

Keith J. Polson
Site Vice President

DTE Energy Company
6400 N. Dixie Highway, Newport, MI 48166
Tel: 734.586.4849 Fax: 734.586.4172
Email: keith.polson@dteenergy.com



10 CFR 50.73

February 3, 2017
NRC-17-0008

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555-0008

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

Subject: Licensee Event Report (LER) No. 2016-016

Pursuant to 10 CFR 50.73(a)(2)(v)(C), DTE Electric Company (DTE) is submitting LER No. 2016-016, 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. 2016-016

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-17-0008**

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

Licensee Event Report (LER) No. 2016-016



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 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
12	14	2016	2016	016	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)		
10. POWER LEVEL			<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 14, 2016, starting at 2345 EST, 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 one to two seconds for each occurrence. At 0300 EST on December 15, 2016, high wind conditions had subsided and secondary containment vacuum was greater than the TS operability limit of 0.125 inches of vacuum water gauge and steady. In each instance, plant equipment performed as required during the changing environmental conditions and SC vacuum returned to within TS limits when the wind subsided. 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 vacuum 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. Additionally, a modification was completed on December 23, 2016, to prevent momentary SC vacuum indications from being received.

**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/>)

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.

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Fermi 2	05000-	2016	016	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 14, 2016, starting at 2345 EST, high winds 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 one to two seconds for each occurrence. At 0300 EST on December 15, 2016, high wind conditions had subsided and SC vacuum was greater than the TS operability limit of 0.125 inches of vacuum water gauge (TS Surveillance Requirement (SR) 3.6.4.1.1) and steady.

In all instances, all plant equipment performed as required during the changing environmental conditions. Reactor Building Heating Ventilation and Air Conditioning (RBHVAC) [[VA]] was in service at the time of the events, and SC vacuum was restored to greater than 0.125 inches of vacuum water gauge when the wind subsided.

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. Starting at 2345 EST on December 14, 2016, multiple instances 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. LER 2016-010 performed a past reportability review from October 1, 2016, to November 18, 2016. LER 2016-013 performed a past reportability review from November 19, 2016, to December 15, 2016, which overlaps with the event being reported in this LER. The highest recorded pressure for this event was +0.048 inches water gauge for one second. All instances were approximately one to two seconds in duration. These SC vacuum indication changes were solely due to wind effects. There were no appreciable changes of SC absolute pressure during these instances. The structural integrity of SC was maintained during each instance. This is verified by the momentary nature of the differential pressure indication spikes.

An 8-hour non-emergency event notification (EN 52434) 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 2016-016 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 Standby Gas Treatment System (SGTS) [[BH]] and closure of certain valves [[V]] whose lines penetrate the SC, the SC is designed to reduce the

**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/>)

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, NEOF-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	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Fermi 2	05000-	2016	016	00

NARRATIVE

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 one to two 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 one to two 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 0.0 inches 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 +0.048 inches water gauge vice 0.0 inches water gauge for one second, 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 vacuum.

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 vacuum was restored at the time of the event without Operator action when the wind subsided.

**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/>)

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.

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Fermi 2	05000-	2016	016	00

NARRATIVE

Corrective actions for similar events were identified in LERs 2016-003, 2016-004, 2016-007, 2016-008, 2016-010, 2016-013, and 2016-014, 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 included 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. Based on these actions, a modification was completed on December 23, 2016, to prevent momentary SC pressure indications from being received.

PREVIOUS OCCURRENCES

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

- 1) LER 2016-003 involved the loss of SC vacuum due to high winds on July 8, 2016.
- 2) LER 2016-004 involved the loss of SC vacuum due to high winds on July 13, 2016.
- 3) LER 2016-007 involved the loss of SC vacuum due to high winds on August 27, 2016.
- 4) LER 2016-008 involved a past reportability review of the loss of SC vacuum due to high winds for the period from September 1, 2013, to September 30, 2016.
- 5) LER 2016-010 involved the loss of SC vacuum due to high winds on October 26, 2016, and also a past reportability review of the loss of SC vacuum due to high winds for the period from October 1, 2016, to November 18, 2016.
- 6) LER 2016-013 involved the loss of SC vacuum due to high winds on November 19-20, 2016, and also a past reportability review of the loss of SC vacuum due to high winds for the period from November 19, 2016, to December 15, 2016.
- 7) LER 2016-014 involved the loss of SC vacuum due to high winds on November 28, 2016.

The corrective actions for the above events were still in progress at the time of this event and, therefore, could not have prevented the instances included in this LER.