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Edison

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10CFR50.73



Nuclear
Operations

May 20, 1992
NRC-92-0056

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

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

Subject: Supplemental Licensee Event Report (LER) No.
91-019-01

Please find enclosed Supplemental LER No. 91-019-01, dated
May 20, 1992, for a reportable event that occurred on
November 20, 1991. A copy of this LER is also being sent to
the Regional Administrator, USNRC Region III.

If you have any questions, please contact James M. Joy,
Senior Compliance Engineer, at (313) 586-1617.

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

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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Fermi 2	DOCKET NUMBER (2) 0 5 0 0 0 3 4 1	PAGE (3) 1 OF 0 5
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TITLE (4)
Reactor Water Cleanup System Isolations Due to High Pump Room Differential Temperature and Personnel Error During System Restoration

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

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5. (Check one or more of the following) (11)

OPERATING MODE (6) 1	<input checked="" type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.406(e)	<input checked="" type="checkbox"/> 50.75(a)(2)(iv)	<input type="checkbox"/> 73.71(b)
	<input type="checkbox"/> 20.406(e)(1)(i)	<input type="checkbox"/> 50.36(e)(1)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 73.71(c)
	<input type="checkbox"/> 20.406(e)(1)(ii)	<input type="checkbox"/> 50.36(e)(2)	<input type="checkbox"/> 50.73(a)(2)(vi)	OTHER (Specify in Abstract Below and in Text, NRC Form 308A)
	<input type="checkbox"/> 20.406(e)(1)(iii)	<input type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.75(a)(2)(viii)(A)	
	<input type="checkbox"/> 20.406(e)(1)(iv)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)	
	<input type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)	

LICENSEE CONTACT FOR THIS LER (12)

NAME Joy, Senior Compliance Engineer	TELEPHONE NUMBER 3 1 3 5 8 6 - 1 6 1 7
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFAC TURER	REPORTABLE TO NRRDS
X	C	E T S	0 0 6 9	N

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE) NO

EXPECTED SUBMISSION DATE (15)

MONTH	DAY	YEAR

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

This LER describes two Engineered Safety Features (ESF) actuations of the Reactor Water Cleanup System (RWCU) on November 20, 1991. The first isolation occurred at 1051 hours due to a high differential room temperature (inside to outside the room) in the B RWCU pump room. Detroit Edison believes the cause of the high temperature which resulted in this event, to be failure (loss of calibration) of a switch in the automatic control circuit for the B RWCU pump room cooler. This switch was recalibrated and monitored until a replacement switch was procured and installed. The second isolation occurred at 2231 hours while removing a jumper, utilized during restoration of the RWCU system from the first isolation, in accordance with the system operating procedure. The cause of this isolation is believed to be a personnel error when the jumper was inadvertently grounded during removal, which resulted in a blown fuse in the isolation circuitry for one RWCU isolation valve. An accountability meeting has been held regarding this error. A design change will be implemented to modify the control circuitry for automatic RWCU system isolation due to non-regenerative heat exchanger high temperature to eliminate the need to install jumpers during system restoration following an isolation. Additionally, this LER was issued as required reading for operators and appropriate systems engineering 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 RECORDS AND REPORTS MANAGEMENT BRANCH (P-630) U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555; 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		
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TEXT (If more space is required, use additional NRC Form 366A's) (17)

Initial Plant Conditions

Operational Condition: 1 (Power Operation)
 Reactor Power: 100 Percent
 Reactor Pressure: 1024 psia
 Reactor Temperature: 535 Degrees Fahrenheit

Description of Event

At 0949 hours on November 20, 1991, the Reactor Building Ventilation (RBHVAC) (VA) System was removed from service for routine maintenance. The Standby Gas Treatment System (BH) was placed in service. In this ventilation configuration, contribution of RBHVAC in cooling individual rooms within the Reactor Building is eliminated, thus resulting in higher than normal temperatures in these rooms or in increased cooling requirements of individual room coolers. At 1051 hours, G33F004, the outboard Reactor Water Cleanup System (RWCU) (CE) containment isolation valve (ISV) closed due to a RWCU pump room B high differential temperature signal. The device providing this isolation signal is G33N602B, the RWCU pump room B differential temperature trip unit (TDS). The trip setpoint for this device is 50 degrees Fahrenheit. The maximum differential temperature observed during this event was 52 degrees Fahrenheit.

Upon receipt of the isolation, Operations personnel performed an inspection of the B RWCU pump room. It was verified that there was no leakage evident which could have caused the high differential room temperature. The RWCU Pump Room B room cooler (T41B055) (CLR), which was set for automatic operation based upon room temperature, was found not running with its controller set for automatic operation. The controller was placed in manual and the room cooler was started. RWCU pump room B differential temperature was reduced to 8 degrees Fahrenheit and efforts to restore RWCU to service commenced.

At 2231 hours on November 20, 1991, while restoring the RWCU system to service, the inboard isolation valve (G33F001) (ISV) automatically closed. The isolation occurred when a jumper was removed from G33N424, the Division 1 RWCU Non-Regenerative Heat Exchanger (NRHX) (HX) Discharge Temperature switch (TS). The jumper had been installed in accordance with the system operating procedure to prevent a high NRHX outlet temperature isolation of the RWCU system during system restoration.

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 RECORDS AND REPORTS MANAGEMENT BRANCH (P-830), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) Fermi 2	JACKET NUMBER (2) 0 5 0 0 0 3 4 1 9 1	LER NUMBER (6)		PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
					0 3	OF 0 5

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

Investigation following the isolation found that fuse (A71BF17) (FU) in the isolation logic for G33F001 had blown, causing the isolation. Inspection of G33N424 showed no evidence of damage and its contacts were in the correct configuration. Further inspection of all wiring and relays associated with the isolation logic components showed no evidence of damage. Thus, fuse A71BF17 was replaced and the isolation logic reset. G33F001 was re-opened and the RWCU system was restored to service without further incident.

Cause of Event:

Detroit Edison believes the root cause of the high B RWCU pump room temperature, which resulted in the initial RWCU isolation due to high differential room temperature, to be the failure of the non-safety related temperature switch (T41N379) in the automatic control circuit of the B RWCU pump room cooler. Testing performed on December 15, 1991 determined the setpoint of the temperature switch following the event to be 154.5 degrees Fahrenheit versus 115 plus or minus 2.25 degrees Fahrenheit as designed. It is believed that this is an isolated failure of this type of switch based upon a review of the Fermi 2 history.

Detroit Edison believes the cause of the second isolation, during removal of the jumper previously described, to be personnel error resulting in momentary grounding of the jumper, causing fuse A71BF17 to blow. The operator who removed the jumper (utility-licensed) did not observe anything abnormal while performing the evolution. However, the fuse which blew and the isolation logic relay for G33F001 are in opposite ends of the Fermi 2 relay room from G33N424, where the operator was removing the jumper, and thus it is reasonable that he would not have observed the result of grounding the jumper during removal.

Analysis of Event:

The RWCU system functions to remove impurities from the reactor coolant and to control reactor vessel water level. This system is not required for the safe shutdown of the plant. The system design includes automatic capability to isolate the system in response to a detected leak (e.g., sensed by high differential room temperature) and

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST 500 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20545, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) Fermi 2	DOCKET NUMBER (2) 0 5 0 0 0 3 4 1 9 1 - 0 1 9 - 0 1	LER NUMBER (6)		PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
					0 4 OF 0 5

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

to protect the system filter-demineralizer resins from damage due to high temperature. The events described by this LER demonstrated the ability of these isolation capabilities to properly function. No damage or adverse conditions resulted in or from this event. At no time was the health and safety of the public or plant personnel affected.

Corrective Actions:

As described earlier, following the initial RWCU system isolation, the B RWCU pump room cooler controller was placed in "manual" (from "automatic") and RWCU system restoration commenced. The blown fuse, which resulted in the subsequent RWCU isolation during restoration from the initial event, was replaced and the system was then returned to service.

Temperature switch T41N379 was recalibrated and its operation was monitored until a replacement switch was procured, and installed.

As a result of the second isolation of RWCU (from the grounded jumper) during this event, Detroit Edison has taken or will take the following actions:

- o An evaluation of the NRHX high temperature isolation of the RWCU system was performed which concluded that there is no safety function served by this isolation. This isolation is for protection of the filter demineralizers from high temperature only. Thus, a design change will be implemented to modify the RWCU non-regenerative heat exchanger high temperature isolation circuitry to eliminate the need to install jumpers to restore the system to service following an isolation. This design change will be implemented in accordance with the Fermi 2 Five Year Operating Plan.
- o An Accountability meeting was held with personnel involved in this second RWCU isolation.
- o Required reading of this LER for all licensed operators and appropriate systems engineering personnel has been completed.
- o Operating procedure (23.707) has been revised to include specific precautions involving the installation and removal of jumpers (when required), until the design change described above has been implemented.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 600 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) Fermi 2	DOCKET NUMBER (2) 0500034191	LER NUMBER (5)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
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TEXT (If more space is required, use additional NRC Form 366A's) (17)

Previous Similar Events:

There have been no previous reportable events relating to RWCU isolations caused by removal of jumpers.

The following LER's relate to RWCU system isolations due to High RWCU Pump Room Differential temperature signals:

- o LER's 86-034-01, 85-064, 85-050, 85-031, 85-028, 85-027 and 85-025 all describe isolations caused by spurious isolation signals from the Riley Tempmatic temperature switches.
- o LER 86-021 describes an isolation caused by maintenance activities on a differential temperature detector.

Failed Component Data:

The non-safety related temperature switch involved in this event was purchased from United Electric Controls, part number C302-103-1520. The switch has a design range of 0 to 225 degrees Fahrenheit with an accuracy of plus or minus one percent.