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10 CFR 50.73

February 3, 2017
NRC-17-0009

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555-0009

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

Subject: Licensee Event Report (LER) No. 2016-017

Pursuant to 10 CFR 50.73(a)(2)(v)(C), DTE Electric Company (DTE) is submitting LER No. 2016-017, Secondary Containment Pressure Exceeded Technical Specification During Reactor Building HVAC Restart Due to High Winds.

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. 2016-017

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-17-0009**

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

Licensee Event Report (LER) No. 2016-017



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/>)

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 Infocollections.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

Fermi 2

2. DOCKET NUMBER

05000

341

3. PAGE

1 OF 4

4. TITLE

Secondary Containment Pressure Exceeded Technical Specification During Reactor Building HVAC Restart Due to High Winds

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
12	15	2016	2016	017	00	02	03	2017	N/A	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)(ii)(A)		<input type="checkbox"/> 50.73(a)(2)(viii)(A)		
			<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)		<input type="checkbox"/> 50.73(a)(2)(ii)(B)		<input type="checkbox"/> 50.73(a)(2)(viii)(B)		
			<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)		<input type="checkbox"/> 50.73(a)(2)(iii)		<input type="checkbox"/> 50.73(a)(2)(ix)(A)		
			<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)		<input type="checkbox"/> 50.73(a)(2)(iv)(A)		<input type="checkbox"/> 50.73(a)(2)(x)		
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)(v)(A)		<input type="checkbox"/> 73.71(a)(4)		
			<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)		<input type="checkbox"/> 50.73(a)(2)(v)(B)		<input type="checkbox"/> 73.71(a)(5)		
			<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)		<input checked="" type="checkbox"/> 50.73(a)(2)(v)(C)		<input type="checkbox"/> 73.77(a)(1)		
			<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)(D)		<input type="checkbox"/> 73.77(a)(2)(i)		
			<input type="checkbox"/> 20.2203(a)(2)(vi)	<input type="checkbox"/> 50.73(a)(2)(i)(B)		<input type="checkbox"/> 50.73(a)(2)(vii)		<input type="checkbox"/> 73.77(a)(2)(ii)		
			<input type="checkbox"/> 50.73(a)(2)(i)(C)		<input type="checkbox"/> OTHER Specify in Abstract below or in NRC Form 366A					

12. LICENSEE CONTACT FOR THIS LER

LICENSEE CONTACT

Fermi 2 / Scott A. Maglio – Manager, Nuclear Licensing

TELEPHONE NUMBER (Include Area Code)

(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

☐ 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 December 15, 2016, at 1010 EST, high winds on the Fermi 2 site resulted in the Technical Specification (TS) for Secondary Containment (SC) pressure boundary not being met during startup of the Reactor Building Heating, Ventilation, and Air Conditioning (RBHVAC) east train. The duration of time that the SC TS was not met was approximately six to seven seconds. SC vacuum returned to within TS limits when the RBHVAC startup sequence was completed. 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. 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 loss of SC vacuum was determined to be high winds impinging on the Reactor Building during RBHVAC startup. 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. Additionally, a Reactor Building pressure recorder modification was completed on December 23, 2016, to prevent momentary SC vacuum indications due to high winds from being received.

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

(See NUREG-1022, R.3 for instruction and guidance for completing this form
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1. FACILITY NAME		2. DOCKET NUMBER		3. LER NUMBER		
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				2016	017	00

NARRATIVE**INITIAL PLANT CONDITIONS**

Mode – 1
Reactor Power – 100 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 December 15, 2016, at 1010 EST, high winds on the Fermi 2 site resulted in the Technical Specification (TS) for Secondary Containment (SC) [[NH]] pressure boundary not being met during startup of the Reactor Building Heating Ventilation and Air Conditioning (RBHVAC) [[VA]] east train. The duration of time that the SC TS was not met was approximately six to seven seconds based on a review of data from the SC pressure recorders [[PR]]. The highest recorded pressure was 0.044 inches vacuum water gauge for one second. SC vacuum returned to within TS limits when the RBHVAC startup sequence was completed. The structural integrity of SC was maintained during this event. Standby Gas Treatment System (SGTS) [[BH]] was in operation during the RBHVAC startup.

An 8-hour non-emergency event notification (EN 52437) 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 2016-017 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.

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 SGTS 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 for approximately six to seven seconds. 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 approximately six to seven seconds without further Operator action when the RBHVAC startup sequence was completed.

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NARRATIVE

If the DBA LOCA for SC concurrent with a Loss of Offsite Power had occurred during the time 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 0.0 inches vacuum water gauge at the onset of the LOCA. For this particular event, had the DBA LOCA for SC actually occurred, there would be no increase in magnitude of radiological dose because the highest recorded pressure of 0.044 inches vacuum water gauge is below the assumed SC pressure of 0.0 inches water gauge.

CAUSE OF THE EVENT

The effect of the high winds outside the Reactor Building (RB) [[NG]] combined with the RBHVAC startup caused the momentary loss of SC vacuum.

SGTS typically maintains SC pressure close to 0.4 inches vacuum water gauge with light winds. Due to wind at the time of this event, SC pressure was being sustained at approximately 0.3 inches vacuum water gauge. The RBHVAC exhaust fans [[FAN]] start upon system startup and the supply fans start five seconds later. When the supply fans start, the exhaust pressure control modulating dampers [[CDMP]] take some time to respond to the higher pressure which results in a pressure spike. Because SC pressure was sustained around 0.3 inches vacuum water gauge at the time of RBHVAC startup rather than 0.4 inches vacuum water gauge, the pressure spike resulted in SC pressure exceeding the TS requirement.

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 vacuum even with no other contributing causes.

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 further Operator action when the RBHVAC startup sequence was completed.

Corrective actions for a similar event were identified in LER 2016-005 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 high winds as described in this LER. Another corrective action from LER 2016-005 involved increasing the time delay between the starting the exhaust and supply fans from two to five seconds. Although this modification increased margin to the TS limit for SC vacuum, additional corrective actions related to wind effects were still in progress at the time of this event and, therefore, could not have prevented the event described in this LER.

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NARRATIVE

LERs 2016-003, 2016-004, 2016-007, 2016-008, 2016-010, 2016-013, 2016-014, and 2016-016 all involved the loss of SC vacuum due solely to high winds. As part of the corrective actions in response to these events, an RB pressure recorder modification was completed on December 23, 2016, to prevent momentary SC vacuum indications due to high winds from being received.

PREVIOUS OCCURRENCES

As noted in the Corrective Actions section above, a similar event involving loss of SC vacuum during startup of RBHVAC due to high winds was reported in LER 2016-005. Additionally, LERs 2016-003, 2016-004, 2016-007, 2016-008, 2016-010, 2016-013, 2016-014, and 2016-016 all involved the loss of SC vacuum due solely to high winds. As part of the corrective actions in response to these events, an RB pressure recorder modification was completed on December 23, 2016, after the event in this LER occurred, to prevent momentary SC vacuum indications due to high winds from being received. Therefore, the corrective actions taken in response to these previous events could not have prevented the event described in this LER since they were completed subsequent to this event.

LER 2016-015 documented a similar event on December 14, 2016. Due to the short timeframe between these events, the corrective actions taken in response to this event on December 14, 2016, could not have prevented the event described in this LER.