



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

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

November 9, 2022

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 – DESIGN BASIS ASSURANCE INSPECTION
(TEAMS) INSPECTION REPORT 05000341/2022010**

Dear Peter Dietrich:

On September 30, 2022, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Fermi Power Plant, Unit 2 and discussed the results of this inspection with Mr. E. Olson, Site Vice President 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. One of these findings 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.

If you contest the violation or the significance or severity of the violation 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 or a finding not associated with a regulatory requirement 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 11/09/22

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

Docket No. 05000341
License No. NPF-43

Enclosure:
As stated

cc w/ encl: Distribution via LISTSERV

Letter to Peter Dietrich from Karla K. Stoedter dated November 9, 2022.

SUBJECT: FERMIL POWER PLANT, UNIT 2 – DESIGN BASIS ASSURANCE INSPECTION (TEAMS) INSPECTION REPORT 05000341/2022010

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

Docket Number: 05000341

License Number: NPF-43

Report Number: 05000341/2022010

Enterprise Identifier: I-2022-010-0048

Licensee: DTE Electric Company

Facility: Fermi Power Plant, Unit 2

Location: Newport, MI

Inspection Dates: August 08, 2022 to September 30, 2022

Inspectors: C. Baron, Mechanical Contractor
J. Benjamin, Senior Resident Inspector
B. Daley, Senior Reactor Inspector
M. Domke, Reactor Inspector
K. Fay, Reactor Inspector
B. Jose, Senior Reactor Inspector
E. Sanchez Santiago, Senior Project Engineer

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

Enclosure

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee’s performance by conducting a design basis assurance inspection (teams) 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

Failure to Ensure Operating Experience Review of NRC Information Notice 2017-06 was Completed with Appropriate Rigor			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green FIN 05000341/2022010-01 Open/Closed	[H.14] - Conservative Bias	71111.21M
The inspectors identified a finding of very low safety significance (Green), that was not associated with a violation of NRC requirements, for the licensee’s failure to perform a review of Operating Experience (OPEX) with appropriate rigor to ensure risk to the station was minimized or eliminated as specified in Fermi 2 Licensing/Safety Engineering Conduct Manual MLS04, “Operating Experience Program,” Revision 36. Specifically, the licensee failed to perform a thorough review for NRC Information Notice (IN) 2017-06, "Battery and Battery Charger Short-Circuit Current Contributions to a fault on the Direct Current (DC) Distribution System," with appropriate rigor to ensure the risk to the station from a higher than expected short circuit current contribution from the battery chargers to the DC system was appropriately minimized or eliminated.			

Failure to Identify Potential Tripping of Emergency Diesel Generators (EDGs) during Tornado Pressure Transients			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000341/2022010-02 Open/Closed	None (NPP)	71111.21M
The inspectors identified a Green finding and associated Non-Cited Violation (NCV) of Title 10 of the <i>Code of Federal Regulations</i> (10 CFR) Part 50, Appendix B, Criterion XVI, “Corrective Action,” for the licensee’s failure to identify a condition adverse to quality. Specifically, the licensee failed to identify the emergency diesel generators (EDGs) could inadvertently trip during a tornado due to the rapid reduction of pressure in the EDG rooms and the actuation of the high crankcase pressure trip. This is a non-conforming condition. The licensee had an opportunity to identify and correct this vulnerability in response to Corrective Action Review Document 16-29153 but failed to critically review information provided by the EDG supplier.			

Additional Tracking Items

None.

INSPECTION SCOPES

Inspections were conducted using the appropriate portions of the inspection procedures (IPs) in effect at the beginning of the inspection unless otherwise noted. Currently approved IPs with their attached revision histories are located on the public website at <http://www.nrc.gov/reading-rm/doc-collections/insp-manual/inspection-procedure/index.html>. Samples were declared complete when the IP requirements most appropriate to the inspection activity were met consistent with Inspection Manual Chapter (IMC) 2515, "Light-Water Reactor Inspection Program - Operations Phase." The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel to assess licensee performance and compliance with Commission rules and regulations, license conditions, site procedures, and standards.

REACTOR SAFETY

71111.21M - Design Bases Assurance (DBA) Inspection

The inspectors evaluated the following components and listed applicable attributes, permanent modifications, and operating experience:

Design Review - Risk-Significant/Low Design Margin Components (IP Section 02.02) (4 Samples)

- (1) Bus 72F and Bus Regulators, R14005021 and R14005021B
 - Updated Final Safety Analysis Report, Technical Specifications, Technical Requirements Manual reviews for license basis requirements
 - Minimum and maximum short circuit current available at the bus
 - Minimum voltage available during degraded voltage conditions
 - Minimum voltage available at the loads fed by the bus
 - Load breakers coordination with the upstream supply breaker
 - Short circuit carrying capacity of the supply breaker compared to the available fault current
 - Testing or preventive maintenance on the bus and the regulators
 - Functions of the regulators, how they are monitored, calibrations if any, and their frequency
 - Vendor recommended maintenance/regulator replacement frequency.
 - Review bus and regulator related condition reports.

- (2) Reactor Core Isolation Cooling Pump Discharge Valve, E5150F012
 - Updated Final Safety Analysis Report, Technical Specifications, Technical Requirements Manual reviews for license basis requirements
 - Field walkdown of component E5150F012
 - Testing and Inspection procedure reviews including acceptance criteria and recent results for leak rate, in-service testing, and leakage
 - Translation of vendor specifications to associated procedures
 - System health (failures, operability evaluations, corrective action review documents)
 - Condition Report reviews related to component E5150F012
 - Licensing changes to reclassify valve from a pressure isolation requirements due to undersized actuator

- (3) Emergency Diesel Generator (EDG) 13,
- Updated Final Safety Analysis Report, Technical Specifications, Technical Requirements Manual reviews for license basis requirements
 - Evaluation of internal/external flood protection
 - Evaluation of potential seismic hazards
 - Evaluation of expendables stored on site
 - Susceptibility of emergency diesel generator heating and ventilation system to tornado depressurization transient
 - EDG area ventilation system design
 - Air start check valve testing and acceptance criteria basis
 - Evaluation of EDG frequency and voltage variations
 - EDG heat exchanger cooling water flow requirements
 - Fuel oil consumption
 - Walkdowns to evaluate material condition
 - Engine trip parameters
 - Evaluation of operating procedures to manually load/shed loads after accident
 - Service condition of components
- (4) Division 1 and 2 Battery Chargers
- Updated Final Safety Analysis Report, Technical Specifications, Technical Requirements Manual reviews for license basis requirements
 - Translation of vendor specifications to associated procedures
 - System health (failures, operability evaluations, corrective action review documents)
 - Electrical design calculations for:
 - Sizing
 - Current limiting setting
 - Duty cycle
 - Short circuit
 - Voltage drop
 - Circuit coordination
 - Fuse sizing and ratings

Design Review - Large Early Release Frequency (LERFs) (IP Section 02.02) (1 Sample)

- (1) Residual Heat Removal Service Water Pump A, E115C001A
- Updated Final Safety Analysis Report, Technical Specifications, Technical Requirements Manual reviews for license basis requirements
 - Field walkdown
 - System health (failures, operability evaluations, corrective action review documents)
 - Review of condition reports related to the pump and appurtenances
 - Mechanical design calculations including flow capacity, runout flow, minimum flow, required submergence, and flow balance
 - Testing and IPs, acceptance criteria and recent results for quarterly and comprehensive in-service testing surveillances

- Modification reviews including pump replacement work order for E115C001A in 2020
- Maintenance effectiveness including Maintenance Rule reviews and Maintenance procedure reviews
- Translation of vendor specifications to associated procedures
- Operating procedure reviews during normal, abnormal or accident operations

Modification Review - Permanent Mods (IP Section 02.03) (5 Samples)

- (1) 70039; Replacement of Various Circuit Breakers and Power Shields
- (2) 80065; Permanent Plant Mod to Ensure that the 4160 ESF Bus Degraded Voltage Load Shed Logic is Inhibited
- (3) 70015; E1150F068B-004 Replacement of Lower Stem Bushing for RHR Division 2 Heat Exchanger Service Water Outlet Isolation Motor Operated Valve
- (4) 80127; ECCS [Emergency Core Cooling System] Pump CST [Condensate Storage Tank] Vortex Suppression Device
- (5) 37362; Residual Heat Removal and Core Spray Strong Pump/Weak Pump Interaction

Review of Operating Experience Issues (IP Section 02.06) (2 Samples)

- (1) OE-2020-0175; Grid Disturbance Causes Loss of Spent Fuel Pool Cooling Pump
- (2) NRC Information Notice 2017-06, Battery and Battery Charger Short-Circuit Contribution to a Fault on DC System

INSPECTION RESULTS

Failure to Ensure Operating Experience Review of NRC Information Notice 2017-06 was Completed with Appropriate Rigor			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green FIN 05000341/2022010-01 Open/Closed	[H.14] - Conservative Bias	71111.21M
The inspectors identified a finding of very low safety significance (Green), that was not associated with a violation of NRC requirements, for the licensee's failure to perform a review of Operating Experience (OPEX) with appropriate rigor to ensure risk to the station was minimized or eliminated as specified in Fermi 2 Licensing/Safety Engineering Conduct Manual MLS04, "Operating Experience Program," Revision 36. Specifically, the licensee failed to perform a thorough review for NRC Information Notice (IN) 2017-06, "Battery and Battery Charger Short-Circuit Current Contributions to a fault on the Direct Current (DC) Distribution System," with appropriate rigor to ensure the risk to the station from a higher than expected short circuit current contribution from the battery chargers to the DC system was appropriately minimized or eliminated.			
<u>Description:</u>			
IN 2017-06 discussed test results published in NUREG/CR-7229 by Brookhaven National Laboratories on different types of battery chargers under short circuit conditions. The test results showed short circuit current contribution from a Silicon Controlled Rectifier (SCR) type			

battery charger could be as high as 7 to 10 times the charger's full load rating during the first 100 milliseconds. Fermi 2 has 100 ampere SCR type battery chargers and therefore, the short circuit current could contribute approximately 700 to 1000 amperes if a fault occurred in the DC system. NRC inspectors reviewed the licensee's response to the IN titled, "OPEX review of NRC IN 2017-06." During this review, the inspectors noted the original review performed by the licensee under Corrective Action Report Document (CARD) 18-21882 was questioned by the 2019 Design Basis Assurance Inspection (DBAI) team for its adequacy. Subsequently, the licensee revised the OPEX review under CARDS 19-23579 and 19-23651. During the review of CARD 19-23651, the 2022 DBAI team identified the licensee had not properly calculated the maximum short circuit current. Specifically, the licensee had only looked at the maximum short circuit current at the non-safety-related volt meters closest to the batteries and chargers. Because of the cables feeding the volt meters were number 12 American Wire Gage (AWG), the maximum fault current calculated was incorrectly determined to be less than 10,000 Amperes. Since the DC distribution panel busses were rated for 10,000 Amperes, the licensee concluded that higher fault current contribution from the battery chargers would only result in loss of one DC division and no additional damage would occur. However, as a conservative measure, the licensee replaced the DC distribution panel feeder fuses with 20,000 ampere interrupting capacity. The inspectors noted the licensee's conclusion may not be appropriate as they had neither evaluated the maximum fault current at the DC busses nor did they verify interrupting ratings of the battery charger internal fuses and the charger output breaker.

Based on the concerns raised by the 2022 DBAI team, the licensee performed additional analysis which resulted in fault currents exceeding 10,000 amperes at the Division 2 DC busses. The licensee-initiated CARDS 22-2900, "2022 NRC DBAI Inspection: NRC identified technical error in Engineering Design Package (EDP) 70287, Revision 0," and 22-29053 "2022 NRC DBAI Inspection NRC Identified: Information Notice 17-06 not appropriately evaluated/resolved." The licensee also contacted Sargent and Lundy Engineers to review the Fermi 2 DC short circuit calculations to see if a more realistic loading pattern could be used in the calculation. Sargent and Lundy Engineers removed certain DC loads to mimic a more realistic loading scenario under various conditions and revised the DC load model in the Electrical Transient Analyzer Program (ETAP) which resulted in less than 10,000 ampere short circuit current at the Fermi 2 Division 2 DC Busses. As a long-term solution, the licensee plans to replace the Division 2 DC Busses with more than 10,000 Ampere fault current carrying capacity. The inspectors did not identify any other technical concerns. The inspectors reviewed the battery chargers' internal fuse characteristics and coordination with the downstream protective devices and did not identify any concerns.

Section 4.4.4 of Fermi 2 Licensing/Safety Engineering Conduct Manual MLS04, "Operating Experience Program," Revision 36, stated, "Complete CARD evaluations with appropriate rigor to ensure risk to the station is minimized or eliminated." The inspectors determined the licensee's initial and subsequent OPEX evaluations for IN 2017-006 did not meet the licensee's standard for OPEX review stated in MLS04, Section 4.4.4 because the evaluation was not completed with appropriate rigor to determine the short circuit current contribution was exceeded 10,000 amperes and impacted the operation of the Division 2 DC busses. The licensee's failure to perform the OPEX reviews within CARDS 18-21882, 19-23579, and 19-23651 with appropriate rigor to minimize or eliminate risk to the station was contrary to the Fermi 2 Procedure MLS04 and was a performance deficiency. No violations of NRC requirements were identified since this procedure was not safety-related and, therefore, not subject to 10 CFR Part 50 Appendix B requirements.

Corrective Actions: The licensee revised the OPEX evaluation for IN 2017-06 and concluded the larger short circuit current contribution from the charger did not exceed the interrupting ratings of equipment/isolation devices.

Corrective Action References: CARD 22-29053; 2022 NRC DBAI Inspection NRC Identified: IN 17-06 not Appropriately Evaluated/Resolved.

Performance Assessment:

Performance Deficiency: The inspectors determined the licensee’s failure to perform a rigorous OPEX evaluation for IN 2017-06 which minimized or eliminated risk to the station was contrary to Fermi 2 Procedure MLS04, “Operating Experience Program.” Specifically, the licensee failed to appropriately calculate the short circuit current expected and determine the impact on the Division 2 DC busses.

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, the failure to perform a rigorous OPEX evaluation for NRC IN 2017-06 resulted in a condition where there was a reasonable doubt that equipment/isolation devices were able to withstand the larger short circuit conditions provided by the chargers as described in the IN.

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 finding screened as very low safety significance (Green) because the inspectors answered 'yes' to the question: "If the finding deficiency affecting the design or qualification of a mitigating SSC, does the SSC maintain its operability or PRA functionality?"

Cross-Cutting Aspect: H.14 - Conservative Bias: Individuals use decision making-practices that emphasize prudent choices over those that are simply allowable. A proposed action is determined to be safe in order to proceed, rather than unsafe in order to stop. Specifically, the licensee's initial and subsequent evaluations for IN 2017-06 failed to evaluate the effect of the larger short circuit current contribution from the charger on the interrupting rating of the equipment/isolation devices. Instead, the licensee only verified that the short circuit current as specified in the revised calculation did not exceed the plant equipment/isolation devices interrupting rating.

Enforcement:

Inspectors did not identify a violation of regulatory requirements associated with this finding.

Failure to Identify Potential Tripping of Emergency Diesel Generators (EDGs) during Tornado Pressure Transients

Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000341/2022010-02 Open/Closed	None (NPP)	71111.21M

The inspectors identified a Green finding and associated Non-Cited Violation (NCV) of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Appendix B, Criterion XVI,

“Corrective Action,” for the licensee’s failure to identify a condition adverse to quality. Specifically, the licensee failed to identify the emergency diesel generators (EDGs) could inadvertently trip during a tornado due to the rapid reduction of pressure in the EDG rooms and the actuation of the high crankcase pressure trip. This is a non-conforming condition. The licensee had an opportunity to identify and correct this vulnerability in response to Corrective Action Review Document 16-29153 but failed to critically review information provided by the EDG supplier.

Description:

The inspectors reviewed the design of the EDGs, including their automatic trip features. The inspectors noted the high crankcase pressure trip (two out of three logic for each EDG) was considered essential and would not be bypassed during an emergency EDG start in the event of an accident or loss of offsite power (LOOP). Because the high crankcase pressure trip instruments measure the pressure difference between the diesel engine crankcases and the EDG rooms, the inspectors questioned if the EDGs could be subject to an inadvertent trip if the room pressures were suddenly reduced as a result of a postulated tornado event.

Updated Final Safety Analysis Report (UFSAR) Section 8.3.1.1.8.2 stated, "the RHR complex structure serves to contain, protect, house, and support the equipment of the EDG system and protect it from the outdoor environment." Section 8.3.1.1.8.2.i states, "the EDG system is designed to be operable during and after a design-basis tornado that has the following characteristics... Differential pressure between inside and outside of fully enclosed areas - 3 lb/in.² All building structures housing equipment necessary for safe shutdown are designed to withstand a tornado-induced depressurization rate of 1 lb/in.²/sec for 3 seconds."

The inspectors questioned if the EDG rooms in the RHR complex were considered to be fully enclosed areas and if the tornado-induced depressurization rate of those rooms had been previously analyzed to determine if the EDGs could inadvertently trip. In response, the licensee stated an evaluation had been performed in 2016 based on industry experience. Corrective Action Review Document (CARD) 16-29153 had been initiated on November 14, 2016, to investigate the potential impact of a tornado on the EDGs. This investigation was a result of a similar concern at another facility where “high crankcase pressure switches, as originally supplied by the diesel generator vendor, which are susceptible to actuation due to pressure differentials during a tornado event. The consequence is that a trip of the crankcase pressure switch, while in standby, causes actuation of the shutdown relays. This in turn causes a lockout, keeping the EDG from being able to start during an emergency condition. The cause was that the design of the crankcase pressure switch trip logic did not consider the effect of outside atmospheric pressure during a tornado event." This CARD concluded that there was no design deficiency present in the Fermi EDGs and no engineered/installed modifications were required. This conclusion was based on input from the EDG supplier, Fairbanks-Morse Engine.

The licensee also provided correspondence from the EDG supplier, dated November 17, 2016, which explained why the specific concern addressed on the CARD (activation of a crankcase pressure switch when the EDG is in standby) was not applicable to Fermi. However, this correspondence also addressed the potential of a trip when an EDG was already operating. This portion of the correspondence was based on an unsubstantiated assumption. Specifically, it stated “...the crankcase pressure switches are within the engine room (the engine space) and are monitoring the differential between the pressure in the room and the pressure (vacuum) in the crankcase. Even with the engine in operation, the pressure outside of the building should not have an effect on the operation of these pressure switches.

And, in fact, because the outlet of the ejector is in the exhaust system (subject to the pressure outside the building), the lower pressure created by the tornado would have a tendency to lower the pressure at the outlet of the ejector which would in turn tend to lower the pressure in the crankcase.”

The inspectors questioned whether the assumption that the pressure outside of the building should not have an effect on the operation of these pressure switches, which was implied in the vendor’s correspondence, had been verified by the licensee. Specifically, the inspectors asked if the EDG rooms were isolated from the outside atmospheric pressure and if the EDG crankcase air ejector had sufficient capacity to reduce the crankcase pressure and prevent a trip during a design basis tornado pressure transient event. The licensee stated a quantitative analysis had not been performed and stated the vendor would be contacted for additional information.

After performing additional investigation, the licensee-initiated CARD 22-28738 on August 15, 2022. The CARD stated that it is clear the high crankcase pressure trip would be activated if the EDG were operating prior to the depressurization of the RHR complex (which houses all four EDGs). In addition, the licensee-initiated CARD 22-28763 on August 16, 2022, to evaluate elimination of the EDG crankcase pressure trips or converting the trips to non-essential (bypassed on an emergency start).

Corrective Actions: CARD 22-28738 was initiated on August 15, 2022, to address this issue.

Corrective Action References: CARDS 22-28664, "Previous Fermi Evaluation of OE in Regard to Potential for Tornado," 22-28738, "IOD Not Supported"

Performance Assessment:

Performance Deficiency: The inspectors determined that the licensee’s failure to identify the potential tripping of the EDGs due to atmospheric pressure transients caused by a postulated tornado is a performance deficiency. Specifically, the licensee failed to identify a design vulnerability that could result in the inadvertent tripping of one or more EDGs. The licensee had an opportunity to identify and correct this vulnerability in response to CARD 16-29153 but failed to critically review information provided by the EDG supplier.

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, the atmospheric pressure transient resulting from a design basis tornado could result in the inadvertent tripping of one or more EDGs.

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 finding screened as having very low safety significance (Green) because they answered ‘yes’ to the questions: "If the finding is a deficiency affecting the design or qualification of a mitigating SSC, does the SSC maintain its operability or PRA functionality?" The inspectors determined the finding did not cause a loss of PRA functionality.

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. The last update of the crankcase pressure trip setpoints and associated analysis was greater than 3 years ago.

Enforcement:

Violation: 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," states, in part, measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected.

Contrary to the above, on November 14, 2016, the licensee failed to identify a condition adverse to quality. Specifically, the licensee performed a review of CARD 16-29153 as a result of operating experience related to the potential impact of a tornado on the EDGs and failed to identify the effects of a tornado could cause the EDGs to trip during a LOOP due to a high crankcase pressure signal. The EDGs tripping during a tornado event is nonconforming with Section 8.3.1.1.8.2.i of the UFSAR which states, "the EDG system is designed to be operable during and after a design-basis tornado that has the following characteristics... Differential pressure between inside and outside of fully enclosed areas -3 lb/in.² All building structures housing equipment necessary for safe shutdown are designed to withstand a tornado-induced depressurization rate of 1 lb/in.²/sec for 3 seconds."

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

EXIT MEETINGS AND DEBRIEFS

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

- On September 30, 2022, the inspectors presented the design basis assurance inspection (teams) inspection results to Mr. E. Olson, Site Vice President and other members of the licensee staff.
- On August 26, 2022, the inspectors presented the interim design basis assurance inspection (teams) inspection results to Mr. E. Olson, Site Vice President and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.21M	Calculations	DC-4953	RHR Complex - Abnormal Operation Damper Lineups	I
		DC-5367	Seismic Evaluation of 480V and 4160V Switchgears and Motor Control Center Breakers	0
		DC-5426	PBOC - High and Moderate Energy Line Break Evaluation	D
		DC-5489	Ventilation Air Quality for Diesel Generator Room 11	B
		DC-5803	RHR SW Design Basis Requirements	C
		DC-5804	DGSW Design Basis Requirements Calculation	F
		DC-5866	RHR Complex Evaluation During Site Flood	0
		DC-6249	Service Water Systems Calibrated Hydraulic Model	0
		DC-6309	Design Basis of EDG Fuel Oil and Day Tank Level Requirements and Setpoints	B
		DC-6447	Auxiliary Power System Analysis	F
		DC-6480	130/260V DC System Analysis	C
		DC-6482	260/130V and 48/24V DC Protective Device Coordination Calculation	D
		DC-6774	Fuel Oil Storage Tank Room Minimum Temperature	0
	Corrective Action Documents	05-26492	Design Calculation for RHR Complex Depressurization is not Available	11/17/2005
		13-24840	EDG Steady State Voltage and Frequency Tech Spec Ranges	07/10/2013
		16-29153	Potential Impact of a Tornado on the Emergency Diesel Generator	11/14/2016
		17-28611	E1150F068B Packing Leak	1
		19-28434	Request Revision to Scope of Outage Work Orders for Bus Inspections	05/11/2019
		20-20568	Request Work Orders for Replacement of 1SA62 and 1SB62 Relays	01/17/2020
		20-20637	Tracking CARD for Revision of 24.205.05	06/22/2020
20-22467	IST to Investigate Implementing 2 Pump Testing of the RHR SW Pumps	03/06/2020		
20-25227	Shoulder Bolt for Breaker Slide Bracket Stripped - 72F Position 2B	04/26/2020		

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		20-25312	Open Light Socket Failure on 72F Position 3A Breaker	04/28/2020
		20-25559	Blown Fuse Found for ESF 2B1-2 Battery Charger	05/05/2020
		21-20678	While Racking out 72F Position 5A (Feed to MCC 72F-5A), the Racking Shutter would not Fully Close	01/25/2021
	Corrective Action Documents Resulting from Inspection	22-28575	Indication Lights were Burnt Out on X4103F130	08/08/2022
		22-28576	POS 2A Was Illuminated However it Was Very Dim	08/09/2022
		22-28577	X41K003B TCE Flashing Low Battery	08/09/2022
		22-28616	2022 NRC DBAI Inspection (NRC Identified): 72F Position 5B Racked out with no Tag Nearby	08/10/2022
		22-28627	EDG DBD Revision	08/10/2022
		22-28664	Previous Fermi Evaluation of OE in Regard to Potential for Tornado	08/11/2022
		22-28687	2022 DBAI Inspection -Revise Procedure 43.401.515 "RCIC Pressure Isolation Valve Test"	08/12/2022
		22-28738	IOD Not Supported	08/15/2022
		22-28763	Evaluate EDG Crankcase Trips	08/16/2022
		22-28800	Evaluate EDG Essential Trips	08/17/2022
		22-28801	2022 DBAI Inspection: 3071-128-EZ-01 Discrepancy	08/17/2022
	Drawings	6SD721-2530-10	260/130V ESS Dual Battery 2PA Distribution - Division 1	AP
		6SD721-2581-14	Schematic Diagram/Wiring Diagram, 1500 KVA Regulator Bus 72F R1400S021B	0
		M-5734	Emergency Diesel Generator - Functional Operating Sketch	BL
	Engineering Changes	37362	RHR and Core Spray Strong Pump/Weak Pump Interaction	B
		70130	Replacement of EDG 14 Fuel Oil Transfer Pump Flowmeter R30R411D	0
		80122	Update Design Specification 3071-012 -Valves with Anti-Rotation Key Repair or Upgrade Guidance for Safety Related Powell Globe Valves	0
		80122.001	Guidance for Safety Related Powell Globe Valve Anti-Rotation Key Repair or Upgrade	0
		80127	ECCS Pump CST Vortex Suppression Device	C
80142		Replacement of Residual Heat Removal Service Water (RHRSW) Valve E1150F068A	0	

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Engineering Evaluations	20-001	ISI/NDE-IST Program Evaluation	0
	Miscellaneous	3071-019	Design Specification - RHR Complex	E
		3071-517	Design Specification - RHR Complex	E
		DBD R32-00	DC Electrical System Design Basis Document	B
		FAI/20-0183	Testing Results CST Vortex Suppressors	2
		Fairbanks Morse Letter, Response to FQ13-46	Postulated Tornado Crankcase Pressure Trip	11/17/2016
		LCR 20-025-ISI	TSR-38230 changed the Pressure Isolation Boundary in the HPCI and RCIC Systems	06/29/2020
		MES54001	EDG 13 Air Coolant HX	0
		MES54001	EDG 13 Jacket Coolant Hx	0
		MES54001	EDG 13 Lube Oil Hx	0
		R30-00	DBD for Emergency Diesel Generator	I
		TMPE-02-0342	Evaluation of Increased Ambient Temperature in the RHR Complex	12/13/2002
		TSR-38268	Technical Service Request, Thermal Recombiner System Abandonment per License Amendment 159	0
		VME 11-2	C&D 3Phase, 6 Pulse SCR Float Chargers	09/05/2007
		VME 5-12	Main DC Fuse Cabinets	0
		VME 8-1.1	Vendor Manual Emergency Diesel Generators	AC
		VMS22-1.3	2 Stage Vertical Pump Instruction Manual	0
		X41-03	DBD for Residual Heat Removal Complex Heating and Ventilating System	B
		XXX-02	DBD for Design Basis Event Combinations	A
		Procedures	23.307	Emergency Diesel Generator System
	23.324.01		Operation of CTG 11-1 from CTG 11 Peaker Yard	4
	23.324.05		Supervisory Control- Standby Diesel Operation	3
	24.307.001		Emergency Diesel Generators - Inspection and Preventive Maintenance	86
	24.307.12		Emergency Diesel Generator 13 - ECCS Start Test and Logic Functional Tests of Bus 65E Breakers	48

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		24.307.16	Emergency Diesel Generator 13 - Start and Load Test	61
		24.307.37	DGSW, DFOT and Starting Air Operability Test - EDG 14	63
		35.205.011	E1150F068A(B) Globe Valve Maintenance	0
		74.000.18	Chemistry Shift, 72 Hour, and Situation Surveillances	60
		ARP 1D73	RCIC Pump Suction Pressure High/Low	14
		MLS04	Operating Experience Program	36
	Work Orders	37526767	REPLACE FRN-R-400 FUSE PER ERE 45322 AT R3200SO07A (2A-1 BATT')	10/22/2013
		37526832	REPLACE FRN-R-400 FUSE PER ERE 45322 AT R3200SO07B (2A-2 BATT)	10/22/2013
		44152012	Perform 24.206.02 SEC-5.2 RCIC Valve Position Indication Verification/Manual Initiate	04/16/2017
		46456433	Perform 5-Year verification of time critical actions	08/30/2017
		47548189	Final 43.401.515 RCIC Pressure Isolation Valve Leakage (Test-2:E5150F012)	04/19/2020
		48650178	Perform 42.309.04 Div 1 Battery Charger Load Test -2A-2 Only	09/10/2019
		48778616	Remove/Reinstall Actuator in Support of WO 48774938	10/02/2017
		50084239	Perform 24.206.01 RCIC System Pump Operability and Valve Test at 1000PSIG	08/17/2019
		50917153	Perform 24.206.01 RCIC System Pump Operability and Valve Test at 1000PSIG	11/08/2019
		51561321	Perform 42.309.04 Div 1 Battery Charger Load Test - 2A-1 Only	09/10/2020
		51745473	Perform 24.206.01 RCIC System Pump Operability and Valve Test at 1000PSIG	02/04/2020
		52178219	Perform 24.206.02 Sec-5.2 RCIC Valve Position Indication Verification/Manual Initiate	07/20/2020
		52866184	Perform 42.309.04 Div 1 Battery Charger Load Test - 2A1-2 Only	09/08/2020
		53719849	Partial 24.205.05, PMT Strokes for E1150F068A	04/17/2019
54453528	Perform 42.309.04 Div 1 Battery Charger Load Test - 2A-2 Only	05/10/2021		
54529464	Perform 24.205.05 Partial for E1150F068A	07/16/2019		

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		54768485	Perform 24.205.05 Division 1 RHRSW Pump and Valve Operability	01/13/2021
		54796258	Replace RHRSW Pump A	01/16/2020
		57114597	Perform 42.309.04 Div 1 Battery Charger Load Test - 2A-1 Only	06/01/2021
		57242836	Perform 42.309.06 DIV 2 18 Month 130/260 VDC Battery Check (2B-2 Only)	04/09/2022
		57243522	Perform 42.309.06 DIV 2 18 Month 130/260 VDC Battery Check (2B-1 Only)	04/08/2022
		58276397	Perform 24.205.05 Division 1 RHRSW Pump and Valve Operability	01/10/2022
		59933741	Perform Partial 24.205.05 to Stroke Test E1150F068A	01/12/2021
		60290633	Perform 24.205.05 Division 1 RHRSW Pump and Valve Operability	07/12/2022
		64803407	Perform 24.205.05 Division 1 RHRSW Pump and Valve Operability	03/24/2022