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10 CFR 50.73

May 5, 2015
NRC-15-0051

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington D C 20555-0001

Reference: Fermi 2
NRC Docket No. 50-341
NRC License No. NPF-43

Subject: Licensee Event Report (LER) No. 2015-002

Pursuant to 10 CFR 50.73 (a)(2)(v)(D) and 10 CFR 50.73(a)(2)(vii), DTE Electric Company is submitting LER No. 2015-002, Loss of both Divisions of the Residual Heat Removal Low Pressure Coolant Injection Functions due to 480 Volt Swing Bus Inoperable.

No commitments are being made in this LER.

Should you have any questions or require additional information, please contact Mr. Christopher R. Robinson of my staff at (734) 586-5076.

Sincerely,

Vito A. Kaminskas

Enclosure

cc: NRC Project Manager
NRC Resident Office
Reactor Projects Chief, Branch 5, Region III
Regional Administrator, Region III
Michigan Public Service Commission
Regulated Energy Division (kindschl@michigan.gov)

**Enclosure to
NRC-15-0051**

**Fermi 2 NRC Docket No. 50-341
Operating License No. NPF-43**

**LER 2015-002, Loss of both Divisions of the Residual Heat Removal Low Pressure
Coolant Injection Functions due to 480 Volt Swing Bus Inoperable**



LICENSEE EVENT REPORT (LER)

(See Page 2 for required number of
digits/characters for each block)

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA, Privacy and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to Infocollects.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

1. FACILITY NAME

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2. DOCKET NUMBER

05000

341

3. PAGE

1 OF 3

4. TITLE

Loss of both Divisions of the Residual Heat Removal Low Pressure Coolant Injection Functions due to 480 Volt Swing Bus Inoperable

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED		
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER	
03	09	2015	2015	002	00	05	05	2015	FACILITY NAME	DOCKET NUMBER	
										05000	
9. OPERATING MODE			11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)								
1			<input type="checkbox"/> 20.2201(b)			<input type="checkbox"/> 20.2203(a)(3)(i)			<input type="checkbox"/> 50.73(a)(2)(i)(C)		<input checked="" type="checkbox"/> 50.73(a)(2)(vii)
			<input type="checkbox"/> 20.2201(d)			<input type="checkbox"/> 20.2203(a)(3)(ii)			<input type="checkbox"/> 50.73(a)(2)(ii)(A)		<input type="checkbox"/> 50.73(a)(2)(viii)(A)
			<input type="checkbox"/> 20.2203(a)(1)			<input type="checkbox"/> 20.2203(a)(4)			<input type="checkbox"/> 50.73(a)(2)(ii)(B)		<input type="checkbox"/> 50.73(a)(2)(viii)(B)
			<input type="checkbox"/> 20.2203(a)(2)(i)			<input type="checkbox"/> 50.36(c)(1)(i)(A)			<input type="checkbox"/> 50.73(a)(2)(iii)		<input type="checkbox"/> 50.73(a)(2)(ix)(A)
10. POWER LEVEL 100			<input type="checkbox"/> 20.2203(a)(2)(ii)			<input type="checkbox"/> 50.36(c)(1)(ii)(A)			<input type="checkbox"/> 50.73(a)(2)(iv)(A)		<input type="checkbox"/> 50.73(a)(2)(x)
			<input type="checkbox"/> 20.2203(a)(2)(iii)			<input type="checkbox"/> 50.36(c)(2)			<input type="checkbox"/> 50.73(a)(2)(v)(A)		<input type="checkbox"/> 73.71(a)(4)
			<input type="checkbox"/> 20.2203(a)(2)(iv)			<input type="checkbox"/> 50.46(a)(3)(ii)			<input type="checkbox"/> 50.73(a)(2)(v)(B)		<input type="checkbox"/> 73.71(a)(5)
			<input type="checkbox"/> 20.2203(a)(2)(v)			<input type="checkbox"/> 50.73(a)(2)(i)(A)			<input type="checkbox"/> 50.73(a)(2)(v)(C)		<input type="checkbox"/> OTHER
			<input type="checkbox"/> 20.2203(a)(2)(vi)			<input type="checkbox"/> 50.73(a)(2)(i)(B)			<input checked="" type="checkbox"/> 50.73(a)(2)(v)(D)		Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

LICENSEE CONTACT

David G. Coseo - Supervisor, Nuclear Compliance

TELEPHONE NUMBER (include Area Code)

(734) 586-4273

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX
B	BO	CNTR	G182	Y					

14. SUPPLEMENTAL REPORT EXPECTED

☐ YES (If yes, complete 15. EXPECTED SUBMISSION DATE) ☒ NO

15. EXPECTED SUBMISSION DATE

MONTH DAY YEAR

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

On March 09, 2015, a surveillance test of the 480V Swing Bus 72CF Automatic Throwover Scheme was being conducted. At 1521, the alternate power supply breaker failed to close as expected after the normal power supply breaker was opened, resulting in a loss of power to both Reactor Recirculation (RR) pump discharge valves and both divisions of Residual Heat Removal (RHR) Low Pressure Coolant (LPCI) injection valves. The 72CF throwover scheme was declared inoperable and Limiting Condition for Operation (LCO) 3.0.3 was entered. Reactor power was reduced in preparation for meeting the requirement to be in MODE 2 within 7 hours. 72CF was tagged out to support troubleshooting and repair in accordance with plant procedures.

Troubleshooting found a permissive contact in the close circuit for the alternate power supply breaker to be in the incorrect state. The contact was cleaned and the equipment was returned to service and tested successfully. Following successful completion of the surveillance testing, the throwover scheme was declared operable and LCO 3.0.3 was exited before the 7 hour requirement to be in MODE 2 per LCO 3.0.3.

**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

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NARRATIVE**Initial Plant Conditions:**

Mode 1
Reactor Power 100 percent

Description of the Event:

On March 09, 2015, the monthly Technical Specifications (TS) surveillance test, SR 3.5.1.2, of the 480V electrical swing bus [BU] 72CF Automatic Throwover scheme was being conducted. At 1521, the alternate power supply breaker failed to close as expected after the normal power supply breaker was opened, resulting in a loss of power to Reactor Recirculation (RR) Pump [AD] discharge valves and both divisions of Residual Heat Removal (RHR) Low Pressure Coolant Injection (LPCI) [BU] Injection Valves [INV]. The 72CF throwover scheme was declared inoperable. At 1521, LCO 3.5.1, Emergency Core Cooling Systems (ECCS) - Operating, was declared not met which required entry in LCO 3.0.3. Reactor power was reduced from 100% to 81% in preparation for meeting the requirement to be in MODE 2 within 7 hours. The loss of both divisions of RHR LPCI injection valves is reportable under 10 CFR 50.73(a)(2)(v)(D), any event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to mitigate the consequences of an accident and 10 CFR 50.73(a)(2)(vii), any event where a single cause or condition caused at least one independent train or channel to become inoperable in multiple systems or two independent trains or channels to become inoperable in a single system designed to mitigate the consequences of an accident. Notifications for a 4-hour non-emergency 10 CFR 50.72(b)(2)(i) for the initiation of any nuclear plant shutdown required by the plant's Technical Specifications and an 8 hour non-emergency 10 CFR 50.72(b)(3)(v) for any event or condition that at the time of discovery could have prevented the fulfillment of the safety function of structures or systems that are needed to mitigate the consequences of an accident were completed.

Troubleshooting found a permissive contact in the close circuit for the alternate power supply breaker to be in the incorrect state. Oxidation was found to be the likely cause of the degraded condition of the contact.

Operations de-energized and tagged out the 72CF Throwover scheme to support troubleshooting and maintenance activities in accordance with plant procedures. To clean the oxidation from the contacts, the contacts were de-terminated and cleaned. Following this maintenance activity, Post Maintenance Testing was completed satisfactorily for the contact, and LCO 3.0.3 was exited at 2211 on March 09, 2015 after successful completion of SR 3.5.1.2. The successful completion of the 72CF Throwover Scheme surveillance test provided reasonable assurance that this contact will continue to perform its design function.

Significant Safety Consequences and Implications:

The purpose of Technical Specification 3.5.1, is to limit the release of radioactive materials to the environment following a Loss of Coolant Accident (LOCA). AC and DC electrical power is required for Engineered Safety Features to function during any analyzed accident with a loss of off site power, neither of which occurred coincident with this event.

Maintaining the required Division 1 and 2 AC and DC electrical power distribution subsystems Operable ensures the RHR LPCI system can automatically supply LPCI water to the reactor core after the reactor pressure has been reduced to less than the RHR System discharge pressure following a LOCA.

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CONTINUATION SHEET

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NARRATIVE

While the 72CF 480V Swing Bus was inoperable, the automatic transfer required between the two safety-related divisions at the 480V distribution level was lost. The Swing Bus is designed for normal feed from Division 1 Essential Safety Systems (ESS) Bus 72C through two normally closed series contactors, with the standby feed coming from Division 2 ESS Bus 72F through two normally open contactors. These contactors will either close or open automatically as a result of the operational status of the associated breaker. With the auxiliary contact in a degraded condition likely due to oxidation, the alternate power supply breaker was unable to close, resulting in both RR pump discharge valves and both divisions of RHR LPCI injection valves without their 480V power source. This impacted all RHR LPCI functions. No loss of power to the plant occurred and Divisions 1 and 2 of Core Spray (CS) and High Pressure Coolant Injection (HPCI) ECCS were available at the time of the event. In addition, the affected valves could have been energized by their normal power source, 72C, at any time during this event by the operating crew, therefore, this event has minor safety significance.

Cause of the Event:

The most likely cause was found to be oxidation which caused the degraded condition of the auxiliary contact.

Corrective Actions:

The contact was cleaned. The successful completion of the operability surveillance demonstrated a reasonable assurance that this contact will continue to perform its design function.

Additional Information:

- A. Failed Component: Auxiliary Contact
Function: Interlock
Manufacturer: ITE-Gould
Model Number: 5642-DUGAB
Failure Cause: Oxidation of the Contacts

B. Previous Licensee Event Reports (LERs) on Similar Problems:

There are no similar previous events within the past five years.