



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

REGION III  
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LISLE, ILLINOIS 60532-4352

August 6, 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: FERMPOWER PLANT, UNIT 2 – INTEGRATED INSPECTION REPORT  
05000341/2021002

Dear Mr. Dietrich:

On June 30, 2021, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Fermi Power Plant, Unit 2. On July 27, 2021, 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.

One finding of very low safety significance (Green) is documented in this report. This finding involved a violation of NRC requirements. We are treating this violation as a non-cited violation (NCV) consistent with Section 2.3.2 of the Enforcement Policy.

Licensee-identified violations which were determined to be of very low safety significance are documented in this report. 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 Feliz-Adorno, Nestor  
on 08/06/21

Néstor J. Feliz Adorno, Chief  
Branch 4  
Division of Reactor Projects

Docket No. 05000341  
License No. NPF-43

Enclosure:  
As stated

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Letter to Peter Dietrich from Néstor J. Félix Adorno dated August 6, 2021.

SUBJECT: FERMIL POWER PLANT, UNIT 2 – INTEGRATED INSPECTION REPORT  
05000341/2021002

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

Docket Number: 05000341

License Number: NPF-43

Report Number: 05000341/2021002

Enterprise Identifier: I-2021-002-0134

Licensee: DTE Electric Company

Facility: Fermi Power Plant, Unit 2

Location: Newport, MI

Inspection Dates: April 01, 2021 to June 30, 2021

Inspectors: T. Briley, Senior Resident Inspector  
T. Taylor, Resident Inspector

Approved By: Néstor J. Félix Adorno, Chief  
Branch 4  
Division of Reactor Projects

Enclosure

## 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. Licensee-identified non-cited violations are documented in report section: 71111.15.

### List of Findings and Violations

Multiple Hourly Fire Watch Tours Not Performed at the Emergency Diesel Generator 11, 12, and 13 Fuel Oil Storage Tank Rooms			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000341/2021002-01 Open/Closed	[H.12] - Avoid Complacency	71111.05
The inspectors identified a finding of very low safety significance (Green) with an associated Non-Cited Violation (NCV) of Technical Specification (TS) 5.4.1, "Procedures," for the failure to perform multiple hourly fire watch tours at the EDG 11, 12, and 13 fuel oil storage tank rooms in accordance with Fire Protection Program procedures.			

### Additional Tracking Items

None.

## PLANT STATUS

Unit 2 began the inspection period at rated thermal power. On May 15, 2021, the unit commenced a planned shutdown to address a steam leak in the reactor building steam tunnel. Following completion of maintenance activities, the reactor was restarted and taken critical on May 22, 2021. The main generator was synchronized to the power grid on May 23, 2021. The unit returned to rated thermal power on May 24, 2021. The unit remained at or near rated thermal power for the remainder of the inspection period.

## 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 (COVID-19), resident and regional inspectors were directed to begin telework and to remotely access licensee information using available technology. During this time, the resident inspectors performed periodic site visits each week, increasing the amount of time on site as local COVID-19 conditions permitted. As part of their onsite activities, resident inspectors conducted plant status activities as described in IMC 2515, Appendix D; observed risk significant activities; and completed on site portions of IPs. In addition, resident and regional baseline inspections were evaluated to determine if all or a portion of the objectives and requirements stated in the IP could be performed remotely. If the inspections could be performed remotely, they were conducted per the applicable IP. In some cases, portions of an IP were completed remotely and on site. The inspections documented below met the objectives and requirements for completion of the IP.

## REACTOR SAFETY

### 71111.01 - Adverse Weather Protection

#### Seasonal Extreme Weather Sample (IP Section 03.01) (1 Sample)

The inspectors evaluated readiness for seasonal extreme weather conditions prior to the onset of seasonal hot temperatures for the following systems:

- (1) Division 1 120 kV switchyard and Division 2 345 kV switchyard during the week ending June 30, 2021

#### 71111.04 - Equipment Alignment

##### Partial Walkdown Sample (IP Section 03.01) (3 Samples)

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

- (1) Standby feedwater (SBFW) system 'A' while SBFW system 'B' was out of service for planned maintenance during the week ending May 15, 2021
- (2) Division 1 standby gas treatment (SBGT) system following planned maintenance and surveillance testing during the week ending May 15, 2021
- (3) Division 1 core spray system while Division 2 core spray system was out of service for planned maintenance during the week ending June 19, 2021

##### Complete Walkdown Sample (IP Section 03.02) (1 Sample)

- (1) The inspectors completed an evaluation of system configuration during a complete walkdown of the reactor core isolation cooling (RCIC) system on June 30, 2021

#### 71111.05 - Fire Protection

##### Fire Area Walkdown and Inspection Sample (IP Section 03.01) (5 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) Residual heat removal (RHR) complex, emergency diesel generator (EDG) 11 engine room and fuel oil storage tank room during the week ending February 19, 2021
- (2) RHR complex, EDG 12 engine room and fuel oil storage tank room during the week ending February 19, 2021
- (3) RHR complex, EDG 13 engine room and fuel oil storage tank room during the week ending March 13, 2021
- (4) Reactor building fourth floor, reactor recirculation motor generator set area during the week ending May 1, 2021
- (5) Reactor building sub-basement, high pressure coolant injection pump room during the week ending May 1, 2021

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

- (1) The inspectors evaluated fire brigade training and performance during an offsite live burn training scenario on June 25, 2021

#### 71111.06 - Flood Protection Measures

##### Inspection Activities - Internal Flooding (IP Section 03.01) (1 Sample)

The inspectors evaluated internal flooding mitigation protections in the:

- (1) High pressure coolant injection (HPCI) room following identification of a degraded HPCI flood seal during the week ending May 15, 2021

71111.07A - Heat Sink Performance

Annual Review (IP Section 03.01) (1 Sample)

The inspectors evaluated readiness and performance of:

- (1) P4400B001A heat exchanger on Division 1 emergency equipment cooling water (EECW)

71111.11Q - Licensed Operator Requalification Program and Licensed Operator Performance

Licensed Operator Performance in the Actual Plant/Main Control Room (IP Section 03.01) (2 Samples)

- (1) The inspectors observed and evaluated licensed operator performance in the control room during shifting of reactor recirculation pump motor generator set ventilation fans during the week ending April 10, 2021
- (2) The inspectors observed and evaluated licensed operator performance in the control room during a planned downpower evolution for a steam leak investigation in the reactor building steam tunnel on May 15, 2021

Licensed Operator Requalification Training/Examinations (IP Section 03.02) (1 Sample)

- (1) The inspectors observed and evaluated licensed operator requalification training in the simulator on June 1, 2021

71111.12 - Maintenance Effectiveness

Maintenance Effectiveness (IP Section 03.01) (1 Partial)

The inspectors evaluated the effectiveness of maintenance to ensure the following structures, systems, and components (SSCs) remain capable of performing their intended function:

- (1) (Partial)  
General Electric HFA relays (multiple plant systems)



### 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) Emergent work on temporary in-core probes and associated risk assessment for scheduled local power range monitor testing and calibration during the week ending May 1, 2021
- (2) Emergent work to diagnose and repair separator seal tank level issue during the week ending May 1, 2021
- (3) Emergent work to diagnose and repair an underground cable fault that resulted in loss of 13 kV tag line and control power to transformer 1 in the Division 1 120 kV switchyard

### 71111.15 - Operability Determinations and Functionality Assessments

#### Operability Determination or Functionality Assessment (IP Section 03.01) (1 Sample)

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

- (1) Operability and functionality of the alternate diesel fire pump with less than design discharge flow, as documented in CARDS 21-21167 and 21-21704

### 71111.19 - Post-Maintenance Testing

#### Post-Maintenance Test Sample (IP Section 03.01) (6 Samples)

The inspectors evaluated the following post-maintenance test activities to verify system operability and functionality:

- (1) Emergency core cooling system (ECCS) reactor water level 2 relay (B21K202C) testing following relay replacement during the week ending April 17, 2021
- (2) EDG 11 testing following an overspeed reset failure during the week ending May 8, 2021
- (3) East turbine bypass valve testing following failure to properly open during the week ending May 22, 2021
- (4) Division 1 control complex heating ventilation and air conditioning (CCHVAC) chiller adjustments following high oil temperature trip during the week ending June 12, 2021
- (5) Reactor core isolation cooling steam line outboard containment isolation valve (E5150F008) testing following packing leak repairs during the week ending June 30, 2021
- (6) Reactor protection system 'B' system testing following electrical protection assembly breaker repair during the week ending June 30, 2021

71111.20 - Refueling and Other Outage Activities

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

- (1) The inspectors evaluated mid-cycle outage activities associated with a reactor building steam tunnel steam leak from May 16, 2021 to May 23, 2021

71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

Surveillance Tests (other) (IP Section 03.01) (2 Samples)

- (1) Main steam isolation valve and turbine stop valve testing during the week ending May 29, 2021
- (2) Local power range monitor testing with degraded in-core probe system during the week ending June 30, 2021

FLEX Testing (IP Section 03.02) (1 Sample)

- (1) Standby gas treatment system valve operability test during the week ending May 8, 2021

**OTHER ACTIVITIES – BASELINE**

71151 - Performance Indicator Verification

The inspectors verified licensee performance indicators submittals listed below:

MS06: Emergency AC Power Systems (IP Section 02.05) (1 Sample)

- (1) Unit 2 (April 1, 2020 – March 31, 2021)

MS07: High Pressure Injection Systems (IP Section 02.06) (1 Sample)

- (1) Unit 2 (April 1, 2020 – March 31, 2021)

BI02: RCS Leak Rate Sample (IP Section 02.11) (1 Sample)

- (1) Unit 2 (April 1, 2020 – March 31, 2021)

71152 - Problem Identification and Resolution

Semiannual Trend Review (IP Section 02.02) (1 Sample)

- (1) The inspectors reviewed the licensee's corrective action program for potential adverse trends that might be indicative of a more significant safety issue.

## INSPECTION RESULTS

Multiple Hourly Fire Watch Tours Not Performed at the Emergency Diesel Generator 11, 12, and 13 Fuel Oil Storage Tank Rooms			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000341/2021002-01 Open/Closed	[H.12] - Avoid Complacency	71111.05
<p>The inspectors identified a finding of very low safety significance (Green) with an associated Non-Cited Violation (NCV) of Technical Specification (TS) 5.4.1, "Procedures," for the failure to perform multiple hourly fire watch tours at the EDG 11, 12, and 13 fuel oil storage tank rooms in accordance with Fire Protection Program procedures.</p> <p><u>Description:</u></p> <p>On February 8, 2021, the licensee initiated fire impairment 2021-0028 after identifying a degraded alternate diesel fire pump (ADFP). The ADFP had just been installed as a backup system to a non-functional permanently installed diesel fire pump. The ADFP was degraded because it produced less than the required design flow rate due to a pump suction configuration problem. The licensee performed a fire protection engineering evaluation (i.e., FPEE 21-0003) of the fire water suppression system with the ADFP degraded flow rate and determined the minimum sprinkler system flow in several plant locations could not be met if the ADFP was placed in service without the electric fire pump. These locations included the Division 1 EDG 11 and EDG 12 fuel oil storage tank rooms (two physically separate spaces) and the Division 2 EDG 13 fuel oil storage tank room. The compensatory fire impairment specified hourly fire watch tours in those locations until the ADFP pump was fully capable of producing the fire water suppression system design flow rate. Licensee procedure MOP 11-100, "Fire Protection System Implementation," Revision 7, step 4.4.1 stated, "an hourly fire watch is a tour of all items/areas on the Out of Specification Log Sheet. These tours are to be performed within a one-hour period and will begin approximately on the hour and terminate before the next hour. Tours will terminate in the control room."</p> <p>The inspectors performed a historical review of the key card reader data for each affected location. They noted several hourly fire watches where it appeared the individual assigned fire watch duties did not enter the location as needed to perform the fire watch tours of the EDG 11, 12, and 13 fuel oil storage tank rooms. Subsequent investigation by the licensee confirmed four fire watch tours (i.e., February 19, 2021, 3:00 p.m. for Division 1 EDG 11 and 12 fuel oil storage tank rooms and 6:00 p.m., 7:00 p.m., and 8:00 p.m. for Division 2 EDG 13 fuel oil storage tank room) were inadvertently not performed. The inspectors also noted multiple fire watch tours that had questionable tour performance completion times. Specifically, the inspectors questioned the licensee on the feasibility of traversing to the specified rooms given the tour completion times as indicated by key card reader history. The licensee investigated the questionable times and determined a programmatic fire watch implementation problem existed. Specifically, multiple individuals assigned fire watch duties were not performing the tours properly. These improper tours were generally the result of personnel going to the incorrect location. For example, some individuals walked down the EDG 13 engine room instead of the assigned EDG 13 fuel oil storage tank room. The licensee determined multiple assigned fire watch personnel did not thoroughly review or have the written list of assigned fire watch tour locations in hand while in the field, did not fully utilize available human performance practices for verification, and performed less than</p>			

adequate turnovers discussing assigned fire watch duties and programmatic responsibilities. It was also determined that fire watch training and procedural guidance did not specify how to perform a fire watch tour once an individual arrived at the correct location (e.g., what to look for and how extensive of a room walkdown is to be performed based on the type of fire impairment). The inspectors noted that multiple divisional fire watch tours were not performed at the specified locations based on independent inspector time trials and data analytics of the key card reader time stamps for the assigned fire watch personnel between February 8, 2021 and February 25, 2021.

Corrective Actions: The licensee corrective actions included, but were not limited to, development of a new fire protection procedure that specified specific fire watch roles and responsibilities, including how to properly conduct an hourly fire watch tour; additional supervisory checks and balances to ensure fire watch tours are being properly performed; and enhancements to fire watch turnovers, including utilization of a copy of the specified fire watch location paperwork.

Corrective Action References: CARD 21-22547

Performance Assessment:

Performance Deficiency: The inspectors determined that the licensee's failure to perform hourly fire watch tours at the EDG 11, 12, and 13 fuel oil storage tank rooms was contrary to revision 7 of procedure MOP11-100 and was a performance deficiency.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Protection Against External Factors 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, the failure to perform multiple hourly fire watch tours as a compensatory measure for the degraded fire water suppression system does not ensure the EDGs 11, 12, and 13 would remain available to perform their accident mitigating function.

Significance: The inspectors assessed the significance of the finding using Appendix F, "Fire Protection and Post - Fire Safe Shutdown SDP." The inspectors assessed the significance of the finding using Appendix F, "Fire Protection and Post - Fire Safe Shutdown SDP." The inspectors assessed the significance of the finding using Inspection Manual Chapter (IMC) 0609, Appendix F, Attachment 1, "Fire Protection Significance Determination Process Worksheet," dated May 2, 2018. In accordance with Step 1.4.2, "Fixed Fire Protection Systems," the inspectors determined that the finding was of very low safety significance (i.e., Green). Specifically, the degraded AFDP did not adversely affect the ability of the fixed fire protection system to protect any equipment important to safe shutdown. The electric fire pump was available (and starts first on lowering fire water suppression system header pressure) to provide full design flow for the duration of the compensatory fire watches.

Cross-Cutting Aspect: H.12 - Avoid Complacency: Individuals recognize and plan for the possibility of mistakes, latent issues, and inherent risk, even while expecting successful outcomes. Individuals implement appropriate error reduction tools. Specifically, assigned fire watch personnel did not use human performance practices for task execution and verification, and turnovers.

Enforcement:

Violation: Technical Specification 5.4.1.d states that written procedures shall be established, implemented, and maintained covering fire protection program implementation. The licensee established MOP11-100, "Fire Protection System Implementation," Revision 7 as a fire protection program implementation procedure. Step 4.4.1 of this procedure was applicable for implementation of compensatory fire watches. It stated "an hourly fire watch is a tour of all items/areas on the Out of Specification Log Sheet. These tours are to be performed within a one-hour period and will begin approximately on the hour and terminate before the next hour. Tours will terminate in the control room."

Contrary to the above, from February 8, 2021 to February 25, 2021, the licensee failed to implement written procedures covering fire protection program implementation. Specifically, the licensee included the EDG 11, 12, and 13 fuel oil storage tank rooms in the Out of Specification Log Sheet. However, the licensee did not perform multiple hourly fire watch tours on these locations. On February 19, 2021, the 3:00 p.m. assigned fire watch did not enter the Division 1 EDG 11 and 12 fuel oil storage tank rooms. Similarly, on February 19, 2021, the 6:00 p.m., 7:00 p.m., and 8:00 p.m. assigned fire watch did not perform the Division 2 EDG 13 fuel oil storage room tour. In addition, multiple hourly fire watches between February 8, 2021, and February 25, 2021, were not performed by the assigned hourly fire watch in the Division 1 EDG 11 and 12 fuel oil storage tank rooms and Division 2 EDG 13 fuel oil storage tank room based on performance completion times that were determined not to be feasible (i.e., could not reasonably get to the specified rooms in the logged completion times).

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

Licensee-Identified Non-Cited Violation

71111.15

This violation of very low safety significance was identified by the licensee and has been entered into the licensee corrective action program and is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy.

Violation: Technical Specification 5.4.1.d states that written procedures shall be established, implemented, and maintained covering fire protection program implementation.

Contrary to the above, from April 30, 2007, to February 8, 2021, the licensee did not maintain written procedures covering fire protection program implementation. Specifically, the licensee established 28.504.03, "Fire Suppression Water System Simulated Automatic Actuation Test," as a fire protection program implementing procedure. It contained acceptance criteria for electric fire pump, diesel fire pump, and alternate diesel fire pump (when installed as a temporary backup system) water flow and discharge pressure to verify that the water supply for the fire suppression water systems were consistent with plant design calculations. Design Calculation 5713 Volume 1, "Hydraulic Evaluation of the Fire Distribution Loop," established the acceptance criteria to meet various regulatory and National Fire Protection Association (NFPA) code requirements. However, revisions 18 through 30 of procedure 28.504.03 did not have its acceptance criteria revised when the acceptance criteria derived by revision C of Design Calculation 5713 was revised with more restrictive values.

Significance/Severity: Green. The inspectors assessed the significance of the finding using Inspection Manual Chapter (IMC) 0609, Appendix F, Attachment 1, Fire Protection Significance Determination Process Worksheet, dated May 2, 2018. In accordance with Step 1.4.3 Fire Water Supply, the inspectors determined that the finding was of very low safety significance (i.e., Green). Specifically, adequate fire water capacity was still available for protection of equipment important to safe shutdown in the most limiting location onsite as one or more fire pumps met the applicable acceptance criteria values based on review of surveillance record history.

Corrective Action References: CARD 21-21583

Licensee-Identified Non-Cited Violation	71111.15
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This violation of very low safety significance was identified by the licensee and has been entered into the licensee corrective action program and is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy.

Violation: License condition 2(C)(9), "Modifications for Fire Protection," states, in part, DTE Electric Company shall implement and maintain in effect all provisions of the approved fire protection program as described in the Final Safety Analysis Report (FSAR).

Contrary to the above, from February 7, 2021, to February 24, 2021, the licensee failed to implement and maintain in effect all provisions of the approved fire protection program as described in the FSAR. Specifically, Updated Final Safety Analysis Report (UFSAR) section 9.5.1.1, "Fire Protection Program Design Basis," states, in part, the Fermi 2 fire protection system was designed and developed using National Fire Protection Association (NFPA) standards. UFSAR section 9.5.1.1.2, "Codes and Standards," references NFPA 20 (1970 edition), "Standard for the Installation of Centrifugal Fire Pumps," as a code and standard used for guidance in the design of the fire protection system. UFSAR 9.5.1.2.1 states the fire pumps meet the intent of NFPA 20. NFPA 20 (1970 edition), section 143.1, "Suction Connections," states, in part, suction inlets should be at least 12 inches above the bottom of sump or suction well to avoid obstruction. However, the alternate diesel fire pump (ADFP) suction inlet was installed on the bottom of the general service water pump pit. This resulted in degraded ADFP discharge flow rates requiring compensatory actions.

Significance/Severity: Green. The inspectors assessed the significance of the finding using Inspection Manual Chapter (IMC) 0609, Appendix F, Attachment 1, Fire Protection Significance Determination Process Worksheet, dated May 2, 2018. In accordance with Step 1.4.3 Fire Water Supply, the inspectors determined that the finding was of very low safety significance (i.e., Green). Specifically, adequate fire water capacity was still available for protection of equipment important to safe shutdown in the most limiting location onsite, despite the degraded ADFP discharge flow, as the electric fire pump remained available to meet full system design parameters.

Corrective Action References: CARD 21-21704

Observation: Semiannual Trend Review	71152
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The inspectors identified a negative trend in the thoroughness of the licensee's review of several operational issues. The inspectors also noted a number of human performance issues over the last several months that were, in part, attributed to a lack of attention to detail, and/or complacency. While some issues were identified by the licensee as they occurred,

others were identified by the inspectors as they performed an independent review. Examples included but were not limited to:

- The inspectors identified that an Engineering Functional Analysis (EFA) for a degraded flooding seal in the high pressure coolant injection pump room established a compensatory measure that did not support operability. The licensee subsequently implemented an appropriate compensatory measure. Further, the inspectors identified the licensee incorrectly assumed a normal shutdown would commence versus a reactor scram per licensee emergency procedures when determining the time water would reach a certain height after a hypothetical torus rupture. This error did not affect the outcome of the evaluation. The inspectors did not identify a violation of regulatory requirements associated with this example.
- The licensee performed a past operability evaluation for a violation associated with the improper storage of nitrogen bottles documented in NRC inspection report 05000341/2021001 (ADAMS Accession: ML21124A128) as NCV 05000341/2021001-01. However, the inspectors identified that the licensee evaluation of an affected location was an existing analysis performed on a different plant location that was not applicable for the operability evaluation. This error did not affect the outcome of the evaluation. The inspectors did not identify a violation of regulatory requirements associated with this example.
- The licensee, at times, maintained a door to the steam tunnel from the reactor building first floor open in Mode 1. The licensee maintained the door open when personnel were inside the area investigating elevated area temperatures in the reactor building steam tunnel. The door served several functions, which included a high-energy-line-break (HELB) barrier. However, the inspectors noted the licensee did not evaluate the impact of maintaining the door open on its function. After questioning by the inspectors, the licensee determined that maintaining the door open for reasons other than momentary transit constituted an unanalyzed condition. As a result, the licensee submitted an eight-hour non-emergency event notification to the NRC (EN 55231) and a corresponding license event report (LER 2021-001-00). The inspectors plan to perform additional review of the circumstances discussed in the event report.
- Air-operated valve T4600F407 had a function to isolate the non-safety-related reactor building ventilation system from the safety-related standby gas treatment system (SBGT). It failed to stroke closed during a planned surveillance test. The licensee replaced an air cylinder and some internal components on the actuator. The licensee did not perform a post-maintenance test to verify proper operation of the valve and left it in the open position with the pneumatics to close the valve isolated. The licensee stated they were concerned that if the valve failed to reopen during testing or was inadvertently closed, the operability of both divisions of SBGT could be impacted. However, the inspectors noted that, while the valve was failed into its safety position to support SBGT system operability, it had a required FLEX function to close during beyond-design-basis events to vent primary containment. While the licensee had concluded pneumatics could be restored during a beyond-design-basis event, the inspectors identified the condition was not documented per site procedure MOP25, "Beyond-Design-Basis Event Coping Strategies Program Document," as a condition affecting hardened vent capability for in excess of 30 days. Additionally, the licensee later determined their initial assessment of the impact on the SBGT system was incorrect, in that failure of the valve to open would impact only one division of the SBGT system. The valve was subsequently successfully tested. The inspectors did not identify a violation of regulatory requirements associated with this example.

## **EXIT MEETINGS AND DEBRIEFS**

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

- On July 27, 2021, the inspectors presented the integrated inspection results to Mr. P. Dietrich, Chief Nuclear Officer, and other members of the licensee staff.



**DOCUMENTS REVIEWED**

Inspection Procedure	Type	Designation	Description or Title	Revision or Date	
71111.01	Corrective Action Documents	21-22519	3 Ceramic Insulators Missing Parts	03/21/2021	
		21-25739	Breaker A7 open (Bus 1-2B) Overcurrent on X Phase	06/29/2021	
	Miscellaneous	Main Turbine Generator Transformers	S1100 Main Turbine Generator Transformers System Health Report 1Q2021	05/03/2021	
		S2000 345kV Switchyard	345kV Switchyard System Health Report 1Q2021	05/03/2021	
	Procedures	MWC16-100	Seasonal Readiness	2	
71111.04	Corrective Action Documents Resulting from Inspection	21-25340	NRC Identified E2100-F010A Missing Handwheel Stem Nut	06/16/2021	
	Drawings	6M721-2034	Diagram Core Spray System	AS	
		6M721-2044	Reactor Core Isolation Cooling System	BE	
		6M721-2045	Reactor Core Isolation Cooling (RCIC) System Barometric Condenser	AT	
		6M721-2709	Standby Gas Treatment and Primary Containment Purge System Reactor Building	AI	
		6M721-5083	Piping and Instrument Diagram Standby Feedwater System	U	
		6M721-5737	Standby Gas Treatment System	AA	
	Procedures	23.107.01	Standby Feedwater System	45	
		23.203	Core Spray System	70	
		23.206	Reactor Core Isolation Cooling System	105	
		23.404	Standby Gas Treatment System	60	
	71111.05	Corrective Action Documents	16-29844	Expectations for Fire Watch Rounds Requires Clarification and Documentation	12/11/2016
			20-28405	Fire Brigade Annual Live Burn Requirement Will go Overdue due to COVID-19 on 8/22/2020	07/20/2020
21-22116			Door Modified	03/08/2021	
21-23702			Water-Tight Penetration	04/27/2021	
Corrective Action Documents		21-22547	Failure to Compensatory Fire Watch Inspections - NRC Identified	03/22/2021	

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Resulting from Inspection	21-23889	Several Sprinklers in Close Proximity to HVAC Ducting - NRC Identified	05/04/2021
		21-24760	NRC Question - Extent of Condition Review for Modified Door (RHR - D26)	05/31/2021
	Drawings	6A721-2351	Reactor and Auxiliary Building Sub-Basement Walls	M
		6A721-2401	Fire Protection Evaluation Reactor Building Sub-Basement	L
		6M721N-2027	General Arrangement RHR Complex Grade Floor Plan	I
		A-N-2641	Fire Protection Residual Heat Removal Complex Floor Plan EL. 590'-0"	0
	Fire Plans	FP-RB-4-17b	Reactor Building Recirculation System Motor Generator Area, Zone 17, Elevation 659'6"	5
		FP-RB-SB-4a	High Pressure Coolant Injection Pump and Turbine Room, Zone 4	5
		FP-RHR-1-11-EDG	RHR Complex, EDG 11 Room, El. 590'-0"	5
		FP-RHR-1-11-OS	RHR Complex, EDG 11 Oil Storage Room, El. 590'-0"	5
		FP-RHR-1-12-EDG	RHR Complex, EDG 12 Room, El. 590'-0"	7
		FP-RHR-1-12-OS	RHR Complex, EDG 12 Oil Storage Room, EL. 590'-0"	4
		FP-RHR-1-13-EDG	RHR Complex, EDG 13 Room, El 590'-0"	7
		FP-RHR-1-13-OS	RHR Complex, EDG 13 Oil Storage Room, El 590'-0"	4
		FPEE-05-0020	NFPA 13-1980 Non-Compliances for Several Sprinkler Systems	2
	Procedures	23.501.01	Fire Water Suppression System	64
		28.507.03	Fire Door Inspection – BOP	34
		35.000.242	Barrier Identification and Classification	58
		MOP11-100	Fire Protection Implementation	7
	71111.06	Calculations	DC-4689	Flood Depth in the Torus Room Assuming a Torus Rupture
Corrective Action Documents		21-23702	Water-Tight Penetration	04/27/2021
		21-23890	Tracking CARD for EFA-E41-21-03, High Pressure Coolant Injection Wall Penetration Gap, Comp Measure	05/04/20201
		21-23932	Potential Confusion Associated with Operability Determination of CARD 21-23702	05/05/20201

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Procedures	ARP 2D82	Reactor Building Torus Sump Level Hi-Hi/Lo-Lo	11
71111.07A	Corrective Action Documents	19-24051	Recommend Scheduling Swap of the Division 1 EECW Heat Exchangers	05/28/2019
		19-27521	Unexpected Increase in Division 1 EECW Heat Exchanger Differential Pressure After Recent Swap	10/03/2019
		20-29940	Division 1 EECW Plat/Frame Hx Cleaning WO Scope Deleted and Rescheduled Numerous Times	09/03/2020
	Miscellaneous	Heat Exchanger Inspection Report	EECW Division 1 Plate Frame Hx, WO 54099224	03/01/2021
		VMB9-37	Alfa Laval MX25-BFD Plate Heat Exchanger Instruction Manual	A
	Work Orders	54099224	Clean EECW Division 1 'A' Plate Type Heat Exchanger	03/02/2021
71111.11Q	Miscellaneous	Training Change Request SS-OP-202-2066	Simulator Lesson Plan	0
		Training Change Request SS-OP-202-2068	Simulator Lesson Plan	0
	Procedures	20.107.02	Loss of Feedwater Heating	26
		22.000.03	Power Operation 25% to 100% to 25%	106
		29.100.01 SH 1	RPV Control	18
		29.100.01 SH 1A	RPV Control – ATWS	17
71111.12	Corrective Action Documents	21-24863	E4150F042 Valve Slow to Open During 44.030.153	06/03/2021
	Corrective Action Documents Resulting from Inspection	21-25339	Response to NRC Question Regarding HFA Relays Extent of Condition	06/16/2021
	Procedures	35.318.017	Inspection and Testing of Multi-Contact Auxiliary Relays	53
71111.13	Corrective Action Documents	21-21105	TIP 'D' Squib Valve Partial Discharge During Troubleshooting	02/04/2021
		21-23548	Air Line Disconnected on N22F414B Causing the Valve to Fail Open	04/21/2021
		21-23562	I/V Curve Unsuccessful I/V Curve on TIP 'E'	04/22/2021

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Drawings	21-25739	Breaker A7 Open (Bus 1-2B) Overcurrent on X Phase	06/29/2021
		SD-2500-01	One Line Diagram Plant 4160V & 480V System Service	CD
	Miscellaneous	SD-2500-02	One Line Diagram 13.8 kV	BE
		ODE-2	Operations Evolution Order	20
		Risk Management Plan	TIP Detector Isolation	04/22/2021
71111.15	Calculations	DC 5713 Volume 1	Hydraulic Evaluation of the Fire Distribution Loop	C-F
	Corrective Action Documents	21-21167	Alternate Diesel Fire Pump Flow Concern	02/07/2021
		21-21191	Alternate Diesel Fire Pump Did Not Achieve 2500 gpm @ 150 psig	02/08/2021
		21-21250	Indications of a Partially Plugged Suction Line During Alternate Diesel Fire Pump Run	02/10/2021
		21-21583	Investigation into TRSR 3.12.2.13	02/18/2021
		21-21704	Suction Hoses Installed Beyond Expected Depth	02/23/2021
Procedures	28.504.03	Fire Suppression Water System Simulated Automatic Actuation Test	18-30	
71111.19	Corrective Action Documents	13-24513	EDG 13 Overspeed Trip Alarm During Standby Checks	06/24/2013
		17-23166	Recommend Enhancement on EDG Overspeed Switch	04/06/2017
		21-22187	EDG 11 Overspeed Will Not Reset	03/09/2021
		21-23248	Contacts Slow to Close	04/13/2021
		21-24247	T100B009 Division 1 CCHVAC Chiller Trip (MCR Alarm 8D5)	05/14/2021
		21-24290	Leak Walkdown - Valve Packing Leak on E5150F008 "RCIC Turbine Steam Supply OTBD CNTM ISO MOV"	05/16/2021
		21-24307	CCHVAC EIT Request Spec Sheet Change to Adjust Division 1 CCHVAC Oil Cooler Set Point	05/16/2021
		21-24355	N1100F059A MS East Bypass Valve Discrepancies During 24.109.02	05/17/2021
		21-24365	NQA – Forced Outage 21-01 Contingency Work Order 61221325 – Replace Heat Stressed Cables to E5150008 Was Not Routed to QA for Review	05/18/2021
		21-24383	Leadership Gap – Maximum Appropriate Involvement Not Achieved During Evaluation of E5150F008 MOV As-Found	05/18/2021

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			Conditions	
		21-24386	E5150F008 As-Found Condition FO 2021-01	05/18/2021
		21-24416	Work Order Revision Recommended	05/19/2021
		21-24430	Trip of RPS B, 'B' EPA Breaker Tripped Causing Loss of RPS B	05/18/2021
		21-24511	Failed PMT During EPA 'B' Channel Functional – 61260479	05/21/2021
	Drawings	6I721-2095-29	NBS ANN Inputs and Relay Tabulation Testability Modification	AH
		6I721-2151-02	Reactor Protection System Motor Generator Set 'B'	Z
		6M721-4325	Water, Side and Miscellaneous Chiller Inst. Control Center A/C System Reactor Building	AG
		AMD-4312	Elec Protection Assembly	F
	Miscellaneous	ACMP 21-07	Division 1 CCHVAC Chiller	0
		LCO 2021-0178B	Operations Log	0
		VMS25-49	Centrifugal Water Chillers	L
	Procedures	24.109.02	Turbine Bypass Valve Operability Test	37
		44.30.253	ECCS - Reactor Vessel Water Level (Levels 1, 2, and 8), Division 1, Channel C Functional Test	57
	Work Orders	43041256	Contingency Work Order Requested for 44.030.253; Level 1, 2, and 8 Channel C Functional	08/13/2015
		61210452	Received 8D5 Division 1 Control Room A/C Trouble in the MCR	05/14/2021
		61217916	Received D5 Division 1 Control Room A/C Trouble in the MCR	05/15/2021
		61221106	E5150F008 Damage to Valve Stem	05/17/2021
		61222390	Install Monitoring Equipment and Adjust Lube Oil Pressure	05/17/2021
		61249461	N1100F059A MS East Bypass Valve Discrepancies During 24.109.02	05/19/2021
71111.20	Corrective Action Documents	21-24268	Water Leaks Identified from Three Drywell Penetrations	05/15/2021
		21-24276	TB2 Steam Tunnel	05/15/2021
		21-24277	Steam Leak Noted in TB2 Steam Tunnel, N2200F64	05/15/2021
		21-24278	Steam Leak Noted in TB2 Steam Tunnel, N200F349	05/15/2021

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		21-24302	Main Turbine Generator Rubbing Observed During Coast Down After Trip	05/16/2021
		21-24303	Control Rod 06-27 Over Inserted During Scram	05/16/2021
		21-24374	Request Work Order to Support Transducer Calibration Check of MTG Instrumentation	05/18/2021
		21-24386	E5150F008 As-Found Condition FO 2021-01	05/18/2021
		21-24494	Untimely Issue Resolution and/or Poor Communications Associated with G3352F220 Results in Increased Dose and Radiological Risk	05/21/2021
		21-24506	Untimely Identification of Issues in Corrective Action Program and to OCC	05/21/2021
	Corrective Action Documents Resulting from Inspection	21-24360	NRC Concern	05/17/2021
	Engineering Evaluations	FPEE-02-0020	Fire Barrier Evaluation for Turbine Building Steam Tunnel Penetration Seals to the Torus Room Ceiling	0
	Miscellaneous	Reactivity Maneuvering Plan	FO 21-01 Reactor Startup	0
	Procedures	22.000.04	Plant Shutdown from 25% Power	89
		22.000.05	Pressure and Temperature Monitoring During Heat up and Cooldown	53
		23.205	Residual Heat Removal System	148
		23.623	Reactor Manual Control System	75
		54.000.01	Shutdown Margin Check	36A
	71111.22	Corrective Action Documents	20-29133	TIP 'E' Flux Lower than Expected on TIP Run
21-22988			T4600F407 Failed to Stroke During 24.404.03	04/04/2021
21-23507			TIP 'E' Signal Cable TDR and Detector I/V Curve Tests Reveal TIP 'E' Detector is Functional	04/21/2021
21-23754			Unexpected Message Received from 3DMonicore When Reprocessing TIPs	04/28/2021
Drawings	D-35730	Assembly Drawing T4XXB-SR (CW) and T4XXB-SR (CW) – M3	J	

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Miscellaneous	T4600-000149	Configuration Control of T4600F407 due to Failing to Stroke Closed During Surveillance Test 24.404.03	05/04/2021
	Procedures	23.206	Traversing In-Core Probe (TIP) System	39
		24.110.05	RPS – Turbine Control and Stop Valve Functional Test	48
		29.FSG.13	FLEX Containment Venting	6
		54.000.05	LPRM Calibration	53
MOP 25	Beyond-Design-Basis Event Coping Strategies Program Document	8		
71151	Miscellaneous		Fermi 2 EDG MSPI and WANO Performance Indicators	04/2020 - 03/2021
			Fermi 2 HPCI Performance Indicators	04/2020 - 03/2021
			RCS Leakage Data	2020
			RCS Leakage Data	2021
	MSPI	Mitigating Systems Performance Index (MSPI) Basis Document	8	
Procedures	24.000.02	Shiftly, Daily, and Weekly Required Surveillances	159	
71152	Corrective Action Documents	21-22988	T4600F407 Failed to Stroke During 24.404.03	04/04/2021
		21-23702	Water-Tight Penetration	04/27/2021
		21-23782	Crew Learning Opportunity, Incorrect Clearance Authorized for Work (Level 4 Tagging Issue)	04/29/2021
	Corrective Action Documents Resulting from Inspection	21-23235	NRC Identified: Inadequate Communications Results in Revision to Technical Evaluation (TE-A30-21-005) for Past Operability of N2 Bottle Rack	04/12/2021
		21-23817	NRC Concerns Regarding Steam Tunnel Entries	04/30/2021
	Miscellaneous	CLO Worksheet	21-23703 MCR Received 17D21 Division 2 SGTS CO2 Storage Vessel Press High/Low	04/27/2021
Work Orders	46479459	Replace Defective Terminal Blocks at T46P408B	04/27/2021	