety-Related Mechanical Components not Covered by ASME Code," delineates that the MDCT fans have a design specification for structural steel of AISC and a design code of reinforced concrete as ACI.

Contrary to the above, as of July 21, 2023, the licensee failed to maintain records of a change to the facility made pursuant to paragraph (c) of this section. Specifically, the licensee changed the anchorage design for MDCT fan D and did not evaluate whether changes in the anchorage weld residual stresses, mechanical properties and galvanic corrosion constituted more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system or component important to safety.

Enforcement Action: This violation is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy.

Inoperable Mechanical Draft Cooling Towers Following Modification to Brake Control Circuit			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000341/2023003-02 Open/Closed	None (NPP)	71152A

A finding of very low safety significance (Green) with an associated non-cited violation of 10 CFR 50 Appendix B, Criterion III, "Design Control," was self-revealed when all four MDCTs were declared inoperable due to the licensee's failure to verify or check the adequacy of the design of new speed switches installed as part of Engineering Design Package 80072.

Description:

The MDCTs consist of four fans (two per division) that are designed to remove heat from the ultimate heat sink. The plant's ultimate heat sink is a reservoir of water beneath the residual heat removal (RHR) service water complex. The fans are protected from overspeed during design basis tornadoes by a control circuit that senses fan speed via a magnetic sensor located near the gear teeth. This signal is sent to a speed switch that will apply brakes to the fan if the speed gets too high. On March 13, 2023, procedure 46.205.001, "Calibration of RHR Cooling Tower Fan Overspeed Protection System," Revision 33, was being performed on the 'D' MDCT fan. The purpose of the procedure was to test the overspeed braking system to ensure it actuated at the correct fan rotation per minute (RPM) using a simulated speed signal injected into the overspeed switch. During the test, technicians noted the RPM indication was at zero with the fan running in fast speed. Troubleshooting revealed that while the test would pass with the 4-volt peak-to-peak (4Vp-p) simulated square wave applied to the switch per the test, the brakes would not work with the actual ~9Vp-p field signal sent from the magnetic sensor. In consultation with the switch supplier, the licensee determined an appropriate voltage the switch would function at when installed in the licensee's system. This information led to a design change, which was implemented by the licensee to restore the MDCT fans to an operable status (addition of an adjustable potentiometer to lower input voltage from the sensor to the switch). As a result of their discussions with the switch supplier



during troubleshooting (Engine Systems International), the licensee issued a Part 21 notification ([ML23159A004](#) and [ML23177A043](#)) due to questions regarding testing performed during their dedication of the new switches. Of note, the inoperability that occurred to the MDCT fans only applied to the overspeed braking function, which is only required during design basis tornado conditions.

The inspectors reviewed the root cause analysis performed by the licensee and the design change package (EDP 80072) which installed the new overspeed switches. The Division 1 switches (fans 'A' and 'C') were installed in December 2020. The Division 2 switches (fans 'B' and 'D') were installed in September 2022. The modification primarily affected the switches and connection to the plant power system (power supply change). The sensor and its associated wiring in the plant remained the same. Some of the original design drawings, and drawings approved for the new overspeed circuit, stated that the input voltage to the switch from the sensor should be set to 2V peak (2Vp) with the fan running at 1750 RPM (the fast speed of the fan). This is equivalent to 4Vp-p. Specifically, design drawings E-6001-01 (via EDP posting 80072.005), "Division 1 RHR Complex Cooling Towers Fan Overspeed Brake System," Revision C, and drawing E-6001-02, "Division 2 RHR Complex Cooling Towers Fan Overspeed Brake System," Revision D, stated adjustments were to be made in the field to provide a 2Vp signal from the sensor to control at 1750 RPM. Sheet 3 of Drawing M-6067-2, "RHR Complex Cooling Tower Fan Overspeed Brake Installation," Revision A, stated the 2Vp signal could be measured across terminals 10 and 11 in the control box. During testing, ESI informed the site that they could not get the switch to work at certain input voltages, which reinforced the design concept that voltage could affect the functionality of the switch at certain speeds/RPM. ESI modified the design, stating they were able to get the switch to work at certain voltages after they added a load resistor.

However, despite approved design drawings and a report from the vendor regarding limitations on the input voltages, post-installation checks and testing did not validate that, when installed in the plant, the appropriate voltage was present. The vendor-established range was unknown and therefore was not reconciled with the voltage described on design drawings, nor in calibration/test procedures which used a simulated voltage to test the circuit following installation. Additionally, guidance in licensee post-maintenance test procedure, MMA11, "Post-Maintenance Testing," was not followed. Specifically, MMA11 indicated that for maintenance performed on fans or their control circuitry, or electric switches, affected indication was to be checked. In this case, a failure to check the RPM meters (fed from the new switches) following installation resulted in a failure to recognize the inadequate design.

Corrective Actions: The licensee entered the issue into the corrective action program and performed a root cause evaluation.

Corrective Action References: 23-22040

Performance Assessment:

Performance Deficiency: 10 CFR 50 Appendix B, Criterion III, "Design Control," requires, in part, for those structures, systems, and components for which Appendix B applies, the licensee provide for verifying or checking the adequacy of design, such as by the performance of design reviews, by the use of alternate or simplified calculational methods, or by the performance of a suitable testing program. The licensee implements these requirements through site procedures. Licensee procedure MES90, "Standard Design Process Interface," Revision 1, Section 3.5.2, requires design inputs and bounding technical requirements to be properly evaluated for design changes. The licensee did not evaluate

voltage limitations stipulated on the design drawings nor provided by the vendor. Further, Section 3.5.7 requires post-modification testing to verify affected SSCs perform as intended following the engineering change. This section also states that types of testing are described in utility-specific procedures. Utility-specific procedure MMA11, "Post-Maintenance Testing Guidelines," Revision 27, outlines requirements for testing fans and electric switches following maintenance, and these requirements were not followed by the licensee.

**Screening:** The inspectors determined the performance deficiency was more than minor because it was associated with the Design Control attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, a design change was implemented that resulted in all four MDCT's being rendered inoperable for the design basis tornado overspeed function.

**Significance:** The inspectors assessed the significance of the finding using IMC 0609 Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Specifically, the inspectors utilized Exhibit 2 and answered 'yes' under Section B for external event mitigating systems. Using Exhibit 4, question 1, the inspectors answered 'yes' because the condition degraded 2 or more trains of a multi-train system (cooling tower circuits in both safety divisions were impacted). As a result, a detailed risk evaluation was performed to assess the significance. A Region III senior reactor analyst performed the evaluation and concluded the finding was assumed to result in the failure of all four MDCT fans during a design basis tornado. The total exposure period modeled was limited to one year, per SDP guidance, and was based on when the modifications were installed. The Division 1 switches were installed in December 2020 while the Division 2 switches were installed in September 2022. The condition was corrected in March 2023. The SRA used the current Standardized Plant Analysis Risk model (8.81) to analyze the finding. The change in core damage frequency (CDF) due to design basis tornadoes was estimated to be less than 1E-7/year. Therefore, the finding was determined to be of very low safety significance (Green).

**Cross-Cutting Aspect:** Not Present Performance. No cross-cutting aspect was assigned to this finding because the inspectors determined the finding did not reflect present licensee performance. Specifically, Engineering Design Package 80072 was approved for installation more than three years ago.

**Enforcement:**

**Violation:** 10 CFR Part 50, Appendix B, Criterion III, "Design Control," requires, in part, for those structures, systems, and components to which this appendix applies, the licensee provide for verifying or checking the adequacy of design, such as by the performance of design reviews, by the use of alternate or simplified calculational methods, or by the performance of a suitable testing program.

Licensee procedure MES90, "Standard Design Process," Revision 1, states that for design change packages, post-modification testing is required to verify that affected SSCs perform as intended and reference the use of utility-specific procedures in developing post-modification tests.

Utility-specific procedure MMA11, "Post-Maintenance Testing Guidelines," Revision 27, states, in part, following maintenance on fans or electric switches, verify indications are as expected.

Design posting 80072.005 (planned revision to drawing E-6001-01, "Division 1 RHR Complex Cooling Towers Fan Overspeed Brake System)," Revision C, states that the sensor gap shall be field adjusted to provide a 2-volt peak signal to control at 1750 RPM.

Design drawing E-6001-02, "Division 2 RHR Complex Cooling Towers Fan Overspeed Brake System," Revision D, states that the sensor gap shall be field adjusted to provide a 2-volt peak signal to control at 1750 RPM.

Drawing M-6067-2, "RHR Complex Cooling Tower Fan Overspeed Brake Installation, " Sheet 3, Revision A, stated the 2Vp signal could be measured across terminals 10 and 11 in the control box.

Contrary to the above, on December 9, 2020 (Division 1), and September 14, 2022 (Division 2), the licensee failed to verify or check the adequacy of design, by the performance design reviews or a suitable testing program, of the operating characteristics of the new mechanical draft cooling tower fan speed switches installed per Engineering Design Package 80072. Specifically, the licensee failed to verify the voltage present at the input to the speed switch aligned with information provided in design drawing E-6001-02, design posting 80072.005, and drawing M-6067-2. Additionally, once installed, the licensee did not verify the fan RPM indicators were reading appropriately with the fans in operation, contrary to Procedure MMA11.

In addition, Technical Specification 3.7.2 requires that two emergency equipment cooling water/emergency equipment service water subsystems and the ultimate heat sink be operable when the reactor is operating in modes 1, 2, and 3.

Contrary to the above, between December 9, 2020 and March 24, 2023, two emergency equipment cooling water/emergency equipment service water subsystems and the ultimate heat sink were not operable when the reactor was operating in modes 1, 2 and 3. Specifically, from December 9, 2020 to March 24, 2023, Division 1 of the ultimate heat sink (UHS) was inoperable due to an inoperable MDCTs fan overspeed braking circuit. In addition, from September 14, 2022, until March 24, 2023, Division 2 of the UHS was also inoperable due to an inoperable MDCT fan overspeed braking circuit.

Enforcement Action: This violation is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy.

Unresolved Item (Open)	Mechanical Draft Cooling Tower 'D' Inoperable due to High Vibrations URI 05000341/2023003-03	71153
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Description:

On July 18, 2023, the 'D' MDCT tripped on high vibrations during routine operations while running in fast speed. The MDCTs provide cooling to the plant's UHS, which is used to cool safety-related equipment under accident conditions. Investigation revealed damage to the couplings which connect the fan motor to the main shaft and the main shaft to a gearbox which drives the fan. The condition rendered Division 2 of the UHS inoperable, prompting entry into technical specification (TS) actions for LCO 3.7.2, EECW/EESW System and UHS. Specifically, action A.1. was entered, which required operability to be restored within

72 hours. If operability was not restored within that timeframe, TSs would require the plant to be shutdown. Further investigation by the licensee revealed one of the three bolts used to mount the gearbox had sheared apart. The licensee requested, and was subsequently approved for, a Notice of Enforcement Discretion (NOED) from the NRC to allow for repairs to be completed beyond the 72-hour TS allowed outage time (ML23206A127). Repairs were completed and the 'D' MDCT was restored to operable status on July 22, 2023. In accordance with the NRC Enforcement Manual, the inspectors opened an Unresolved Item to track further inspector review of the issue.

Planned Closure Actions: Further NRC inspection is required to determine if a performance deficiency exists, which will include a review of licensee corrective action documents associated with the issue. If a performance deficiency is identified, an assessment would then be made to determine if it is more than minor and whether a violation exists/existed.

Licensee Actions: The licensee entered the issue into the CAP and performed repairs to restore the 'D' MDCT to an operable status.

Corrective Action References: CR 2023-31630

## **EXIT MEETINGS AND DEBRIEFS**

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

- On October 20, 2023, the inspectors presented the integrated inspection results to P. Dietrich, Senior Vice President and Chief Nuclear Officer, and other members of the licensee staff.
- On July 27, 2023, the inspectors presented the radiation protection inspection results to P. Dietrich, Senior Vice President and Chief Nuclear Officer, and other members of the licensee staff.
- On September 1, 2023, the inspectors presented the ISFSI cask loading inspection results to P. Dietrich, Senior Vice President and Chief Nuclear Officer, and other members of the licensee staff.

## DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
60855	ALARA Plans	63.000.200	2023 ISFSI Campaign ALARA Plan	0
60855	Corrective Action Documents	19-24382	Reevaluate VCT Loaded Safe Operating Wind Speed Limit	06/10/2019
60855	Corrective Action Documents	22-22252	NEI Published NEI22-02: Guidelines for Weather-Related Administrative Controls for Short Duration Outdoor Dry Cask Storage Operations	02/21/2022
60855	Corrective Action Documents Resulting from Inspection	2023-31304	NRC Identified - Administrative Error Found in Section 4.4.1.1.2 of 10CFR72.212 Evaluation Report	06/30/2023
60855	Corrective Action Documents Resulting from Inspection	2023-31492	ISFSI NRC Identified - Vacuum Drying System Valve Open Longer than 1 Minute	07/10/2023
60855	Miscellaneous	053.000.10.160606	Fuel Characterization for Cycle 16 Fuel	0
60855	Miscellaneous	212 Eval Report	10 CFR 72.212 REPORT	4
60855	Miscellaneous	57.000.21	Fuel Inventory	3
60855	Miscellaneous	72.48 Screen 23-0032	Helium Mass Spectrometer Leak Test	0
60855	Miscellaneous	72.48 Screen 23-0069	212 Eval Report	0
60855	Miscellaneous	MPC 728	Composite Cask Load Report Campaign 4 Cask 04	0
60855	Miscellaneous	RRTI 3337-0001	Tornado Wind / Missile Evaluation of Transient Cask Configurations at Fermi	0
60855	NDE Reports	918622-728-01	Root Layer NDE Report - Cask 728	06/29/2023
60855	Procedures	35.710.042	Multipurpose Canister (MPC) Loading	14
60855	Procedures	35.710.043	Blowdown, Drying, Sealing and Backfill of the MPC	12
60855	Procedures	35.710.058	HI-Storm Lifting Beam Inspection	0A
60855	Procedures	GQP-9.2	High-Temperature Liquid Penetrant Examination and Acceptance Standards for Welds Base Materials and Cladding (50° - 350°F)	2
60855	Procedures	MSLT-MPC-	Helium Mass Spectrometer Leak Test	3665-02

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		HOLTEC		
60855	Procedures	WI-RPO-047	Work Instruction for ISFSI RP Job Coverage	5
60855	Radiation Surveys	P-M-20221214-3	SA-94 ISFSI Cask Pad	12/14/2022
60855	Radiation Surveys	P-M-20230607-11	Tech Spec MPC Contamination Survey	06/07/2023
60855	Radiation Surveys	P-M-20230710-1	ISFSI Tech Spec MPC Contamination Survey	07/12/2023
60855	Work Orders	62427674	Perform 35.710.055 HI-Storm Monthly Screen Inspection	02/22/2023
60855	Work Orders	64134238	Neil Required/License Renewal-RB Overhead Crane PM Inspections	01/23/2023
60855	Work Orders	64134279	Neil Required - Perform 'F' Frequent Inspection per MIOSHA R408.11872 RULE 1872 (2) (A)	04/17/2023
60855	Work Orders	66744741	Neil Required HI-Storm Lifting Bracket Inspection	10/26/2022
60855	Work Orders	66744816	HI-Trac Lift Yoke Inspection	04/04/2023
60855	Work Orders	66745255	HI-Storm Lift Beam Inspection	10/26/2022
71111.04	Procedures	23.420	RHR Complex Heating and Ventilation	42
71111.05	Corrective Action Documents	CR-2023-32065	Fire Protection Events Past Critical	08/02/2023
71111.05	Corrective Action Documents Resulting from Inspection	2023-32232	NRC Identified Door Issues at RHR	08/10/2023
71111.05	Corrective Action Documents Resulting from Inspection	2023-32243	NRC Identified: Expired Fire Extinguisher Service Tags in RHR Complex	08/10/2023
71111.05	Corrective Action Documents Resulting from Inspection	2023-32376	NRC Identified: Expired Transient Combustible Permit on RB1	08/17/2023
71111.05	Corrective Action Documents Resulting from	2023-32379	NRC Identified: Equipment Staged on "Fire Equipment Do Not Block" Sticker	08/17/2023

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Inspection			
71111.05	Corrective Action Documents Resulting from Inspection	2023-32386	NRC Identified: Sprinkler Head in Contact with Hoist Above MLO Tank	08/17/2023
71111.05	Drawings	6A721-2400	Fire Protection Evaluation Plot Plan	Q
71111.05	Drawings	6A721-2401	Fire Protection Evaluation Reactor Building Subbasement - Plan - El. 540' 0"	L
71111.05	Drawings	6A721-2403	Fire Protection Evaluation Reactor and Auxiliary Buildings First Floor - Plan - El. 583' 6"	T
71111.05	Fire Plans	FP-AB-1-6a	Auxiliary Building Cable Tray Area North	5
71111.05	Fire Plans	FP-AB-1-6b	Auxiliary Building Cable Entry Room Zone 6	5
71111.05	Fire Plans	FP-AB-1-6c	Auxiliary Bridling Cable Tray Area South Zone 6	4
71111.05	Fire Plans	FP-AB-1-6d	Auxiliary Building 1st Floor Mezzanine Zone 6	6
71111.05	Fire Plans	FP-AB-2-9C	Auxiliary Building Cable Tunnel Zone 9	4
71111.05	Fire Plans	FP-ABM-11	Auxiliary Building Cable Spreading Room Zone 11	5
71111.05	Fire Plans	FP-ABM-9A	Auxiliary Building Second Floor Mezzanine Zone 9A	7
71111.05	Fire Plans	FP-AB-3-14e	Auxiliary Building, Division II Switchgear Room, Zone 14, El. 643'6"	2
71111.05	Fire Plans	FP-RB-1-7a	Reactor Building North Control Rod Drive (CRD) Area, Zone 7, El. 584'6"	5
71111.05	Fire Plans	FP-RB-1-7b	Reactor Building South CRD and Railroad Bay Area, Zone 7	5
71111.05	Fire Plans	FP-RB-B-4d	Reactor Building Basement Southeast Corner Room, Zone 4, El. 562' 0"	4
71111.05	Fire Plans	FP-RHR-1-12-EDG	RHR Complex EDG 12 Room	7
71111.05	Fire Plans	FP-RHR-1-14-EDG	RHR Complex, EDG 14 Room, El. 590' 0"	6
71111.05	Fire Plans	FP-RHR-1-14-OS	RHR Complex, EDG 14 Oil Storage Room, El. 590' 0"	5
71111.05	Fire Plans	FP-RHR-2-53	RHR Complex, EDG 12 Switchgear and Switchgear Ventilation Rooms	5
71111.05	Fire Plans	FP-TB	Turbine Building	11
71111.05	Miscellaneous	LP-FP-940-01YX	Fire Drill/Evaluation: Hydrogen Seal Oil Unit, 2nd Floor Turbine Building	1

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.05	Procedures	28.502.12	Fire Protection/Detection Operability Test Zone 9A-Cable Tray Area Aux Building 2nd Floor Mezzanine	13
71111.05	Procedures	28.503.05	Halon Fire Suppression System Functional Test Zone 11- Cable Spreading Room	20
71111.05	Procedures	28.503.08	Fire Protection/Detection Operability Test Zone 11-Cable Spreading Room Aux. Building	11
71111.05	Procedures	28.505.09	Fire Detection Zone 9 Operability Test Aux Building 2nd Floor	10
71111.05	Procedures	28.505.09A	Fire Detection Zone 9A Operability Test AB 2nd Mezzanine Cable Tray Room-BOP	11
71111.05	Procedures	28.505.11	Fire Detection Zone 11 Operability Test AB 2nd Floor Mezzanine Cable Spreading Room-BOP	11
71111.05	Procedures	28.506.06	CO <sub>2</sub> Fire Suppression System Functional Test Zone 9A-Auxiliary Building 2nd Floor Mezzanine Cable Tray Area	24
71111.07A	Operability Evaluations	TE-P44-23-049	Division 1 EECW Heat Exchanger Plugging Past Operability Evaluations	0
71111.11Q	Miscellaneous	57.000.22 Enclosure A	Load Profile Plan: July 2023 Maintenance Down power	2
71111.13	Corrective Action Documents	09-21894	East HFP discharge check valve failure	03/27/2009
71111.13	Corrective Action Documents	2023-31974	NQA Condensate Pump Motor Winding Temperature Impacts to Maintenance and Monitoring Strategy	07/31/2023
71111.13	Corrective Action Documents	2023-32000	N2000-F146A East HFP Discharge Check Valve Failure	07/31/2023
71111.13	Engineering Evaluations	TE-U22-23-050	Shield Blocks Removal for C Condenser Pump Motor Replacement	0
71111.13	Miscellaneous	Fermi 2 Safety Handbook Section 25- Job Hazard Analysis	Replace Center Condenser Pump Motor	07/26/2023
71111.13	Procedures	23.155	Condenser Vacuum System	66
71111.13	Procedures	MWC15	Work Control Conduct Manual: Elevated Risk Management	23
71111.13	Procedures	MWC18	Work Control Conduct Manual: Emergent Issues Response	10/06/2023
71111.13	Work Orders	65824705	Drywell Entry and Leakage Identification	08/16/2023



Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.13	Work Orders	68936657	B31R621B-Replace Speed Controller	07/13/2023
71111.15	Corrective Action Documents	2023-31630	MDCT D fan tripped	07/20/2023
71111.15	Corrective Action Documents	2023-32431	PO 23-01 Shut Down Walkdown - E5150F008 RCIC Valve Steam Leak	08/21/2023
71111.15	Corrective Action Documents	2023-32487	PO 23-01 E5150F008 As-Found Thrust Test and Inspection Results	08/22/2023
71111.15	Corrective Action Documents	CARD-18-24869	EDG 11 Governor Oil Level High	06/22/2018
71111.15	Corrective Action Documents	CARD-18-25541	Inadequate Technical Rigor Regarding EDG 11 Governor Oil Level	07/20/2018
71111.15	Corrective Action Documents	CARD-19-20385	NRC Violation-Failure to Apply Torque Values Described in Maintenance Procedure for Flexible Couplings on EDG 12	01/17/2019
71111.15	Corrective Action Documents	CARD-19-21025	Oil identified on EDG 12 Auxiliary Skid Below R3000F123C	02/11/2019
71111.15	Corrective Action Documents	CARD-22-30749	LO Leak from EDG12 Coupling	10/31/2022
71111.15	Corrective Action Documents	CR-2023-31488	EDG 12 Governor Oil Level Low in Band	07/10/2023
71111.15	Drawings	5M721-6015	4" 900# O.S.Y. Powell O.S.Y. Gate Valve with Limitorque Operator	0
71111.15	Engineering Evaluations	EQ1-EF2-044	Qualification Evaluation Report (QER); Limitorque	J
71111.15	Engineering Evaluations	Log. No. 06-054	Appendix J - Generic Letter 89-10 Correlation (Retest Guidelines for Appendix J Valves)	1
71111.15	Miscellaneous	NRC-23-0049	Fermi Letter Requesting Enforcement Discretion for Technical Specification 3.7.2, EECW/EESW System and UHS	07/21/2023
71111.15	Work Orders	69270880	E5150F008 Repack / Possible Damage to Valve Stem	08/28/2023
71111.15	Work Orders	69286422	E5150F008 RCIC TURB STM SPLY OTBD CNTM ISO MOV	08/28/2023
71111.18	Corrective Action Documents	2023-31674	Gearbox Hold Down Bolt Found Separated due to Corrosion	07/20/2023
71111.18	Corrective Action	2023-31707	Original Installation of the MDCT Gearbox Mounting is Not	07/21/2023

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Documents		in Accordance with Installation Drawings	
71111.18	Corrective Action Documents Resulting from Inspection	2023-33153	Shop Work Order Needed for Anchor Bolt Testing	09/20/2023
71111.18	Corrective Action Documents Resulting from Inspection	2023-33264	Design Equivalent Change 700015 (Repair Damaged Anchor Bolt for 'D' MDCT) Did Not Contain Sufficient Technical Detail	09/25/2023
71111.18	Miscellaneous	Design Equivalent Change Package 700015	Repair Damaged Anchor for E1156B002B (MDCT 'D' Gear Reducer)	0
71111.18	Miscellaneous	Document No. 38021.009-LR-001	Acceptability Assessment of Weld Repair to Fan Support Anchor Bolt	09/21/2023
71111.18	Miscellaneous	EDP-700015.002	Mechanical Draft Cooling Tower Fan 'D' Anchorage Detail M	0
71111.18	Work Orders	68994737	Repair the MDCT Fan 'D' Gearbox Pedestal and Footing	1
71111.20	Calculations	DC-3603	DCD Volume: Pipe Stress for Line 6DI-B31-7255-1	0
71111.20	Calculations	DC-3603	Pipe Stress Analysis RRS Loop 3 Instrumentation Line CT-B31-6018	0
71111.20	Corrective Action Documents	17-23734	RPS-A EPA Breaker Found Tripped	04/19/2017
71111.20	Corrective Action Documents	2023-32654	Unsatisfactory Acceptance Criteria While Meggering Recirculation 'B' Pump Motor B3103C001B	08/30/2023
71111.20	Corrective Action Documents	2023-32844	Refuel Floor High Radiation Airborne Event	09/06/2023
71111.20	Corrective Action Documents	2023-32852	Spent Fuel Pool Gate Leaking at 20 Drops per Minute	09/06/2023
71111.20	Corrective Action Documents	2023-32853	Airborne Activity on the Refuel Floor	09/06/2023
71111.20	Corrective Action Documents	22-25400	Spent Fuel Pool Gate Leaking at 20 Drips per Minute	04/20/2022
71111.20	Corrective Action Documents	2023-32813	NRC Identified - Observations during Head Lift on Refuel Floor	09/05/2023

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Resulting from Inspection			
71111.20	Corrective Action Documents Resulting from Inspection	2023-32818	NRC Identified Observation: Hands on Load/FME Area Establishment	09/05/2023
71111.20	Drawings	6DI-B31-7255-1	Drywell Instrumentation Isometric Piping from B31L018 to Penet X-29 Reactor Building Drywell	F
71111.20	Drawings	6I721-2045-57	Internal -External Wiring Diagram Inboard Valve Relay Cab H11P622 Part 1 Division 1	AA
71111.20	Drawings	6I721-2101-02	Schematic Diagram Recirculation Pump MG Set 'B' Drive Motor B3103S001B	X
71111.20	Drawings	6I721-2101-04	Schematic Diagram Recirculation Pump Discharge Valve B3105P031B	AA
71111.20	Drawings	6I721-2101-10	Schematic Diagram Recirculation Pump B3101C001A	X
71111.20	Drawings	6I721-2151-01	Schematic Diagram Reactor Protection System Motor-Generator Set 'A'	AL
71111.20	Drawings	6I721-2151-02	Schematic Diagram Reactor Protection System Motor-Generator Set 'B'	Z
71111.20	Drawings	6I721-2201-17	Schematic Diagram RHR Loop 'B' Recirculation INBD Isolation Valve E1150F015B	P
71111.20	Drawings	6I721-2221-05	Schematic Diagram HPCI System - Pump Discharge Isolation Valves E4150F006 and F007	31
71111.20	Drawings	6I721-2225-03	Schematic Diagram HPCI System Logic Circuit Pt 1	AA
71111.20	Drawings	6M721-2035	HPCI Reactor Building	70
71111.20	Drawings	6M721-2083	Diagram RHR Division 2	CC
71111.20	Drawings	6M721-2089	System Diagram Nuclear Boiler System	BP
71111.20	Drawings	6M721-2090	System Diagram Nuclear Boiler System	AP
71111.20	Drawings	6M721-2833	Diagram Reactor Recirculation System Nuclear Boiler System	AK
71111.20	Drawings	6M721-5702-1	Reactor Recirculation System Nuclear Boiler System Functional Operating Sketch	Z
71111.20	Drawings	6M721-5708-1	High Pressure Coolant Injection System Functional Operating Sketch	AS

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.20	Drawings	6M721-5711-1	Reactor Water Cleanup Reactor Building Functional Operating Sketch	40
71111.20	Drawings	6M721-5726	General Service Water System Functional Operating Sketch	CG
71111.20	Drawings	761E214	Recirculation Loop	11
71111.20	Engineering Changes	80047	Installation of Jet Pump Nozzle Plugs [PROPRIETARY]	0
71111.20	Miscellaneous		Pressure and Temperature Limits Report [Confidential]	06/08/2020
71111.20	Miscellaneous		FME Project Plan	3
71111.20	Miscellaneous	N-666-1	Cases of ASME Boiler and Pressure Vessel Code	03/13/2012
71111.20	Miscellaneous	ODE-2	Operations Evolution Order	48
71111.20	Miscellaneous	SH-IC-331-0501-001	B31 Reactor Recirculation System	0
71111.20	Miscellaneous	TE-B31-23-056	Evaluation of Drywell Leak in Sampling Instrumentation Line at Reactor Recirculation Header B31L018	0
71111.20	Miscellaneous	TE-P80-23-060	TRLO 3.0.4(b) Mode Change Restraint Assessment While Diesel Fire Pump Inoperable	0
71111.20	Miscellaneous	TE-P80-23-060	TRLCO 3.0.4(b) Mode Change Restraint Assessment While Diesel Fire Pump Inoperable	1
71111.20	Procedures	20.205.01	Loss of Shutdown Cooling	23
71111.20	Procedures	20.300.RPSB	Loss of RPS 'B'	1
71111.20	Procedures	22.000.02	Plant Startup to 25 Percent Power	110
71111.20	Procedures	22.000.04	Plant Shutdown From 25 Percent Power	92
71111.20	Procedures	23.205	Residual Heat Removal System	149
71111.20	Procedures	23.316, Att. 5A	Shutdown Cooling Isolation Defeat RPS Bus 'B'	0
71111.20	Procedures	23.316, Enclosure B	RPS Bus 'B'–Affected Equipment List	0
71111.20	Procedures	23.316, Enclosure C	RPS Bus 'A'–Trips	0
71111.20	Procedures	23.623	Reactor Manual Control System	78
71111.20	Procedures	24.137.21	Reactor Pressure Vessel System Leakage Test	44
71111.20	Procedures	35.710.016	Installation and Removal of the Jet Pump Nozzle Plugs	24
71111.20	Procedures	42.610.04	Division 2 Normal Supply Reactor Protection System (RPS)	30

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			Electrical Protection Assembly Calibration/Functional Test	
71111.20	Procedures	42.610.04	EPA Channel Functional Test and Completion of Channel Calibration	30
71111.20	Procedures	43.000.005	Visual Examination of Piping and Components (VF-2)	39
71111.20	Procedures	MMA17	Foreign Material Exclusion (FME)	17
71111.20	Procedures	MMA17-200	Refuel Floor FME Plan	2
71111.20	Procedures	MMR App H	Online Core Damage Risk Management Guidelines	17
71111.20	Procedures	MMR12	Equipment out of Service Risk Management	20A
71111.20	Work Orders	69274384	Repair Leak on Reactor Recirc Sample Line Tap, B31L018	08/20/2023
71111.20	Work Orders	69284233	B31L018 - Weld Repair (Socket)	08/21/2023
71111.20	Work Orders	69289464	Installation and Removal of Jet Pump Nozzle Plugs	08/22/2023
71111.20	Work Orders	69301002	Replace S1 and S2 Keylock Switches, EPA Breaker, GE Cable Assembly and Tefzel Wiring of RPS 'B'	08/23/2023
71111.20	Work Orders	69301002	Replace S1 and S2 Keylock Switches, EPA Breaker, GE Cable Assembly and Tefzel Wiring of RPS 'B'	08/23/2023
71111.20	Work Orders	69372412	Leak From GSW Header on TB1 East Aisle/Temp Repair	08/31/2023
71111.24	Corrective Action Documents	2023-32470	Signs of Recirc Sample Line Movement in Pipe Guides	09/07/2023
71111.24	Corrective Action Documents	2023-32513	RF22 Work Request - Address 6DI-B31-7255-1 RRC Chem Sample Line Vibration	09/07/2023
71111.24	Miscellaneous	8MNGTAW/SMAW	ASME Section IX Welding Procedure Specification	18
71111.24	Miscellaneous	TE-B31-23-057	Justify Continued Operation until RF22 After Leak Restoration at Reactor Recirculation Header B31L018	0
71111.24	Procedures	24.307.16	Emergency Diesel Generator 13-Start and Load Test	61
71111.24	Procedures	24.307.37	DGSW, DFOT, and Starting Air Operability Test-EDG 14	64
71111.24	Procedures	64991108	Perform 24.307.16 Sec. 5.2 EDG 13 Start and Load Test-Fast Start	09/14/2023
71111.24	Work Orders	64556944	Perform 24.307.37 Sec. 5.1 & 5.2 DGSW & DFOT Pump/VLV Operability Test-EDG 14	08/15/2023
71111.24	Work Orders	69274384	Repair Leak on RR Sample Line Tap	08/30/2023
71124.07	Corrective Action Documents	10-26965	Commitment Tracking CARD for NEI 07-07	08/11/2010
71124.07	Corrective Action	21-24718	Vendor Incorrectly Processed Radiological Environmental	05/28/2021

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Documents		Monitoring (REMP) Samples Prior to Analysis	
71124.07	Corrective Action Documents	21-24831	Instrument QC Check Performance Not in Line with MCE04 Requirements	06/02/2021
71124.07	Corrective Action Documents	21-24876	REMP Samples Mislabeled	06/03/2021
71124.07	Corrective Action Documents Resulting from Inspection	2023-31933	Minor Administrative Typographical Errors in 2022 AREOR	07/27/2023
71124.07	Corrective Action Documents Resulting from Inspection	2023-31939	Evaluate Improvements to the REMP Air Sampling Enclosures Located Outside the Protected Area	07/27/2023
71124.07	Corrective Action Documents Resulting from Inspection	2023-31940	Provide Enclosure for REMP TLD Locations Outside the Protected area	07/27/2023
71124.07	Miscellaneous	2021 Annual Radioactive Effluent Release Report	Annual Radioactive Effluent Release Report for the Period of January 1, 2021 through December 31, 2022	2021
71124.07	Miscellaneous	2021 Annual Radiological Environmental Operating Report	Annual Radiological Environmental Operating Report for the Period of January 1, 2021 through December 31, 2021	2021
71124.07	Miscellaneous	2022 Annual Radioactive Effluent Release Report	Annual Radioactive Effluent Release Report for the Period of January 1, 2022 through December 31, 2022	2022
71124.07	Miscellaneous	2022 Annual Radiological Environmental Operating Report	Annual Radiological Environmental Operating Report for the Period of January 1, 2022 through December 31, 2022	2022
71124.07	Miscellaneous	NAQA-23-2022	Audit Report for the DTE Audit of Environmental Dosimetry	05/23/2023

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			Company (DTE Audit No. 23-001)	
71124.07	Miscellaneous	Technical Requirements Manual Volume II Offsite Dose Calculation Manual	Offsite Dose Calculation Manual	26
71124.07	Procedures	62.000.301	Low Flow Groundwater Sampling	8
71124.07	Procedures	62.000.302	Groundwater Gauging	3
71124.07	Procedures	MES68	Groundwater Protection Program Structures, Systems, and Components Review	22C
71124.07	Procedures	MRP30	Integrated Groundwater Protection Program	7
71124.07	Procedures	WI-RPT-011	Work Instruction for Voluntary Groundwater Reporting Requirements	2
71124.07	Self-Assessments	2022 Annual Quality Assurance Report for the Radiological Environmental Program (REMP)	GEL Laboratories Quality Assurance Review	03/17/2023
71124.07	Self-Assessments	NPRP-23-0014	Quick Hit Self-Assessment: Radiological Environmental Monitoring Program	03/23/2023
71124.07	Work Orders	57285529	Perform 67.000.104 Review of Site Map Showing Areas for Handling Licensed Material	11/10/2021
71124.07	Work Orders	62:000:210	Water Sampler Weekly Flow Check and Preventive Maintenance for June of 2023	07/03/2023
71124.07	Work Orders	64012645	Perform 64.713.019 Att. 17 Gaseous Effluent Cumulative and Projected Dose (Monthly)	06/19/2023
71151	Corrective Action Documents Resulting from Inspection	2023-33161	NRC Identified - August 2022 RHR/RHRSW/MDCT Performance Indicator (Unavailability) Report Discrepancies	09/19/2023
71151	Miscellaneous		Selected Operators' Narrative Logs	Various
71151	Miscellaneous		RHR Performance Indicators	Various
71151	Miscellaneous		RCIC Performance Indicators	Various

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71151	Work Orders	61351087	Perform 44.020.232 NS4 RCIC Steam Line Flow, Trip Sys B, Functional Test	11/03/2022
71151	Work Orders	63562414	Perform 44020.231 NS4 RCIC Steam Line Flow, Trip Sys A, Functional Test	05/09/2023
71152A	Corrective Action Documents	2023-30775	RCE 23-22040–Speed Switch Drawing Corrections	06/13/2023
71152A	Corrective Action Documents	23-22040	Lost Indication of D MDCT Fan in High-Speed	03/17/2023
71152A	Drawings	4M721-6067-2	RHR Complex Cooling Tower Fan Overspeed Brake Installation Sheet 3 of 4	A
71152A	Drawings	5E721-6001-02	Wiring Diagram RHR Complex Division 2 Cooling Towers Fan Overspeed Brake System	A
71152A	Engineering Changes	80072	MDCT Fan Brake Overspeed Circuit Design Change	D
71152A	Miscellaneous		Purchase Order Change	03/16/2012
71152A	Miscellaneous		Purchase Order Change	07/13/2019
71152A	Miscellaneous	P-1	Quality Assurance Procurement Specification–Nuclear Safety-Related	N
71152A	Procedures	MES07	Review, Approval, and Control of Vendor Design Documents	19
71152A	Procedures	MES90	Standard Design Process Interface	1
71152A	Procedures	MMA11	Post-Maintenance Testing Guidelines	27
71152A	Procedures	MMM02	Procurement Process	19
71152A	Procedures	MMM11	Dedication of Commercial Grade Items	18A