William S. Orser
Senior Vice President

Detroit Edison

Fermi 2
6400 North Dixie Highway
Newport, Michigan 48166
(313) 586-5201

10CFR50.73

July 9, 1992
NRC-92-0079

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

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

Subject: Licensee Event Report (LER) No. 92-006

Please find enclosed LER No. 92-006, dated July 9, 1992, for a reportable event that occurred on June 11, 1992. A copy of this LER is also being sent to the Regional Administrator, USNRC Region III.

If you have any questions, please contact Barbara Siemasz, Compliance Engineer, at (313) 586-1683.

Sincerely,

Enclosure: NRC Forms 366, 366A

cc: T. G. Colburn
A. B. Davis
M. P. Phillips
S. Stasek
P. L. Torpey

Wayne County Emergency
Management Division

140134

IE22
1/1

NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/88

# LICENSEE EVENT REPORT (LER)

| FACILITY NAME (1) | DOCKET NUMBER (2) | PAGE (3) |
|---|---|---|
| Fermi 2 | 0 5 0 0 0 3 4 1 | 1 OF 0 5 |

TITLE (4) Emergency Equipment Cooling Water Automatic Initiation Due to Low Differential Pressure

| EVENT DATE (5) | | | LER NUMBER (6) | | | REPORT DATE (7) | | | OTHER FACILITIES INVOLVED (8) | |
|---|---|---|---|---|---|---|---|---|---|---|
| MONTH | DAY | YEAR | YEAR | SEQUENTIAL NUMBER | REVISION NUMBER | MONTH | DAY | YEAR | FACILITY NAMES | DOCKET NUMBER(S) |
| 0 6 | 1 1 | 9 2 | 9 2 | — 0 0 6 | — 0 0 | 0 7 | 0 9 | 9 2 | | 0 5 0 0 0 |
| | | | | | | | | | | 0 5 0 0 0 |

| OPERATING MODE (9) | 1 | THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11) | | | |
|---|---|---|---|---|---|
| POWER LEVEL (10) | 1 0 0 | 20.402(b) | 20.405(c) | X 50.73(a)(2)(iv) | 73.71(b) |
| | | 20.405(a)(1)(i) | 50.36(c)(1) | 50.73(a)(2)(v) | 73.71(c) |
| | | 20.405(a)(1)(ii) | 50.36(c)(2) | 50.73(a)(2)(vii) | OTHER (Specify in Abstract below and in Text, NRC Form 366A) |
| | | 20.405(a)(1)(iii) | 50.73(a)(2)(i) | 50.73(a)(2)(viii)(A) | |
| | | 20.405(a)(1)(iv) | 50.73(a)(2)(ii) | 50.73(a)(2)(viii)(B) | |
| | | 20.405(a)(1)(v) | 50.73(a)(2)(iii) | 50.73(a)(2)(x) | |

LICENSEE CONTACT FOR THIS LER (12)

| NAME | TELEPHONE NUMBER |
|---|---|
| | AREA CODE |
| Barbara Siemasz, Compliance Engineer | 3 1 3 5 8 6 - 1 6 8 3 |

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

| CAUSE | SYSTEM | COMPONENT | MANUFACTURER | REPORTABLE TO NPRDS | | CAUSE | SYSTEM | COMPONENT | MANUFACTURER | REPORTABLE TO NPRDS | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | |
| | | | | | | | | | | | |

| SUPPLEMENTAL REPORT EXPECTED (14) | | EXPECTED SUBMISSION DATE (15) | MONTH | DAY | YEAR |
|---|---|---|---|---|---|
| YES (If yes, complete EXPECTED SUBMISSION DATE) | X NO | | | | |


ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On June 11, 1992 at 0614 hours, Division I Emergency Equipment Cooling Water (EECW) system and the associated Division I Emergency Equipment Service Water (EESW) system automatically initiated while Operations personnel were valving out one of two Reactor Building Closed Cooling Water (RBCCW) heat exchangers for corrective maintenance. Subsequently, while restoring Division I EECW and EESW to standby, Division II EECW and EESW automatically initiated followed by a re-initiation of Division I EECW and EESW.

The system actuations resulted from a supply and return header low differential pressure condition which was caused by closing the RBCCW "B" heat exchanger inlet valve. Investigation indicated that in 1985 limitations involving operating with only one RBCCW heat exchanger and three pumps in service were identified. However, the document that communicated this information did not directly address system interrelationship with EECW (i.e., automatic initiation of EECW). Thus, this was not incorporated into procedures. The root cause of this event was ineffective communication between site organizations. Contributing factors to this event were procedure and training inadequacies.

The system operating procedure has been revised to only allow operation with two heat exchangers in service. An ad hoc committee consisting of personnel from Operations, Engineering and Nuclear Training is conducting a review of their interfacing practices. Operating guidelines associated with heat exchanger line-up and RBCCW system differential pressure controls will be established. Based on these guidelines, appropriate system operating procedures, alarm response procedures and operator training material will be revised. A review of this event will be presented in the next training cycle of operator requalification classes.

Initial Plant Conditions:

Operational Condition: 1 (Power Operation)
Reactor Power: 100 %
Reactor Pressure: 1009 psig
Reactor Temperature: 535 Degrees Fahrenheit

Description of Event:

On June 11, 1992 at 0614 hours, Division I Emergency Equipment Cooling Water (EECW) [BI] system and the associated Division I Emergency Equipment Service Water (EESW) [BI] system automatically initiated while Operations personnel were valving out one of two Reactor Building Closed Cooling Water (RBCCW) [CC] heat exchangers [HX] for corrective maintenance. Subsequently, while restoring Division I EECW and EESW system components to their standby configuration, Division II EECW and EESW automatically initiated. Immediately following, Division I EECW and EESW automatically re-initiated.

The corrective maintenance to be performed on the RBCCW (shell) side of the heat exchanger was to repair drain valves [V] which were a source of in-leakage to radwaste. Prior to removing the heat exchanger from service, Operations personnel performed a review of the planned evolution. They recognized there was a potential for initiating EECW due to potential system pressure fluctuations since EECW and RBCCW share common piping. However, they believed there was adequate margin to successfully isolate the heat exchanger while carefully monitoring for system differential pressure changes. At approximately 0550 hours, Operations personnel noted initial RBCCW supply and return header pressure readings from pressure indicator P42-R802 [PI]. At approximately 0600 hours, isolation of RBCCW "B" heat exchanger commenced. The strategy was to slowly close the heat exchanger inlet valve P42-F014B [ISV] while continuing to monitor for a low differential pressure across the RBCCW supply and return header on P42-R802. When the heat exchanger was nearly isolated, a small change in the position of P42-F014B caused a larger than expected change in RBCCW return header pressure as indicated on P42-R802. This change was sensed as a low differential pressure condition by Division I EECW differential pressure switches [PS]. At this time, Division I EECW automatically initiated.

At approximately 0615 hours, Operations personnel began restoring Division I EECW to standby. At approximately 0643 hours, while in the process of shutting down the Division I EECW pump [P] per the system operating procedure, Division II EECW automatically initiated. Immediately following, Division I EECW automatically re-initiated. The initiating signal was again a low differential pressure condition.

At approximately 0645 hours, P42-F014B was reopened. Operations personnel allowed RBCCW and Division I and II EECW to remain operating until the cause of the initial RBCCW low differential pressure condition was fully understood. With the assistance of Engineering personnel, it was determined that Division I and II EECW could be successfully returned to standby. As the system operating procedure was being performed to return EECW to standby, sufficient system pressure data was collected and used to help determine what had occurred in the system during this event. Based upon this information, it was confirmed that the closing of P42-F014B caused the low differential pressure condition.

At approximately 1400 hours, RBCCW was realigned and Division I and II EECW and EESW were placed in standby.

An accountability meeting was held to discuss this event with the personnel involved and with management.

Cause of Event:

Investigation subsequent to the event determined that in 1985 Engineering identified a limitation about operating the RBCCW system with only one heat exchanger and three pumps in service and communicated this to Nuclear Production. However, the document that communicated this information did not directly address system interrelationship with the EECW system (i.e., automatic initiation of EECW). Thus, this was not incorporated into the system operating procedure as a precaution not to operate with only one heat exchanger in service. Not withstanding this, Operations personnel did realize there was a possibility for system pressure fluctuations and performed actions to carefully monitor changes in differential pressure while slowly isolating the heat exchanger. Therefore, the root cause of this event was determined to be ineffective communication between site organizations.

Training material, which is based in part on the system operating procedure, stated that normal operation was with one heat exchanger in service. Contributing factors to this event are procedure and training inadequacies.

Analysis of Event:

The RBCCW system is designed to provide cooling water to the RBCCW and EECW heat loads during normal operation. The EECW system is designed to provide adequate cooling water supply to essential plant equipment upon loss of offsite power, high drywell pressure or failure of the RBCCW system. The EESW system is designed to provide service water to cool the EECW heat exchangers.

This event involved an automatic initiation of an Engineered Safety Feature system. Although RBCCW continued to provide cooling water, when EECW sensed a low differential pressure condition, it actuated to ensure cooling water would not be lost to safety related equipment. Its actuation initiated EESW, as well. By actuating, these safety systems fulfilled their design basis safety function. The equipment operated according to design and there was no impact on the safe operation of the plant. Had a postulated event occurred during this time, EECW and EESW were already operating to supply cooling water to safety related loads. Therefore, the health and safety of the public and safety of the plant were ensured.

Corrective Actions:

The system operating procedure has been revised to only allow operation with two heat exchangers in service.

Although significant changes to management, programs, policies and procedures have been successfully implemented since 1985, an ad hoc committee consisting of personnel from Operations, Engineering and Nuclear Training is conducting a review of their interfacing practices in order to reaffirm that current methods for dissemination of information are adequate.

Operating guidelines associated with heat exchanger line-up and RBCCW system differential pressure controls will be established by August 14, 1992. Based on these guidelines, appropriate system operating

procedures and alarm response procedures will be revised by August 31, 1992. Based on the revised procedures, operator training material will be updated by September 11, 1992.

A review of this event will be presented in the next training cycle of licensed and non-licensed operator requalification classes.

Previous Similar Events:

The following Licensee Event Reports (LER) were the result of automatic actuations of EECW:

LER 85-017: Isolation of one of two RBCCW heat exchangers caused two RBCCW pumps to trip which decreased flow.

LER 85-026 & LER 87-051: Startup of a third RBCCW pump caused a pressure transient.

LER 85-042 & LER 85-058: Low differential pressure condition across RBCCW. No cause was determined in either event.

LER 85-079: An operator error involving an adjustment mistakenly made to a RBCCW control valve created a low differential pressure condition.

LER 87-038: Closing of Division II EECW return header isolation valve for post maintenance testing isolated the EECW makeup tank in service and tripped the RBCCW pump.

Failed Component Data:

There were no failed components involved in this event.