William S. Orser Vice President Nuclear Operations

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Detroit

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Nuclear Operations

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10CFR50.73

July 3, 1989 NRC-89-0127

U. S. Nuclear Regulatory Commission Attention: Document Control Desk Washington, D.C. 2055

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

Subject: Licensee Event Report (LER) No. 89-011-00

Please find enclosed LER No. 89-011-00, dated July 3, 1989, for a reportable event that occurred on June 2, 1989. A copy of this LER is also being sent to the Regional Administrator, USNRC Region III.

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

Sincerely, USSUU

Enclosure: NRC Forms 366, 366A

CC: A. B. Davis J. R. Eckert R. C. Knop

W. G. Rogers

J. F. Stang

Wayne County Emergency Management Division

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NC Form 256A

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Initial Plant Conditions:

Operational Condition: 1 (Power Operation) Reactor Power: 98% Reactor Temperature: 540 degrees Fahrenheit Reactor Pressure: 1000 psig

Description of the Event:

On June 2, 1989, at 0720 hours, a transfer of Reactor Protection System (RPS) (JC) Bus "B" (BU) from its alternate power supply to its normal power supply was performed. This was done during the performance of System Operating Procedure 23.316, "Reactor Protection System 120 VAC and Reactor Protection Sy tem Motor Generator Sets", section 6. During this transfer, the "B" Backup Manual Scram (BUMS) breaker (BKR) failed to trip. Since the circuit is a break-before-make design, the breaker should have tripped on the momentary interruption of power to its undervoltage device.

The Nuclear Shift Supervisor declared the breaker inoperable. A half scram was left inserted to comply with Technical Specification Action Statement 3.3.1.a. The BUMS breaker was replaced. Post Maintenance Testing was successfully completed as required by procedure. At 2020 hours, the surveillance test procedure 24.610.05 was completed for the BUMS "B" breaker and it was declared operable.

Cause of the Event:

The failed BUMS "B" breaker was sent to Detroit Edison's Engineering Research Department (ERD) for failure analysis. The exact cause of the breaker failure cannot be determined with 100 percent certainty. A thorough investigation at the ERD was conducted. The conclusion was that the tolerances of the mechanical parts that interact between the undervoltage trip unit and the circuit breaker switch may have caused the failure of this breaker to trip. Mechanical binding appears to have been the failure mechanism. As noted below, the BUMS breakers are being removed.

Analysis of the Event:

The automatic trip logic of the Reactor Protection System was unaffected by this event and could have performed its function had it been challenged. The two manual scram pushbuttons were operable and capable of tripping the plant. Only the backup manual scram capability was affected. Therefore, this failure of

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the BUMS breaker results only in a reduction in manual scram redundancy. Therefore the failure of the "B" BUMS breaker to trip would not have prevented initiation of a manual scram if required.

Additionally the "B" BUMS breaker could have been opened locally if required to perform its function of initiating a half scram. No other components, structures or systems were affected that could have contributed to this event.

The reportability of the "B" BUMS breaker failure is questionable, since the automatic scram functions were unaffected. Its failure does not prevent initiation of a manual scram. However, Detroit Edison is aware of the sensitivity of scram breaker malfunctions and is reporting this event as a Licensee Event Report even though it involved a BUMS breaker.

## Corrective Action:

The BUMS "B" breaker was replaced with a breaker that had been assembled with strict adherence to the manufactures instructions. This included good work practices in cleaning out the cradle pin, contactor blade pin, and trip latch pin knockouts. Also, alignment of the assembly was maintained. The appropriate Post Maintenance Testing (PMT) was then performed. After the PMT, surveillance test 24.610.05 was successfully performed. The breaker was declared operable at 2020 hours, June 2, 1989. BUMS "A" was successfully tested per procedure 24.610.05. Because the exact failure mode can not be determined as a conservative measure, Detroit Edison will replace the BUMS "A" breaker when a spare breaker is available. Technical Specifications require operations personnel to manually trip the RPS channel if the BUMS breaker fails to open remotely or during an RPS undervoltage condition.

A commitment was made to the NRC by Detroit Edison to remove the BUMS breakers. The Manual Scram Circuits will be modified to provide four Manual Scram pushbuttons at the Combined Operating Panel. This Engineering Design Package (10127) will be installed during the First Refueling Outage.

Previous Similar Events:

Licensee Event Report 87-039 describes a failure of the BUMS "A" breaker to trip due to poor workmanship during on-site assembly. However, the root cause for LER 87-039 was not the same as this event.

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