

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Oyster Creek, Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 2 1 1 9	PAGE (3) 1 OF 0 5
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TITLE (4)
Both Emergency Diesel Generators Simultaneously Inoperable

EVENT DATE (5)			LER NUMBER (8)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES	DOCKET NUMBER(S)
0 6	0 4	8 4	8 4	0 1	2	0 6	2 9	8 4		0 5 0 0 0 0
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OPERATING MODE (9) N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more of the following) (11)							
POWER LEVEL (10) 0 1 0 1 0	<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.406(c)	<input type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 73.71(b)				
	<input type="checkbox"/> 20.406(a)(1)(i)	<input type="checkbox"/> 50.36(c)(1)	<input checked="" type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 73.71(c)				
	<input type="checkbox"/> 20.406(a)(1)(ii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)				
	<input type="checkbox"/> 20.406(a)(1)(iii)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)	<input type="checkbox"/> 50.73(a)(2)(vii)(A)					
	<input type="checkbox"/> 20.406(a)(1)(iv)	<input type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)					
<input type="checkbox"/> 20.406(a)(1)(v)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)						

LICENSEE CONTACT FOR THIS LER (12)		TELEPHONE NUMBER	
NAME Michael H. Allen, Operations Engineer		AREA CODE 6 1 0 9	
		9 7 1 1 - 4 6 1 1	

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)											
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS		

SUPPLEMENTAL REPORT EXPECTED (14)			EXPECTED SUBMISSION DATE (15)		
<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO					

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

During a scheduled load test on Emergency Diesel Generator No. 1 (EDG-1), a diesel fuel oil day tank low level alarm for unit one was received in the Control Room. Subsequent investigation revealed that the diesel fuel oil transfer pump control switch for EDG-1 was in the OFF position. In the OFF position, fuel oil is not automatically transferred to the diesel day tank from the main fuel storage tank. This resulted in EDG-1 being considered inoperable. Since EDG-2 was out of service for governor repairs, both Emergency Diesel Generators were simultaneously inoperable. A violation of the Technical Specifications resulted, which require that at least one EDG be operable in order for the Standby Gas Treatment, Core Spray and the Standby Liquid Control Systems to be considered operable. EDG-1 was returned to service by placing the diesel fuel transfer pump control switch to the ON position. The control switch was last demonstrated to be in the ON position during a load run conducted on May 28, 1984. Requirements for checking the control switch will be added to plant tour sheets.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) Oyster Creek, Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 2 1 9	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		8 4	- 0 1 2	- 0 0	0 2	OF 0 5

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

DATE OF OCCURRENCE

The event occurred on June 4, 1984 at approximately 1112 hours.

IDENTIFICATION OF OCCURRENCE

Both Emergency Diesel Generators were inoperable at the same time, resulting in a violation of the Technical Specifications sections 3.7.C, 3.5.B.2, and 3.2.C.

This event is considered to be a reportable event as defined in 10 CFR 50.73(a)(2)(i)(B), and 10 CFR 50.73(a)(2)(v).

CONDITIONS PRIOR TO OCCURRENCE

The reactor was partially fueled and the mode switch was in REFUEL.

DESCRIPTION OF OCCURRENCE

At 1059 hours on June 4, 1984, Emergency Diesel Generator No. 1 (EDG-1) was started for a scheduled diesel generator load test. Thirteen minutes later, at 1112 hours, the EDG-1 Day Tank Level Hi/Lo Alarm was received in the Control Room. The equipment operator at the EDG was informed and began investigating the problem. The Group Shift Supervisor (GSS) dispatched an electrician to assist the operator in finding the cause of the day tank alarm. At 1117 hours the GSS was informed by the EDG operator that diesel fuel oil day tank level had fallen to a quarter of a tank. To prevent diesel generator shutdown due to a lack of fuel, the GSS ordered a normal shutdown of EDG-1.

At 1119 hours the electrician that had been previously dispatched entered the Emergency Diesel Generator compartment and found the control switch for the diesel fuel oil transfer pumps in the OFF position. With the switch in this position, power is not available to the two fuel oil transfer pumps for EDG-2 which deliver fuel oil from the main diesel generator fuel tank to the diesel fuel oil day tank for EDG-1. Since no makeup to the diesel day tank was available, and because EDG-1 is supplied directly from this day tank, level in the day tank would have eventually reached zero with no operator action. This would have resulted in a shutdown of EDG-1 due to a lack of fuel. Because EDG-2 was already inoperable (due to governor maintenance) and EDG-1 was rendered inoperable due to loss of its fuel oil transfer system, both Emergency Diesel Generators were simultaneously inoperable.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) Oyster Creek, Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 2 1 9	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		8 4	- 0 1 2	- 0 0	0 3	OF	0 5

TEXT (If more space is required, use additional NRC Form 388A's) (17)

The fuel oil transfer pump control switch was immediately placed in the ON position, which energized the fuel transfer pumps. Diesel day tank level rose sufficiently to clear the Control Room alarm, and at 1127 hours the load test on EDG-1 was resumed. During the period from commencement of a normal EDG shutdown to resumption of the load test the diesel had continued to operate since a normal shutdown sequence involves an 11.5 minute idle period (generator unloaded) to allow diesel engine cooldown. Realizing that a violation of the Technical Specifications had occurred, the GSS notified the NRC and submitted a Plant Deviation Report.

APPARENT CAUSE OF OCCURRENCE

The apparent cause of the occurrence is attributed to the following:

- a. Inadequate procedural controls for the diesel fuel oil transfer pump control switch.
- b. Inadequate protection of the control switch from being repositioned. The control switch is a toggle switch located on the face of the engine control cabinet. Although labelled, it has no protective cover or enclosure allowing for the switch to be easily repositioned.

ANALYSIS OF OCCURRENCE and SAFETY ASSESSMENT

The two Emergency Diesel Generators (EDGs) represent a source of electrical power which is self contained within the plant and not dependent on outside sources. Each EDG can supply sufficient power for the operation of the required engineered safety features following an accident or emergency condition. The engineered safety systems supplied by the EDGs (in the event of a loss of offsite power) include independent trains for the following systems:

- a. Core Spray System
- b. Containment Spray and Emergency Service Water Systems
- c. Standby Gas Treatment System
- d. Standby Liquid Control System

These systems are designed to mitigate the consequences of several postulated accidents described in the Plant's Facility Description and Safety Analysis Report.

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		0 1 2	0 0	0 0	0 4	OF 0 5

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Plant conditions at the time of the occurrence were such that at least one train of the Core Spray, the Standby Gas Treatment, and the Standby Liquid Control Systems were required to be operable. Since both Emergency Diesel Generators were inoperable, the Technical Specifications definition of operability requires that these safety systems also be declared inoperable. It should be noted, however, that the elapsed time between commencement of EDG-1 shutdown from a loaded condition and the repositioning of the fuel oil transfer pump control switch (which made EDG-1 operable again) was only two minutes. If a loss of offsite power had occurred requiring the use of EDG-1, sufficient fuel remained in the day tank to allow full loading of the generator during this time period. Thus, EDG-1 was capable of supplying emergency loads even though its fuel transfer switch was in the OFF position. Furthermore, plant conditions at the time of the occurrence were such that an event requiring initiation of the Core Spray, Standby Gas Treatment, or Standby Liquid Control Systems would be highly unlikely.

The safety significance of this event would have been greater had it occurred during power operation. The consequences of both Emergency Diesel Generators being inoperable would be most severe during the design basis Loss of Coolant Accident (LOCA) with simultaneous loss of offsite power. During this postulated accident, the Core Spray, Containment Spray, Emergency Service Water and Standby Gas Treatment Systems are required to perform their safety functions. The Standby Liquid Control System may be required to shutdown the Reactor depending on plant conditions after initiation of the event. Normally, power for these loads would still be available to the plant through the startup transformer banks. However, in the worst case analysis a simultaneous loss of offsite power occurs requiring startup of the Emergency Diesel Generators. Since EDG-2 is inoperable, EDG-1 would fast start and begin supplying vital loads to the safety systems of concern within 35 seconds. Assuming that the diesel fuel oil day tank for EDG-1 is just above the low level alarm setpoint at the start of the event, the day tank hi/lo alarm for EDG-1 would be received in the control room shortly after the fast start of EDG-1. Conservative calculations using diesel fuel oil consumption at maximum electrical loading indicate that approximately twelve (12) minutes are available from receipt of the day tank alarm to loss of fuel oil to the EDG (zero level in the day tank). This is sufficient time to dispatch an operator to the EDG compartment and carry out the Plant Alarm Response procedure for this alarm, which includes checking the diesel fuel oil transfer pump control switch as an immediate corrective action. Although the consequences of this design basis accident would be more severe if both diesels were lost, the following mitigating conditions must be considered:

- a. As described above, Plant emergency procedures combined with the operator action would have prevented the loss of the remaining Emergency Diesel Generator.

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FACILITY NAME (1) Oyster Creek, Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 2 1 9					LER NUMBER (6)			PAGE (3)		
						YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	0 5	OF	0 5
						8 4	- 0 1 2	- 0 0			

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- b. During power operation, the Technical Specifications require that a daily load test, at greater than 20 percent rated power for at least one hour, be performed on the operable EDG when the other diesel is inoperable. Plant policy is to perform the load test at rated power of the EDG. Diesel fuel oil consumption at rated power is such that a day tank low level alarm would be received before the daily test was completed if the EDG-1 fuel oil transfer pumps were de-energized. Thus, the maximum time that the fuel oil transfer pump switch could be misaligned is one day. The probability of the unlikely accident described above occurring at the same time that both Emergency Diesel Generators are inoperable, within the maximum allowed one day period, is extremely remote.
- c. The fire protection system can supply water to the core even if all emergency core cooling is lost due to the shutdown of the remaining EDG.
- d. Sufficient time would be available for primary and secondary containment isolation before EDG-1 would run out of fuel.

CORRECTIVE ACTION

The immediate corrective action was to place the diesel fuel oil transfer pump control switch in the ON position. The Emergency Diesel Generator Load Test was then resumed. Future solutions to be implemented include:

- a. Incorporate a check of the transfer pump control switch position into the plant tour sheets.
- b. Install keylock controls on the transfer pump control switch for each Emergency Diesel Generator to prevent repositioning without the Group Shift Supervisor's concurrence.



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609 971-4000
Writer's Direct Dial Number:

June 29, 1984

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

Dear Sir:

Subject: Oyster Creek Nuclear Generating Station
Docket No. 50-219
Licensee Event Report

This letter forwards one (1) copy of Licensee Event Report (LER)
No. 84-012.

Very truly yours,

Peter B. Fiedler
Vice President and Director
Oyster Creek

PBF:dsm
Enclosures

cc: Dr. Thomas E. Murley, Administrator
Region I
U.S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, PA 19406

NRC Resident Inspector
Oyster Creek Nuclear Generating Station
Forked River, NJ 08731

IE-22