

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 6	
TITLE (4) Mechanical Draft Cooling Tower Bypass Valve Deenergized Closed																					
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 7	2 9	8 5	8 5	0 4 7	0 0	0 9	0 3	8 5				0 5 0 0 0									
OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)																			
4		20.402(a)				20.406(e)				80.73(a)(2)(iv)				73.71(a)							
POWER LEVEL (10)		20.406(a)(1)(i)				80.38(a)(1)				80.73(a)(2)(v)				73.71(a)							
0 1 0 0		20.406(a)(1)(ii)				80.38(a)(2)				80.73(a)(2)(vi)				OTHER (Specify in Abstract below and in Text, NRC Form 306A)							
		20.406(a)(1)(iii)				X 80.73(a)(2)(i)				80.73(a)(2)(viii)(A)											
		20.406(a)(1)(iv)				80.73(a)(2)(ii)				80.73(a)(2)(viii)(B)											
		20.406(a)(1)(v)				80.73(a)(2)(iii)				80.73(a)(2)(ix)											
LICENSEE CONTACT FOR THIS LER (12)												TELEPHONE NUMBER									
NAME 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	MANUFACTURER	REPORTABLE TO NRC		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC											
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)

At 1900 hours on July 29, 1985, valve E11F603A was found closed and the Motor Control Center (MCC) breaker feeding the valve was deenergized. This valve is in the return line for Division I service water to the residual heat removal (RHR) reservoir, the ultimate heat sink, and should have been open. The operator assigned to deenergize the valve in the open position left the valve closed instead. With this valve closed, Division I emergency core cooling systems (ECCS) that are dependent on service water for proper operation and Division I emergency diesel generators (EDG's) were made inoperable. When this was found the plant was in Operational Condition 4 (Cold Shutdown). However, an investigation of this incident revealed that the valve had been closed since 1319 hours on July 23, 1985, at which time the plant had been in Operational Condition 2. In Operational Condition 2 and with Division I ECCS inoperable, the plant was operating in a condition prohibited by the plant's technical specifications which is a reportable event. There were no significant operational occurrences during, or as a result of this event.

8509100463 850903
PDR ADOCK 05000341
S PDR

IE22

1/1

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/85

FACILITY NAME (1) Fermi-2	DOCKET NUMBER (2) 0 5 0 0 0 3 4 1	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		8 5	0 4 7	0 0	0 2	OF	0 6

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

At 1900 hours on July 29, 1985, valve E11F603A was found closed and the Motor Control Center (MCC) breaker feeding the valve was deenergized. The incident that prompted the discovery of valve E11F603A in the closed position was when alarm "EDG Service Water Pump A Water Flow Low" annunciated in the control room. The alarm was received shortly after starting EDG #11 for surveillance test 24.307.14 "Emergency Diesel Generator No. 11 - Start and Load Test". Because EDG #11 was being run for a surveillance test only, the Nuclear Assistant Shift Supervisor (NASS) directed a reactor operator to shut down the diesel to determine the cause of the alarm. While investigating the alarm, E11F603A was found closed. The valve was opened thus restoring the flow path for Division I EDG service water.

E11F603A is the cold weather bypass valve in the Division I service water return line. With this valve open, and valves E11F604A and E11F605A in a parallel line to the mechanical draft cooling towers closed, service water return flow is bypassed from the mechanical draft cooling towers to the RHR reservoir. With all three of the above valves closed, the flow path for the return of Division I service water to the RHR reservoir was blocked. This blocked flow for Division I of the residual heat removal service water (RHRSW) system, emergency diesel generator service water (EDGSW) system, and the emergency equipment service water (EESW) system. In turn, Division I of the core spray system and RHR systems including low pressure coolant injection (LPCI), Division I EDG's #11 and #12, and Division I of the emergency equipment cooling water system were inoperable. The automatic depressurization system was not affected and was operable.

Based on an investigation of this event, the Operations Group determined that E11F603A had been closed at about 1319 hours on July 23, 1985. On that day, E11F603A was used to modulate system flow during startup of the Division I RHRSW pumps. Normally valve E11F068A is used for that purpose, but because of a previous problem the valve internals had been removed and the valve could not be used to control RHR service water flow.

To operate E11F603A an operator has to be dispatched to the RHR complex to energize the MCC breaker feeding the valve. The normal condition for this valve is to be in the open position with the breaker deenergized. This is a gate valve and is not intended to be operated with normal system differential pressure across the disc. It has exhibited a tendency to trip either the thermal overloads or the torque switches during stroking and an operator has been required to partially stroke the valve to the desired position as well as reset the thermal overloads to allow continued stroking from the control room.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104

EXPIRES 8/31/85

FACILITY NAME (1) Fermi-2	DOCKET NUMBER (2) 0 5 0 0 0 3 4 1	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		8 5	0 4 7	0 0 0	3	OF	0 6

TEXT (If more space is required, use additional NRC Form 368A's) (17)

Later that day, the Division I RHRSW system was shut down and a Power Plant Operator (PPO) was directed to the RHR complex to assist in restoring E11F603A to its normal condition. However, the instructions given to the PPO were not entirely clear to him, because instead of leaving the valve open with the breaker deenergized, the PPO left the valve closed with the breaker deenergized. This occurred at about 1310 hours on July 23, 1985.

When the valve breaker is deenergized, the valve position indicators on the control room panel are not lit, and therefore, the valve's position cannot be independently verified from the control room. This factor contributed to the valve being left in the wrong position.

Another factor that may have contributed to leaving the valve mispositioned was that within minutes of the time the RHRSW system was being shut down on July 23, the plant had just begun, at 1315 hours, a planned shutdown sequence. Only one feedwater pump was in service at the time, and the operating feedwater pump was experiencing problems with a malfunctioning pressure switch. In anticipation of a feedwater pump trip and resulting level control transient, the control room operators were directed to decrease reactor pressure to a point where the heater feed pumps could maintain water level if required. It was at about this point when the operators were making reactor pressure changes that the PPO was deenergizing the breaker and valve E11F603A was left closed.

As noted above, on July 23, 1985, the plant commenced a planned reactor shutdown at 1315 hours and was in Operational Condition 2 (Startup). When in Operational Condition 2 and with Division I CS and LPCI inoperable, the plant was in an operating condition prohibited by the plant's technical specifications; specifically section 3.5.1 for ECCS. As such the provisions of technical specification section 3.0.3 are applicable, which require that within one hour action shall be initiated to place the plant in an operational condition in which the specification does not apply.

Since a reactor shutdown had already been commenced, to comply with section 3.0.3 the plant had to be in Operational Condition 3 (Hot Shutdown) within 6 hours of the time E11F603A was left closed, or 1919 hours on July 23, 1985. However, because at the time the plant did not recognize it was in a condition where section 3.0.3 was applicable, the plant was not in Operational Condition 3 until 1520 hours on July 24, 1985, about twenty hours beyond that required by technical specification. The plant was in Operational Condition 4 (Cold Shutdown) at 0115 hours on July 25, 1985, which for the same reason was about five hours beyond the time prescribed by technical specifications.

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	—	047	—	000	4	OF 06

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

The plant was still in Operational Condition 4 four days later when E11F603A was found closed on July 29, 1985. The reactor was at atmospheric pressure and about 130 degrees F. Under this operational condition, technical specifications require one operable division of CS and LPCI. This was met with the Division II systems. Therefore, from the time the plant entered Operational Condition 4, the plant was operating within the conditions of the technical specifications and section 3.0.3 no longer applied.

The technical specification actions required to be taken with the Division I EDG's inoperable when in Operational Condition 2 and 3 were also not met. These actions, contained in technical specification sections 3.8.1.1.b and c, require increased surveillance of the remaining A.C. sources and support systems. When Operational Condition 4 was achieved, technical specification 3.8.1.2 requires only one operable division of EDG's which was met with Division II. At that time, the plant was no longer in violation of technical specifications 3.8.1.1.b and c.

The normal position for valve E11F603A as mentioned above is open with the MCC breaker open. The position of this valve is specified in the Fermi 2 Facility Operating License NPF-43, under License Condition 2.C.(9)(d). The license condition is an interim measure until certain long term fire protection features are incorporated at the plant. The purpose of the license condition is to ensure the proper functioning of the EESW system in the event of spurious valve activations caused by a fire. As a result, a license condition in the Fermi 2 license was also violated.

The total time the Division I systems were inoperable and required by technical specification was about 36 hours. During that time, the plant was in a shutdown sequence and at low power levels (less than 1 percent). While the Division I ECCS and EDG's were inoperable, ADS, the Division II ECCS except for HPCI, and the Division II EDG's were available if required.

Several hours after discovery of the mispositioned valve the Operations Group requested that the following scenario be run on the Fermi 2 simulator:

- o E11F603A closed and deenergized (to simulate the loss of Division I Service Water systems)
- o Loss of power on a Division I bus
- o Start of Division I EDG (to provide a need for Division I EDGSW)

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO 3150-0104

EXPIRES 8/31/85

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (8)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
Fermi-2	0500034185	-	047	-	010	050	016

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

The purpose of this scenario was to evaluate the operators' response to a situation that could have occurred in the plant while the valve was unknowingly mispositioned. An evaluation of the scenario results shows that the operators responded to plant indications in a timely manner by restoring the Service Water system to a configuration that allowed flow to the EDGSW system (and hence the other Service Water flows were also restored) prior to receiving any EDG high temperature alarms. Based on these results there is additional assurance that proper corrective actions would have been taken to restore Division I service water if it had been required.

Corrective actions taken include:

- o Reverified all ECCS system lineups.
- o Revised System Operating Procedure (SOP) 23.208 "RHR Complex Service Water System" to provide separate instructions for the operation of the Division I and II systems to account for the differences between the two. This includes a note that valve E11F068A internals have been removed, a caution to maintain an operator at the ready to reposition E11F603A if necessary when starting the Division I Service Water pumps, and a step to leave E11F603A open and deenergize the breaker.
- o Information signs will be placed on MCC's directing operators to the applicable SOP prior to operating a valve. This will provide additional assurance that valves and their breakers will be positioned properly and are controlled by procedure.
- o Review in Licensed Operator Requalification the four valve operators in the plant which are currently deenergized, the position of the valve, and the reason for this status.
- o Magnetic signs have been placed on the control room panels advising operators of the current status of deenergized equipment.
- o Modified procedure 21.000.01 "Shift Operations and Control Room", to require the verification of the operational status of additional systems and equipment during shift turnovers.
- o Modified the valve position indication circuit on E11F603A so that indication is provided even with the valve circuit deenergized.
- o Generated a Work Order to determine the cause for valve E11F603A tripping, and repair or propose corrective action.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104

EXPIRES 8/31/85

FACILITY NAME (1) Fermi-2	DOCKET NUMBER (2) 0 5 0 0 0 3 4 1	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		8 5	— 0 4 7	— 0 0	0 6	OF	0 6

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

- o The operators involved, reviewed key plant procedures and discussed this event and other similar events with the Operations Engineer.
- o Generated Standing Order 85-7 to inform all operations personnel of this event, the causes, and the potential severity of the event.

In addition, this LER will be placed in the required reading for operations personnel.



2000 Second Avenue
Detroit, Michigan 48226
(313) 237-8000

September 3, 1985
NP850060

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 85-047

Please find enclosed LER No. 85-047-00, dated September 3, 1985, for a reportable event which occurred on July 29, 1985. 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.M. Byron
M.D. Lynch

Regional Administrator
USNRC Region III
799 Roosevelt Rd.
Glen Ellyn, IL 60137

Director/Coordinator
Monroe City-County Office of Civil Preparedness
965 South Raisinville Road
Monroe, MI 48161

IE22
11