



Commonwealth Edison
Dresden Nuclear Power Station
6500 North Dresden Road
Morris, Illinois 60450
Telephone 815/942-2920

February 9, 1994

GFSLTR 94-0052

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

Licensee Event Report 93-018-02, Docket 50-237 is being submitted to provide an update concerning corrective action to prevent recurrence.

Gary F. Spedl
Station Manager
Dresden Station

GFS/cfq

Enclosure

cc: J. Martin, Regional Administrator, Region III
NRC Resident Inspector's Office
File/NRC
File/Numerical

150089

9402160365 940209
PDR ADOCK 05000237
S PDR

IF22
11

LICENSEE EVENT REPORT (LER)

Form Rev 2.0

Facility Name (1) Dresden Nuclear Power Station, Unit 2/3										Docket Number (2) 0 5 0 0 0 2 3 7					Page (3) 1 of 0 3				
Title (4) Unit 2/3 Emergency Diesel Generator Cooling Water Pump Low Flow due to Excess Back Pressure																			
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	8	2	7	9	3	9	3	---	0	1	8	---	0	2					
OPERATING MODE (9)		N		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)															
POWER LEVEL (10)				20.402(b)			20.405(c)			50.73(a)(2)(iv)			73.71(b)						
				20.405(a)(1)(i)			50.36(c)(1)			50.73(a)(2)(v)			73.71(c)						
				20.405(a)(1)(iii)			50.36(c)(2)			50.73(a)(2)(vii)			Other (Specify in Abstract below and in Text)						
				20.405(a)(1)(iii)			50.73(a)(2)(i)			50.73(a)(2)(viii) (A)									
				20.405(a)(1)(iv)			X 50.73(a)(2)(iii)			50.73(a)(2)(viii)(B)									
			20.405(a)(1)(v)			50.73(a)(2)(iii)			50.73(a)(2)(x)										
LICENSE CONTACT FOR THIS LER (12)																			
NAME I. Rivera										TELEPHONE NUMBER Ext. 2549									
										AREA CODE 8 1 5 9 4 2 - 2 9 2 0									
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																			
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS										
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)

On August 27, 1993 during performance of the Unit 2/3 Emergency Diesel Generator (EDG) monthly surveillance, the required minimum EDG cooling water flow of 840 gpm could not initially be achieved. The current plant conditions were such that the Unit 2B and 2C Containment Cooling Service Water (CCSW) pumps were operating at the time. Subsequently it was observed that by reducing the CCSW flow that EDG cooling water would increase (820 to 870 gpm). On August 28, 1993 upon further review of the events that had transpired concerning the Unit 2/3 EDG cooling water flow, the Shift Engineer (SE) decided to investigate what flow could be achieved with all four Unit 2 CCSW pumps operating at rated flow. The 2A & 2D CCSW pumps were started and flows of 6270 and 6496 gpm were achieved in the CCSW loops. The Unit 2/3 EDG cooling water flow decreased to 640 gpm. Upon verification of the Final Safety Analysis Report (FSAR), it was uncertain if the Unit 2/3 EDG was operable based upon a design bases of 840 gpm at 95 degrees. The unit 2/3 EDG was declared inoperable and both Dresden Station Unit 2 and 3 were entered into a 7 day Limiting Condition for Operation (LCO).

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)						Page (3)			
		Year		Sequential Number		Revision Number					
Dresden Nuclear Power Station	0 5 0 0 0 2 3 7	9 3	--	0 1 8	--	0 2		0 2	OF	0 3	

TEXT Energy Industry Identification System (EIS) codes are identified in the text as [XX]

PLANT AND SYSTEM IDENTIFICATION:

General Electric-Boiling Water Reactor-2527 MWt rated core thermal power.

Nuclear Tracking System (NTS) tracking code numbers are identified in the text as (XXX-XXX-XX-XXXXX)

EVENT IDENTIFICATION:

Unit 2/3 Emergency Diesel Generator Cooling Water Pump Low Flow due to Excess Back Pressure

A. CONDITIONS PRIOR TO EVENT:

Unit: 2(3) Event Date: August 27, 1993 Event Time: 1145
 Reactor Mode: N(N) Mode Name: Run Power Level: 91% (100%)
 Reactor Coolant System Pressure: 990 (1006) psig

B. DESCRIPTION OF EVENT:

On August 27, 1993, with Unit 2 at 91% rated core power and Unit 3 at 100% rated core power, during the performance of Dresden Operating Surveillance (DOS) 6600-01, Diesel Generator Surveillance Test, for the Unit 2/3 Emergency Diesel Generator (EDG), the required minimum cooling water flow of 840 gpm could not be achieved. At the time, the Unit 2B and 2C Containment Cooling Service Water (CCSW) pumps were operating at approximately 3400 and 3500 gpm. Subsequently, it was observed that in reducing the CCSW flow that the EDG cooling flow would increase. The 3B, CCSW Heat Exchanger (HX) Outlet valve, MOV 2-1501-3B, was then momentarily closed to reduce flow in CCSW loop B, at which time the required minimum EDG cooling water flow of 840 gpm was achieved.

On August 28, 1993 upon further review of the events that had transpired concerning EDG cooling water flow, the Shift Engineer (SE) decided to investigate what flow could be achieved with all four Unit 2 CCSW pumps operating at rated flow. The 2A & 2D CCSW pumps were started and flows of 6270 and 6496 gpm were achieved in the CCSW loops. The Unit 2/3 EDG cooling water flow decreased to 640 gpm. Upon verification of the Final Safety Analysis Report (FSAR), it was uncertain the Unit 2/3 EDG was operable or within its design bases of 840 gpm at 95 degrees. The Unit 2/3 EDG was declared inoperable and both Dresden Station Unit 2 and 3 were entered into a 7 day Limiting Condition for Operation (LCO).

System Engineering and On-site Engineering groups were notified to investigate and evaluate the situation and conditions concerning the Unit 2/3 EDG cooling water flow.

C. APPARENT CAUSE OF EVENT:

This report is submitted in accordance with 10CFR50.73 (a)(2)(ii)(B), which requires the reporting of any operation or condition that was outside the design bases.

The apparent root cause of the event is excessive flow in the common discharge header for the CCSW and Unit 2/3 Diesel Generator Cooling Water Pumps. Both CCSW loops share a common discharge pipe with the

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)										Page (3)												
Dresden Nuclear Power Station	0 5 0 0 0 2 3 7	Year		Sequential Number		Revision Number					9	3	-	0	1	8	-	0	2	0	3	OF	0	3

TEXT Energy Industry Identification System (EIS) codes are identified in the text as [XX]

Unit 2/3 Diesel Generator Cooling Water Pump. Operation of CCSW in excess of approximately 7000 gpm results in a sufficient amount of back pressure in this line thereby significantly reducing flow through the EDG. A review of the unit EDG cooling water systems did not reveal a similar piping configuration.

D. SAFETY ANALYSIS OF EVENT:

The safety significance of this event is considered minimal for the following reasons: Significantly degraded EDG cooling flow occurs only during operation of all four CCSW pumps at flows in excess of approximately 7000 gpm. Low EDG flow becomes a concern only when the EDG is loaded. Therefore for this condition to occur requires that a loss of offsite power (LOOP) occur concurrently with a Loss of Coolant Accident (LOCA).

Additionally it has been determined, via a QE-40.1 operability evaluation, that with the 2/3 EDG operating at 2860 KW (which is the largest load the 2/3 EDG could expect to see in an accident condition) and all four Unit 2 CCSW pumps operating that a maximum temperature of 83°F cooling water is needed for the continued operation of the 2/3 EDG at reduced flow rates. Additional procedural measures to limit the number of Unit 2 CCSW pumps that can operate while the 2/3 EDG is operating, will be taken when the Dresden lake temperature exceeds 83°F.

Additionally loss of the 2/3 EDG would not reduce the containment cooling capacity to less than 2 CCSW pumps required by the FSAR since the Unit EDG would be available to operate the CCSW pumps.

E. CORRECTIVE ACTIONS:

The immediate corrective actions consisted of a thorough QE-40.1 operability evaluation by Site Engineering. The calculations that were performed concluded that EDG cooling water flow of 640 gpm at a temperature of less than 83°F is sufficient to provide adequate heat removal of the 2/3 EDG preventing an overheating condition. Special Procedure SP 93-9-81, "Diesel Generator Jacket Water Cooler Thermal Test" was developed and performed on Unit 2, 3, and 2/3 EDGs on September 23, October 14 and October 23, 1993. Site engineering evaluated the results and provided recommendations to the Technical Review Committee (TRC) on January 27, 1994. TRC approved installation of a heat exchanger sized so that 2/3 Diesel Generator could be operated concurrent with four CCSW pumps and 95°F EDG cooling water inlet. This modification will be considered at the Business Review Committee (BRC) meeting. If approved, installation will be scheduled for 1995 (NTS 237-180-93-01802S1). Procedural measures to limit the number of Unit 2 CCSW pumps that can operate while the 2/3 EDG is operating, will be taken when the EDG cooling water inlet temperature exceeds 83°F (NTS 237-180-93-01802S2).

F. PREVIOUS OCCURRENCES:

No previous occurrence involving EDG cooling water low flow exist.

G. COMPONENT FAILURE DATA:

There were no component failures involved with this event.