Keith J. Polson
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DTE Energy

10 CFR 50.73

March 22, 2016
NRC-16-0017

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

References: 1) Fermi 2
NRC Docket No. 50-341
NRC License No. NPF-43

2) DTE Letter, NRC-15-0093, "Licensee Event Report (LER) No. 2015-005," dated October 9, 2015 (ADAMS Accession No. ML15285A003)

Subject: Supplement to Licensee Event Report (LER) No. 2015-005

Pursuant to 10 CFR 50.73(a)(2)(v)(C), DTE Electric Company (DTE) is submitting a supplement to LER No. 2015-005, Secondary Containment Inoperable Due to RBHVAC Damper Malfunction (Reference 2).

No commitments are being made in this LER.

Should you have any questions or require additional information, please contact Mr. Alan I. Hassoun of my staff at (734) 586-4287.

Sincerely,

Keith J. Polson
Site Vice President

Enclosure: Licensee Event Report (LER) No. 2015-005-01, Secondary Containment Inoperable Due to RBHVAC Damper Malfunction

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-16-0017**

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

# Licensee Event Report (LER) No. 2015-005-01, Secondary Containment Inoperable Due to RBHVAC Damper Malfunction

NRC FORM 366 (11-2015) 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 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 Page 2 for required number of digits/characters for each block)

| 1. FACILITY NAME | 2. DOCKET NUMBER | 3. PAGE |
|---|---|---|
| Fermi 2 | 05000 341 | 1 OF 4 |

**4. TITLE**

Secondary Containment Declared Inoperable Due to RBHVAC Damper Malfunction

| 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 |
| 08 | 12 | 2015 | 2015 | - 005 | - 01 | 03 | 22 | 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) |
| 100 | ☐ 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)* |
|---|---|
| Alan I. Hassoun - Manager, Nuclear Licensing | (734) 586-4287 |

**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 | VA | 62 | N/A | N | | | | | |

**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 August 12, 2015, at approximately 1007 EDT, while restoring the Reactor Building Heating Ventilation and Air Conditioning (RBHVAC) System after surveillance testing, an equipment malfunction resulted in improper damper alignment causing the Secondary Containment (SC) pressure to exceed Technical Specification (TS) limits for approximately 5 seconds. SC pressure was restored to within the TS limit of less than or equal to -0.125 inches water column by the Standby Gas Treatment System (SGTS), already in operation, and securing the affected RBHVAC components. The highest SC pressure observed was -0.095 inches water column.

A failure analysis was performed; however, the cause of the failure could not be definitively determined. The most probable cause is setpoint drift of the East RBHVAC supply damper time delay relay resulting in the damper moving out of sequence. The relay was replaced in accordance with the Fermi 2 Corrective Action Program. There were no radiological releases associated with this event.

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# LICENSEE EVENT REPORT (LER) CONTINUATION SHEET

| 1. FACILITY NAME | 2. DOCKET NUMBER | 3. LER NUMBER | | |
|---|---|---|---|---|
| | | YEAR | SEQUENTIAL NUMBER | REV NO. |
| Fermi 2 | 05000- 341 | 2015 | - 005 | - 01 |

## 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 August 12, 2015 at 1007 EDT, the non-safety related Reactor Building (RB) [[NG]] Heating Ventilation and Air Conditioning (RBHVAC) [[VA]] system was being restored following performance of the Division 1 Standby Gas Treatment System Filter and Secondary Containment Isolation Damper Operability Test in accordance with procedure 24.404.02. Per the Surveillance Requirement (SR) procedure, Division 1 Standby Gas Treatment System (SGTS) [[BH]] was in service at the time of this event.

During start-up of the East RBHVAC Fans [[FAN]], the east supply damper [[DMP]] indicated full open in the Main Control Room (MCR) [[NA]] at T=25 seconds (s) during the start-up sequence. The supply damper should have started to open at T=29 s. Therefore, it is likely that the time delay relay [[62]] timed out earlier than expected. This resulted in the supply fans forcing more air into the RB than was being removed, causing Secondary Containment (SC) [[NH]] pressure to rise. The highest SC pressure noted was -0.095 inches (in) water column. Operators secured the East RBHVAC components, and SC pressure was restored by the SGTS, already in operation, in approximately 5 seconds to within the Technical Specification limit of less than -0.125 in water column.

An 8-hour event notification (EN 51313) was made to the NRC based on meeting the reporting criteria of 10 CFR 50.72(b)(3)(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 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 and motor 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.

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# LICENSEE EVENT REPORT (LER) CONTINUATION SHEET

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During this particular event, the SC did not maintain a vacuum greater than 0.125 inches water column for approximately 5 seconds. In Chapter 15 of the Fermi 2 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 particular licensee event, the SC vacuum degraded when the non-safety-related east RBHVAC supply damper actuated earlier than expected. The structural integrity (i.e., leak tightness) of the SC was re-confirmed when the safety-related SGTS restored vacuum to greater than 0.125 inches water column.

If the DBA LOCA for SC concurrent with a Loss of Offsite Power had occurred during the time when SC pressure was between -0.095 and -0.125 inches water column, 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 10CFR50.67. The SC is assumed to be at a pressure of -0.125 inches water column at the onset of the LOCA. For this particular event, had the DBA LOCA for SC actually occurred, the increase in magnitude of radiological dose as a result of increased draw-down time from starting at -0.095 vice -0.125 inches water column for 5 seconds, would be minimal and negated by several very conservative assumptions in the existing analysis (e.g., 100% 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). These conservative assumptions are not reflective of actual plant conditions and configuration.

**Cause of the Event**

The relay was removed during Refueling Outage 17 (RF17) in Fall 2015 and a Failure Analysis was conducted; however, the cause of the failure could not be definitively determined. The most probable cause is setpoint drift of the East RBHVAC supply damper time delay relay resulting in the damper moving out of sequence. A new relay was installed during RF17 and operated properly.

**Corrective Action**

The relay was replaced in accordance with the Fermi 2 Corrective Action Program.

**Previous Occurrences**

LER 2013-001 involved a loss of SC function due to an RBHVAC system equipment malfunction. The cause of that event was related to improper damper sequencing.

LER 2013-003 involved a loss of SC function due to an RBHVAC system equipment malfunction. The cause of that event was related to a RBHVAC system trip caused by the lack of steam flow through a heating coil due to inadequate draining of the downstream steam trap.

LER 2015-001 involved the loss of SC function due to an RBHVAC system trip caused by a valid actuation of a freeze protection device.

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# LICENSEE EVENT REPORT (LER)
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| | | | YEAR | SEQUENTIAL NUMBER | REV NO. |
| Fermi 2 | 05000- | 341 | 2015 | - 005 | - 01 |

LER 2015-004 involved the loss of SC function due to reverse rotation of the RBHVAC center exhaust fan during post-maintenance testing caused by reversed electrical leads.

The event described in LER 2013-001 was caused by an inadequate preventative maintenance (PM) strategy that could not detect setpoint drift in the RBHVAC timing relays. Corrective actions taken in response to this 2013 event created PMs to calibrate the time delay relays. These PMs were being performed adequately. The most probable cause of this 2015 event is setpoint drift of the relay, which was not preventable by proper performance of the PMs. None of the other referenced occurrences involved the same underlying concern or reason as this event, such as the same root cause, failure, or sequence of events.

**Additional Information**

Failed Component: The East RBHVAC supply damper time delay relay (Agastat Timer Relay Model 7012AD) was unable to correctly perform its required function due to setpoint drift. Therefore, it actuated the damper early, resulting in exceeding the Technical Specification limit for SC vacuum for 5 seconds.