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DTE Energy

10 CFR 50.73

June 8, 2012
NRC-12-0038

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. 2012-001

Pursuant to 10 CFR 50.73(a)(2)(v)(B), Detroit Edison is submitting the enclosed LER No. 2012-001, Loss of Shutdown Cooling Due to a Voltage Transient.

No commitments are being made in this LER.

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

Sincerely,

Joseph H. Plona

Enclosure

cc: NRC Project Manager
NRC Resident Office
Reactor Projects Chief, Branch 4, Region III
Regional Administrator, Region III
Supervisor, Electric Operators,
Michigan Public Service Commission

NRC FORM 366 (10-2010) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: No. 3150-0104 Expires 10/31/2013

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 Service 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.

LICENSEE EVENT REPORT (LER)

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

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4. TITLE

Loss of Shutdown Cooling Due to a Voltage Transient

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
										05000
04	11	2012	2012	- 001 -	00	06	08	2012	FACILITY NAME	DOCKET NUMBER
										05000

9. OPERATING MODE

5

10. POWER LEVEL

0 Percent

11. THIS REPORT SUBMITTED PURSU ANT TO THE REQUIREMENTS OF 10 CFR§: *(Check all that apply)*

☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(i)(C)	☐ 50.73(a)(2)(vii)
☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☐ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☒ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(C)	☐ OTHER
☐ 20.2203(a)(2)(vi)	☐ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(v)(D)	Specify in abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THS LER

FACILITY NAME	TELEPHONE NUMBER (Include Area Code)
Fermi 2 / Joseph M. Pendergast – Principal Engineer, Nuclear Licensing	(734) 586 - 1682

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

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 April 11, 2012, at approximately 1807 EDT, with the plant in Mode 5 during Refueling Outage 15, a common suction shutdown cooling inboard containment isolation valve closed in response to a voltage transient. The 'A' Residual Heat Removal pump tripped as a result of the valve closure. The valve closure resulted in an interruption of shutdown cooling, the primary means of decay heat removal for approximately 11 minutes. During this period, there was no measurable increase in reactor temperature. The Fuel Pool Cooling system was in service at that time and was capable of removing decay heat. The event occurred during a restoration of power to Division 2 Bus 65E from the 64T cross tie breaker when a voltage transient occurred due to a fault on Bus 65E. The fault was the result of an improper safety tagging clearance that left a grounding truck in place during the power restoration. The fault caused a Group 4 isolation of the E1150F009 shutdown cooling common suction valve. Abnormal Operating Procedure 20.205.01, Loss of Shutdown Cooling, was entered, the Group 4 isolation was reset and Shutdown Cooling was restored at 1818 EDT. Related human performance issues were addressed through additional operator just in time training. There were no safety consequences to this event.

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NARRATIVE

Initial Plant Conditions:

Mode 5
Reactor Power 0 percent

Description of the Event

On April 11, 2012, at approximately 1807 EDT, with the plant in Mode 5 during Refueling Outage 15 (RF15) and with Shutdown Cooling (SDC) in operation, the E1150F009, "Division 1 and 2 Shutdown Cooling Inboard Containment Isolation Valve," automatically closed. The 'A' Residual Heat Removal (RHR) [BO] pump tripped as a result of the valve closure. The valve closure resulted in an interruption of SDC, the primary means of decay heat removal for approximately 11 minutes. During this period, there was not a measurable increase in reactor temperature. The calculated time to boil was approximately 23.1 hours.

During the restoration of the Bus 65E Safety Tagging Record (STR), operators did not identify that a ground truck was still installed in position 65E-E4. When attempting to energize Division 2 Bus 65E from Division 1 through the 64T crosstie breaker and the 65E-E9 breaker per System Operating Procedure (SOP) 23.321, "Engineer Safety Features Auxiliary Electrical Distribution System," the breaker [BKR] immediately tripped open. A voltage transient occurred due to a fault on Bus 65E which resulted in a Group 4 (Shutdown Cooling/Head Spray) isolation (closure) of the E1150F009 shutdown cooling suction valve. The 'A' RHR pump tripped on loss of suction flow path as the shutdown cooling suction valve closed.

The Fuel Pool Cooling system was in service at the time of the event and was capable of removing decay heat. The Reactor Cavity was flooded for refueling and the gates between the Reactor Cavity and the Fuel Pool were removed. Abnormal Operating Procedure 20.205.01, Loss of Shutdown Cooling, was entered, the Group 4 isolation was reset, and SDC was restored at 1818 EDT.

This event was reported to the NRC as an 8 hour event under 10 CFR 50.72 (b)(3)(v)(B), event or condition that at the time of discovery could have prevented fulfillment of a safety function of structures or systems that are needed to remove residual heat, as documented in event notification number 47826.

Significant Safety Consequences and Implications

For the duration of this event, Fuel Pool Cooling and Cleanup (FPCCU) was in-service. The Reactor cavity was flooded and the gates between the Fuel Pool and the Reactor Cavity were removed for refueling. The RHR shutdown cooling was available for the duration of this event. There were no component failures associated with this event that would have prevented the valve from being reopened and the system from being restarted. All of the affected equipment responded as designed to isolate the containment and protect safety equipment. Therefore, there were no safety consequences and no effect on public health and safety as a result of this event.

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This event is being reported as an event or condition that at the time of discovery could have prevented fulfillment of a safety function of structures or systems needed to remove residual heat under 10 CFR 50.73 (a)(2)(v)(B).

Cause of the Event

The STR was not properly cleared before authorizing the performance of the SOP to energize Bus 65E from the maintenance tie breaker. Procedure 23.300, Breaker Operations, and Operations Department Expectation (ODE) 19, Safety and Configuration Tagging were not correctly implemented by operations personnel. A "Ground Truck Installed" sign that should have been placed on the breaker cubicle for 65E-E4 was not in place as required by 23.300 Section 6.5. The STR was also not completely cleared before authorizing the performance of the SOP to energize the bus from the 64T maintenance tie breaker. A review of the STR and the equipment walkdown prior to implementation of the STR did not identify that the ground truck remained installed. Strict compliance with procedures 23.300 and ODE-19 along with appropriate self checking would have ensured the standards were met, and could have prevented the problem.

Corrective Actions

The Group 4 isolation signal was reset, the SDC common suction valve was reopened, and SDC was established in 11 minutes.

The station implemented several equipment control tools to avoid a repeat event or reoccurrence. A checklist was developed for the preparer and reviewer of STRs. The requirements of actions to be performed by reviewers of STRs were reinforced by Operations Management during crew briefings and further reinforced during Just In Time Training. Requirements were established for licensed operators to conduct a walkdown (eyes on) of the bus prior to energization to insure bus is ready for current. Additional operator awareness tools were used to convey equipment status including the use of placards at the point of ground installation and in the Main Control Room.

Oil samples were taken April 12, 2012, on System Service Transformer (SST) 64 and House Transformer 1 and analyzed to ensure the transformers were not degraded by the temporary short to ground. Oil Sample results were the same as for the samples taken in March, 2012; therefore, there was no damage to the transformers.

Technical Evaluation TE-R14-12-037 was performed for a 3 phase to ground fault analysis to confirm that the postulated short circuit current was within the ratings of breakers 64T, 65E-E9, 65E-E12 and buses 65E (R1400S001E) and 64T cable bus (R1100S061) when Division 2 Bus 65E is fed by maintenance tie breaker 64T. The ground fault current was determined to be within the equipment's momentary capabilities and the breaker's interrupting capabilities.

Additionally, a detailed walkdown of bus 65E breaker positions was performed, which did not identify any signs of damage as a result of the event.

LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET

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Additional Information

A. Failed Component:

None identified.

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

No similar events were identified.