Keith J. Polson
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DTE Energy

10 CFR 50.73

December 20, 2016
NRC-16-0071

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. 2016-010

Pursuant to 10 CFR 50.73(a)(2)(v)(C), DTE Electric Company (DTE) is submitting LER No. 2016-010, Secondary Containment Pressure Exceeded Technical Specification Due to Adverse Weather.

No new commitments are being made in this LER.

Should you have any questions or require additional information, please contact Mr. Scott A. Maglio, Manager –Nuclear Licensing, at (734) 586-5076.

Sincerely,

Keith J. Polson
Site Vice President

Enclosure: Licensee Event Report No. 2016-010, Secondary Containment Pressure Exceeded Technical Specification Due to Adverse Weather

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-16-0071

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

Licensee Event Report (LER) No. 2016-010, Secondary Containment Pressure Exceeded Technical Specification Due to Adverse Weather

NRC FORM 366 (06-2016) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 10/31/2018

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

(See NUREG-1022, R.3 for instruction and guidance for completing this form http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/)

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4. TITLE

Secondary Containment Pressure Exceeded Technical Specification Due to Adverse Weather

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
									N/A	05000
10	26	2016	16	- 010	- 00	12	20	2016	FACILITY NAME N/A	DOCKET NUMBER 05000

9. OPERATING MODE	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: *(Check all that apply)*			
1	☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
	☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
	☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
	☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
10. POWER LEVEL	☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
	☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
	☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☑ 50.73(a)(2)(v)(C)	☐ 73.77(a)(1)
98	☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(D)	☐ 73.77(a)(2)(i)
	☐ 20.2203(a)(2)(vi)	☐ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(vii)	☐ 73.77(a)(2)(ii)
		☐ 50.73(a)(2)(i)(C)	☐ OTHER Specify in Abstract below or in NRC Form 366A	

12. LICENSEE CONTACT FOR THIS LER

LICENSEE CONTACT	TELEPHONE NUMBER *(Include Area Code)*
Fermi 2 / Scott A. Maglio – Manager, Nuclear Licensing	(734) 586-5076

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
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

14. SUPPLEMENTAL REPORT EXPECTED	15. EXPECTED SUBMISSION DATE	MONTH	DAY	YEAR
☐ YES *(If yes, complete 15. EXPECTED SUBMISSION DATE)* ☑ NO				

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

On October 26, 2016, at 2300 EDT, high winds on the Fermi 2 site resulted in the Technical Specification (TS) for Secondary Containment (SC) pressure boundary not being met numerous times. The duration of time that the SC TS was not met was approximately 1 second for each occurrence. Plant equipment performed as required during the changing environmental conditions and Reactor Building Heating Ventilation and Air Conditioning system returned SC pressure within TS limits when the wind subsided. SC vacuum returned to greater than the TS operability limit of 0.125 inches of vacuum water gauge, and the Limiting Condition for Operation (LCO) was exited at 2306 EDT. A subsequent review of data from October 1, 2016 to November 18, 2016 identified additional instances where the TS requirement for SC was momentarily not met due to high winds. The Fermi 2 Updated Final Safety Analysis Report (UFSAR) Section 6.2 recognizes that high winds may result in a momentary change to the indicated differential pressure between SC and the outside atmosphere. In all cases, SC vacuum returned within the TS requirements without Operator action. There were no safety consequences or radiological releases associated with this event. The cause of the momentary losses of SC was determined to be high winds impinging on the Reactor Building. For corrective actions, Fermi 2 plans to adopt Technical Specification Task Force Traveler (TSTF) 551, "Revise Secondary Containment Surveillance Requirements," when it is approved to eliminate the need to declare SC inoperable for similar events in the future.

LICENSEE EVENT REPORT (LER) CONTINUATION SHEET

(See NUREG-1022, R.3 for instruction and guidance for completing this form http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/)

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NARRATIVE

INITIAL PLANT CONDITIONS

Mode – 1
Reactor Power – 98 percent

There were no structures, systems, or components (SSCs) that were inoperable at the start of this event that contributed to this event.

DESCRIPTION OF THE EVENT

On October 26, 2016, at 2300 EDT, high winds encountered on the Fermi 2 site resulted in the Technical Specification (TS) for Secondary Containment (SC) [[NH]] pressure boundary not being met numerous times. The duration of time that the SC TS was not met was approximately 1 second for each occurrence. The SC vacuum was observed to be less than 0.125 inches of vacuum water gauge. The TS requirement is to maintain SC vacuum greater than or equal to 0.125 inches of vacuum water gauge (TS Surveillance Requirement (SR) 3.6.4.1.1).

All plant equipment performed as required during the changing environmental conditions. SC vacuum was restored to greater than 0.125 inches of vacuum water gauge by Reactor Building Heating Ventilation and Air Conditioning (RBHVAC) [[VA]] when the wind subsided. The Limiting Condition for Operation (LCO) for SC operability was exited at 2306 EDT.

As described in Licensee Event Report (LER) 2016-008, the SC pressure recorders [[PR]] are digital and display a single data point every second. In order to observe a momentary spike in SC pressure, an Operator would have to be looking directly at this display at the time the pressure exceeded the TS SR limit. The occurrences at approximately 2300 EDT described above were observed by an Operator. However, there is the potential that the TS was not met at other times that were not directly observed by an Operator. LER 2016-008 performed a past reportability review to identify such occurrences for the period from September 1, 2013 to September 30, 2016. To support this current LER 2016-010, a new past reportability review was performed for the period from October 1, 2016 to November 18, 2016. There were numerous days during that period during which digital pressure recorder data showed that the TS SR for SC vacuum was not met for at least one second. The highest recorded pressure for that entire period, which encompasses the observed event on October 26, was +0.138 inches water gauge. Most instances were approximately 1-2 seconds in duration and no instance exceeded 30 seconds since no Main Control Room (MCR) [[NA]] alarm [[PA]] for SC vacuum occurred. These instances, with the exception of those at approximately 2300 EDT on October 26, were not observed by Operators, and therefore, SC was not declared inoperable at the time, no event notification was made at the time, and no LER was previously submitted regarding these instances.

An 8-hour non-emergency event notification (EN 52320) was made to the NRC. The conditions met the reporting criteria for Title 10 Code of Federal Regulations (10 CFR) 50.72(b)(3)(v)(C) as an event or condition that could have prevented the fulfillment of a safety function needed to control the release of radioactive material. This LER 2016-010 is being reported under the corresponding requirement in 10 CFR 50.73(a)(2)(v)(C).

SIGNIFICANT SAFETY CONSEQUENCES AND IMPLICATIONS

There were no safety consequences or radiological releases associated with this event. At no time during this event was there a potential for endangering the public health and safety.

LICENSEE EVENT REPORT (LER) CONTINUATION SHEET

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The specified safety function of the SC is to contain, dilute, and hold up fission products that may leak from primary containment following a Design Basis Accident (DBA). In conjunction with operation of the Standby Gas Treatment System (SGTS) [[BH]] and closure of certain valves [[V]] whose lines penetrate the SC, the SC is designed to reduce the activity level of the fission products prior to release to the environment and to isolate and contain fission products that are released during certain operations that take place inside primary containment, when primary containment is not required to be OPERABLE, or that take place outside primary containment. It is possible for the pressure in the control volume to rise relative to the environmental pressure (e.g., due to pump [[P]] and motor [[MO]] heat load additions). To prevent ground level exfiltration while allowing the SC to be designed as a conventional structure, the SC requires support systems to maintain the control volume pressure at less than the external pressure. For the SC to be considered OPERABLE, it must have adequate leak tightness to ensure that the required vacuum can be established and maintained. During this particular event, a higher indicated SC pressure was recorded on multiple occasions for approximately 1-2 seconds each. In Chapter 15 of the Updated Final Safety Analysis Report (UFSAR), RBHVAC is assumed lost at the onset of a loss of coolant accident (LOCA) concurrent with a Loss of Offsite Power. As a result, calculations show that the SC would be pressurized until the SGTS restores vacuum. For this event, the structural integrity (i.e., leak tightness) of the SC was re-confirmed when SC vacuum was restored to greater than 0.125 inches vacuum water gauge in less than 30 seconds without Operator action when the wind subsided.

If the DBA LOCA for SC concurrent with a Loss of Offsite Power had occurred during the times when the SC pressure TS limit was exceeded, the SC was sufficiently leak tight such that the SGTS would still have established and maintained vacuum greater than the TS required value.

The radiological consequences of the DBA LOCA for SC contained in Chapter 15 of the Fermi 2 UFSAR result in doses that are below 10 CFR 50.67. The SC is assumed to be at 0.125 inches vacuum water gauge at the onset of the LOCA. For these particular events, had the DBA LOCA for SC actually occurred, the increase in magnitude of radiological dose as a result of increased draw-down time from the highest recorded pressure of +0.138 inches water gauge vice -0.125 inches water gauge for a few seconds, would be minimal and negated by several very conservative assumptions in the existing analysis (e.g., 100 percent exfiltration from SC during the first 15 minutes of drawdown with SGTS in operation, 10% exfiltration from SC with SGTS in operation throughout the remaining 30 day duration of the accident, no holdup time in SC throughout the 30 day duration of the accident, and all exfiltration and filtered releases are at ground level).

CAUSE OF THE EVENT

The effect of the high winds outside of the RB caused the momentary losses of SC.

The high winds outside the RB are known to cause large and rapid changes in RB differential pressure (i.e. between inside and outside the RB). There are two divisions to monitor SC pressure. Each division has four pressure transmitters [[PT]] located on the RB fifth floor, one on each of the four RB walls, with a pressure probe that penetrates the wall to the outside, and a recorder. The recorder indicates the highest pressure of the four inputs from the transmitters. Using the equation provided in Section 6.2 of the Fermi 2 UFSAR, wind speeds of 30 to 60 miles per hour (mph) on the RB result in an external pressure change of -0.27 to -1.07 inches water gauge on the leeward side of the building. The negative change on the leeward side of the building results in a higher indicated RB pressure. As a result, high wind gusts are sufficient to cause momentary indicated loss of SC even with no other contributing causes.

LICENSEE EVENT REPORT (LER) CONTINUATION SHEET

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NARRATIVE

CORRECTIVE ACTIONS

No corrective actions were required to restore compliance with TS SR 3.6.4.1.1 as pressure was restored at the time of the event without Operator action when the wind subsided.

Corrective actions for similar events were identified in LERs 2016-003, 2016-004, 2016-007, and 2016-008, including adopting Technical Specification Task Force Traveler (TSTF) 551, "Revise Secondary Containment Surveillance Requirements," when it is approved by the U.S. Nuclear Regulatory Commission. This TSTF would eliminate the need to declare SC inoperable due to momentary pressure indications exceeding the TS limit, such as those caused by wind gusts as described in this LER. Additional corrective actions taken in response to these past occurrences include benchmarking how other sites monitor and evaluate environmental effects on SC pressure, evaluating potential changes to how SC pressure is monitored at Fermi 2, and evaluating potential revisions to the Fermi 2 licensing basis.

PREVIOUS OCCURRENCES

Similar events involving loss of SC due solely to high winds have been reported in the following LERs:

1) LER 2016-003 involved the loss of SC due to high winds on July 8, 2016.
2) LER 2016-004 involved the loss of SC due to high winds on July 13, 2016.
3) LER 2016-007 involved the loss of SC due to high winds on August 27, 2016.
4) LER 2016-008 involved a past reportability review of the loss of SC due to high winds for the period from September 1, 2013 to September 30, 2016.

The corrective actions for the above events are still in progress and, therefore, could not have prevented the instances included in this LER.