

Detroit  
Edison

Douglas R. Gipson  
Senior Vice President  
Nuclear Generation

Fermi 2  
6400 North Dixie Highway  
Newport, Michigan 48166  
(313) 586-5249

10CFR50.73

September 26, 1994  
NRC-94-0081

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

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

Subject: Licensee Event Report (LER) No. 94-005

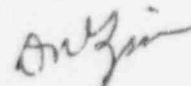
Please find enclosed LER No. 94-005, dated September 26, 1994, for a reportable event that occurred on August 26, 1994. A copy of this LER is also being sent to the Regional Administrator, USNRC Region III.

The following commitments are made in this LER:

1. Procedure FIP-CM1-18 will be strengthened to require review of impact statements when Engineering Design Package (EDP) revisions and/or Engineering Change Requests (ECR) are issued for an EDP.
2. Procedure NPP-MA1-01 will be revised to require the work request impact statement be reviewed when EDP revisions and ECRs are issued.
3. Lessons Learned from this event will be developed and will be provided to appropriate personnel.

If you should have any questions, please contact Joseph M. Pendergast, Compliance Engineer at (313) 586-1682.

Sincerely,



Enclosure: NRC Forms 366, 366A

cc: T. G. Colburn  
J. B. Martin  
M. P. Phillips  
K. R. Riemer  
P. L. Torpey

300004 Wayne County Emergency  
Management Division

9410030304 940926  
PDR ADOCK 05000341  
PDR

JE22

|   |        |   |                |                     |  |   |           |  |                               |               |
|---|--------|---|----------------|---------------------|--|---|-----------|--|-------------------------------|---------------|
| NRC FORM 366<br>(5-92)  |        | U.S. NUCLEAR REGULATORY COMMISSION  |                |                     | APPROVED BY OMB NO. 3150-0104<br>EXPIRES 5/31/95                       |   |           |  |                               |               |
| <b>LICENSEE EVENT REPORT (LER)</b><br><br>(See reverse for required number of digits/characters for each block)   |        |   |                |                     |  |   |           | ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503. |                               |               |
| FACILITY NAME (1)<br><div style="text-align: center;">Fermi 2</div>   |        |   |                |                     | DOCKET NUMBER (2)<br><div style="text-align: center;">05000 -341</div> |   |           | PAGE (3)<br><div style="text-align: center;">1 OF 4</div>  |                               |               |
| TITLE (4)<br>Actuation of Isolation Logic due to Power Interruption during Logic Modification   |        |   |                |                     |  |   |           |  |                               |               |
| EVENT DATE (5)  |        |   | LER NUMBER (6) |                     |  | REPORT NUMBER (7)                                   |           |  | OTHER FACILITIES INVOLVED (8) |               |
| MONTH   | DAY    | YEAR  | YEAR           | SEQUENTIAL NUMBER   | REVISION NUMBER  | MONTH   | DAY       | YEAR   | FACILITY NAME                 | DOCKET NUMBER |
| 08  | 26     | 94  | 94             | 005                 | 00   | 09  | 26        | 94   | FACILITY NAME                 | DOCKET NUMBER |
|   |        |   |                |                     |  |   |           |  |                               | 05000         |
|   |        |   |                |                     |  |   |           |  |                               | 05000         |
| OPERATING MODE (9)  |        | THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11) |                |                     |  |   |           |  |                               |               |
| N   |        | 20.402(b)   |                | 20.405(c)           |  | <input checked="" type="checkbox"/> 50.73(a)(2)(iv) |           | 73.71(b)   |                               |               |
| POWER LEVEL (10)  |        | 000   |                | 20.405(a)(1)(i)     |  | 50.36(c)(1)   |           | 73.71(c)   |                               |               |
|   |        |   |                | 20.405(a)(1)(ii)    |  | 50.36(c)(2)   |           | 50.73(a)(2)(vii)   |                               |               |
|   |        |   |                | 20.405(a)(1)(iii)   |  | 50.73(a)(2)(i)                                      |           | 50.73(a)(2)(vii)(A)  |                               |               |
|   |        |   |                | 20.405(a)(1)(iv)    |  | 50.73(a)(2)(ii)                                     |           | 50.73(a)(2)(vii)(B)  |                               |               |
|   |        |   |                | 20.405(a)(1)(v)     |  | 50.73(a)(2)(iii)                                    |           | 50.73(a)(2)(x)   |                               |               |
| LICENSEE CONTACT FOR THIS LER (12)  |        |   |                |                     |  |   |           |  |                               |               |
| NAME<br>Joseph M. Pendergast, Compliance Engineer   |        |   |                |                     |  |   |           | TELEPHONE NUMBER (include Area Code)<br>(313) 586-1682   |                               |               |
| COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)  |        |   |                |                     |  |   |           |  |                               |               |
| CAUSE   | SYSTEM | COMPONENT   | MANUFACTURER   | REPORTABLE TO NRPDS | CAUSE  | SYSTEM  | COMPONENT | MANUFACTURER   | REPORTABLE TO NRPDS           |               |
|   |        |   |                |                     |  |   |           |  |                               |               |
|   |        |   |                |                     |  |   |           |  |                               |               |
| SUPPLEMENTAL REPORT EXPECTED (14)   |        |   |                |                     |  |   |           |  |                               |               |
| YES<br>(If yes, complete EXPECTED SUBMISSION DATE)  |        |   |                |                     | <input checked="" type="checkbox"/> NO                                 |   |           |  |                               |               |
|   |        |   |                |                     | EXPECTED SUBMISSION DATE (15)  |   | MONTH     | DAY  | YEAR                          |               |
|   |        |   |                |                     |  |   |           |  |                               |               |
| ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)  |        |   |                |                     |  |   |           |  |                               |               |
| <p>Installation of Engineering Design Package (EDP) 26310 was in progress on August 26, 1994 at 1604 hours, when electricians loosened the screw on terminal strip AA-58 per the EDP work request. This interrupted power to portions of the Nuclear Steam Supply Shutoff System control logic, causing actuations of Engineered Safety Feature Systems and isolations. Reactor Building Heating Ventilation and Air Conditioning isolated, Standby Gas Treatment System division 2 started, Control Center Heating Ventilation and Air Conditioning shifted to the recirculation mode, Control Air Compressor division 2 started, Torus Water Management System isolated, Drywell Equipment Drains Sump isolated, Drywell Pneumatics division 2 isolated, and Reactor Recirculation Seal Purge outboard isolation valves isolated. At 1903 hours, the restoration of the actuations and isolations associated with the interruption of power in panel H11-P623 was complete.</p> <p>The cause of this event was procedural weakness. Procedures for modification implementation and work control will be revised to address the identified weakness.</p> |        |   |                |                     |  |   |           |  |                               |               |

REQUIRED NUMBER OF DIGITS/CHARACTERS  
FOR EACH BLOCK

| BLOCK<br>NUMBER | NUMBER OF<br>DIGITS/CHARACTERS  | TITLE                        |
|-----------------|---|------------------------------|
| 1               | UP TO 46  | FACILITY NAME                |
| 2               | 8 TOTAL<br>3 IN ADDITION TO 05000   | DOCKET NUMBER                |
| 3               | VARIES  | PAGE NUMBER                  |
| 4               | UP TO 76  | TITLE                        |
| 5               | 6 TOTAL<br>2 PER BLOCK  | EVENT DATE                   |
| 6               | 7 TOTAL<br>2 FOR YEAR<br>3 FOR SEQUENTIAL NUMBER<br>2 FOR REVISION NUMBER             | LER NUMBER                   |
| 7               | 6 TOTAL<br>2 PER BLOCK  | REPORT DATE                  |
| 8               | UP TO 18 -- FACILITY NAME<br><br>8 TOTAL -- DOCKET NUMBER<br>3 IN ADDITION TO 05000   | OTHER FACILITIES INVOLVED    |
| 9               | 1   | OPERATING MODE               |
| 10              | 3   | POWER LEVEL                  |
| 11              | 1<br>CHECK BOX THAT APPLIES   | REQUIREMENTS OF 10 CFR       |
| 12              | UP TO 50 FOR NAME<br>14 FOR TELEPHONE   | LICENSEE CONTACT             |
| 13              | CAUSE VARIES<br>2 FOR SYSTEM<br>4 FOR COMPONENT<br>4 FOR MANUFACTURER<br>NPRDS VARIES | EACH COMPONENT FAILURE       |
| 14              | 1<br>CHECK BOX THAT APPLIES   | SUPPLEMENTAL REPORT EXPECTED |
| 15              | 6 TOTAL<br>2 PER BLOCK  | EXPECTED SUBMISSION DATE     |

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

| FACILITY NAME (1) |  | DOCKET NUMBER (2) |  | LER NUMBER (6) |                   |                 | PAGE (3) |
|-------------------|--|-------------------|--|----------------|-------------------|-----------------|----------|
|                   |  |                   |  | YEAR           | SEQUENTIAL NUMBER | REVISION NUMBER |          |
| Fermi 2           |  | 05000-341         |  | 94             | 005               | 00              | 2 OF 4   |

TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

Initial Plant Conditions:

Operational Condition: Defueled  
Reactor Power: Not Applicable  
Reactor Pressure: Not Applicable  
Reactor Temperature: Not Applicable

Description of The Event:

On July 26, 1994 Engineering Design Package (EDP) 26310 revision "O" was issued to add motor operated valve G3352-F220 on the Reactor Water Clean Up (RWCU) return line. Revision "O" of the EDP provided the mechanical design and identified conduit and cable routes. Revision "A", which was issued on August 8, added the detailed electrical and control design.

Installation of a new relay was in progress on August 26, 1994 at 1604 hours, when electricians [non-utility, non-licensed] loosened the screw on terminal strip location AA-58 in panel H11-P623 to land a lead per the EDP work request. This resulted in a neutral power interruption to portions of the Nuclear Steam Supply Shutoff System [JC] control logic, causing actuations of Engineered Safety Feature Systems [JE] and isolations. Reactor Building Heating Ventilation and Air Conditioning [VA] isolated, Standby Gas Treatment System [VL] division 2 started, Control Center Heating Ventilation and Air Conditioning [VI] shifted to the recirculation mode, Control Air Compressor [LE] division 2 started, Torus Water Management System [BT] isolated, Drywell Equipment Drains Sump [WK] isolated, Drywell Pneumatics [LF] division 2 isolated, and Reactor Recirculation [AD] Seal Purge outboard isolation valves [ISV] isolated. Work was stopped in panel H11-P623, and an investigation was initiated to determine the cause of the interruption of power in the panel. Following determination of the cause, it was verified that the appropriate ESF actuations had occurred and at 1903 hours, the restoration of the actuations and isolations associated with the interruption of power in panel H11-P623 was complete.

Cause of the Event:

When the electrician loosened the screw at AA-58, continuity was momentarily lost to terminals AA-53 through AA-57 which are connected to the neutral line through a series of terminals including AA-58. This resulted in de-energization of the circuits associated with these terminations, causing the observed actuations.

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

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| FACILITY NAME (1) |  | DOCKET NUMBER (2) |  | LER NUMBER (6) |                   |                 | PAGE (3) |
|-------------------|--|-------------------|--|----------------|-------------------|-----------------|----------|
| Fermi 2           |  | 05000 -341        |  | YEAR           | SEQUENTIAL NUMBER | REVISION NUMBER | 3 OF 4   |
|                   |  |                   |  | 94             | 005               | 00              |          |

TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

System engineering had prepared an impact statement for revision "0" of the EDP, the mechanical portion of the EDP. However, the impact statement was not updated for revision "A", which added the electrical and control design to the EDP. The procedure for implementation of modifications, FIP-CM1-18 does not require the review or updating of impact statements when EDP revisions are issued. Therefore, the responsible system engineer was not triggered to review the work package or the impact statement when revision "A" was issued. Had the impact statement addressed the electrical design, the risks associated with the relay installation could have been addressed.

The electrical modifications' engineer and electrical craft personnel were aware of energized circuits within panel H11-P623, and electrical craft personnel regard all circuits as energized for personnel protection. However, craft personnel were not aware of the need to maintain electrical continuity of the energized logic circuit, because the impact statement did not cover the electrical aspects of the EDP.

Analysis of the Event:

These actuations and isolations did not impact the safe operation of the plant. Fermi 2 was shutdown and defueled at the time of this event, and fuel pool cooling was not interrupted during the event. Actuation and isolation of the equipment placed systems in their safest condition. Thus completion of any necessary safety functions would not have been adversely affected by this event. The installation of EDP 26310 could only be performed during a plant shutdown. Therefore, this event would not have occurred during other modes of operation.

Corrective Actions:

When this event occurred, work on the EDP was stopped until the remaining work was reviewed for possible plant impact.

Procedure FIP-CM1-18 will be strengthened to require review of impact statements when EDP revisions and/or Engineering Change Requests (ECR) are issued for an EDP.

Procedure NPP-MA1-01 will be revised to require the work request impact statement be reviewed when EDP revisions and ECRs are issued.

Lessons Learned from this event will be developed and will be provided to appropriate personnel.



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

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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|-------------------|-------------------|----------------|----------------------|--------------------|----------|
| Fermi 2           | 05000 -341        | YEAR           | SEQUENTIAL<br>NUMBER | REVISION<br>NUMBER | 4 OF 4   |
|                   |                   | 94             | - 005 -              | 00                 |          |

TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

Previous Similar Events:

Licensee Event Report (LER) 88-015 reported a lifted lead in an energized circuit for panel H11-P622 which resulted in ESF actuations and isolations when the plant was shutdown.

LER 89-022 reported lifted leads in energized circuits for panels H11-P609 and H11-P623 which resulted in EFS actuations and isolations when the plant was shutdown.