

## 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 3	
TITLE (4): RCU Isolation due to High Differential Flow																					
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 9	2 0	8 5	8 5	0 6 3	0 0 1	0 2	1 8	5							0 5 0 0 0						
OPERATING MODE (9):		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5 (Check one or more of the following) (11):																			
2		20.402(b)				20.406(e)				<input checked="" type="checkbox"/> 80.73(a)(2)(iv)				73.71(b)							
POWER LEVEL (10):		20.408(a)(1)(i)				80.38(a)(1)				80.73(a)(2)(iv)				73.71(c)							
0 0 1		20.408(a)(1)(ii)				80.38(a)(2)				80.73(a)(2)(v)				OTHER (Specify in Abstract below and in Text, NRC Form 365A)							
		20.408(a)(1)(iii)				80.73(a)(2)(i)				80.73(a)(2)(vi)(A)											
		20.408(a)(1)(iv)				80.73(a)(2)(ii)				80.73(a)(2)(vi)(B)											
		20.408(a)(1)(v)				80.73(a)(2)(iii)				80.73(a)(2)(vii)											
		20.408(a)(1)(vi)				80.73(a)(2)(iv)				80.73(a)(2)(viii)											
LICENSEE CONTACT FOR THIS LER (12):																					
NAME										TELEPHONE NUMBER											
L.P. Bregni, Compliance Engineer										AREA CODE: 3 1 3 5 8 6 - 5 3 1 3											
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13):																					
CAUSE	SYSTEM	COMPONENT	MANUFAC TURE	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFAC TURE	REPORTABLE TO NRC												
X	C E	P D T	G O B O	Y																	
SUPPLEMENTAL REPORT EXPECTED (14):																					
YES (If yes, complete EXPECTED SUBMISSION DATE):										X NO											
										EXPECTED SUBMISSION DATE (15):											
										MONTH DAY YEAR											

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

At 0341 hours on September 20, 1985, the Reactor Water Cleanup (RCU) system isolated on a high differential flow signal. The plant was in operational condition 2, beginning a shutdown to operational condition 3. This isolation apparently resulted from the effects on the RCU flow sensors from changes in reactor pressure and condenser pressure associated with closure of the MSIVs and breaking condenser vacuum. At 0355 hours, the RCU pump discharge flow transmitter locked-in at about 59 gpm. This signal cleared when the flow transmitter was filled and vented. The RCU was restarted at 0423 hours. Blowdown flow indication was found failed at 0435 hours. The system was shut down at 0638 hours, and the blowdown flow instrument was repaired by venting and refilling the instrument reference legs. Troubleshooting also revealed that the pump discharge flow transmitter would not hold a calibration. The cause of this failure could not be determined. After the transmitter (GE-HAC model 555) was replaced, RCU was returned to service in bypass at 1227 hours. Instrument drift may have contributed to this event. Consideration is being given to replacing these instruments with more reliable models.

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## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104  
EXPIRES 8-31-85

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
Fermi-2	0500034185	06	3	00	02	03	

TEXT (if more space is required, use additional NRC Form 305A-2 (17))

At 0341 hours on September 20, 1985, the Reactor Water Cleanup System (RWCU) isolated on a high differential flow signal. The high differential flow signal initiated the RWCU isolation logic, causing RWCU primary containment isolation valves G33F001 and G33F004 to close and the RWCU isolation alarm to sound in the Control Room. The plant was in operational condition 2, beginning a shutdown to operational condition 3 per Station Procedure 22.000.11 (Shutdown from Rated Power to Hot Standby - HSIVs Closed). Automatic closure of G33F001 and G33F004 is reportable as an actuation of an Engineered Safety Feature system.

Per the alarm response procedure, operators checked for RWCU leakage. None was found. At 0355 hours with the system still shut down, indication of RWCU pump discharge flow remained locked-in at approximately 59 gpm. Flow indications at other points monitored in the system properly indicated zero flow. The erroneous differential flow signal from the pump discharge flow instrument remained above the isolation trip setpoint of 55 gpm. This prevented resetting the isolation signal. The pump discharge flow signal cleared when the flow transmitter was filled and vented. The RWCU isolation logic was reset at 0418 hours and valves G33F001 and G33F004 were reopened.

The RWCU system was returned to service at 0423 hours by restarting RWCU Pump "A". The operator attempted to place the RWCU in blowdown mode at 0435 hours, but observed no blowdown flow indication when he did so. The operator notified the I&C shop about the problem. The operator shutdown RWCU at 0638 hours, to prevent inadvertent isolation while I&C personnel were troubleshooting the RWCU blowdown flow transmitter and other flow measuring devices in the system. The blowdown flow transmitter was repaired by venting and refilling the instrument's reference legs.

At 1127 hours, I&C notified the Control Room that the RWCU pump discharge flow transmitter (G33-H036, GE-MAC model 555) would not hold a calibration. The cause of this transmitter failure could not be determined. After the transmitter was replaced, the operability of the differential flow instruments was verified using surveillance procedures 44.020.151 and 44.020.152. These surveillances were completed at 0505 hours on September 21, 1985, and the instrumentation was declared operable. The RWCU isolation valves were reopened at 0941 hours on September 21, and the RWCU was returned to service in bypass at 1227 hours.

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (5)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
Fermi-2	05000341	85	-063	-00	03	OF	03

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

Prior to the isolation, at 0200 hours on September 20, RWCU was operating near its maximum allowable flow rate, with 2 pumps and 2 filter/demineralizers (F/D) in service. At 0304 hours, the operators commenced breaking condenser vacuum and prepared to shut the MSIVs as the plant was being shut down. At 0332 hours, the inboard MSIVs were closed. The RWCU was operating in the partial blowdown mode, to control reactor vessel level when the system isolation occurred.

RWCU isolations on high differential flow signals were reported in LERs 85-024, -034, -046, and -051. Detroit Edison recently completed preliminary recalculations of the calibration of the flow measuring devices in the RWCU system. This reevaluation, initiated after earlier RWCU isolations, is expected to reduce the number of invalid RWCU isolations on high differential flow signals.

At the time of this event, the RWCU was operating at steady state. However, interconnecting systems were not at steady state. Changes in reactor pressure following MSIV closure and in condenser pressure as it's vacuum was being broken, perturbs the RWCU flow measurement loop. These perturbations are accentuated when the system is operated near its maximum flow rate, and contribute to the high differential flow signal and resulting isolation.

Drift of the flow instruments was identified during the investigation of earlier RWCU isolations. Instrument drift may have contributed to this event. In September, the calibration frequency of these instruments was increased from once per 18 months to once per 31 days. Consideration is being given to replacing these instruments with more reliable models.

A temporary design change was installed on September 29, 1985, to actuate the high differential flow alarm immediately upon a high differential flow signal. This provides the operator with a 45 second period to take action to prevent a spurious isolation. The alarm response procedure ARP 2D115 "RWCU High Differential Flow", has been revised to reflect this change.

The safety significance of this event is considered small because the RWCU is not a safety-related system and no other systems were affected by this isolation. In addition, reactor operation was less than 5% power.

Detroit  
Edison

Robert S. Lenart  
Plant Manager

Fermi-2  
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October 21, 1965  
HP850164



Nuclear  
Operations

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

Gentlemen:

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

Subject: Transmittal of Licensee  
Event Report 85-063

Please find enclosed LER No. 85-063-00, dated October 21, 1965, for a reportable event which occurred on September 20, 1965. As indicated below, a copy of this LER is being sent to the Administrator Region III.

If you have any questions, please contact us.

Sincerely,

R. S. Lenart  
Plant Manager

Enclosure: NRC Forms 366, 366A

cc: P.H. Byron  
H.D. Lynch

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