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Writer's Direct Dial Number:

July 25, 1994  
C321-94-2119

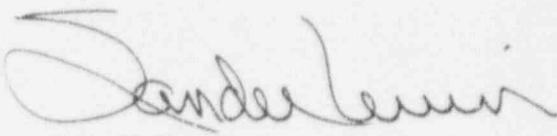
U. S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, DC 20555

Dear Sir:

Subject: Oyster Creek Nuclear Generating Station  
Docket No. 50-219  
Licensee Event Report 94-009

Enclosed is Licensee Event Report 94-009.

If there are any questions please contact Mr. John Rogers of my staff at 609.971.4893.

*for*   
John J. Barton  
Vice President and Director  
Oyster Creek

JJB/JJR  
Enclosure

cc: Administrator, Region I  
Senior Resident Inspector  
Oyster Creek NRC Project Manager

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LICENSEE EVENT REPORT (LER)

U.S. NUCLEAR REGULATORY COMMISSION  
APPROVED BY OMB NO. 3150-0104  
EXPIRES 5/31/95

FACILITY NAME (1) Oyster Creek, Unit 1	DOCKET NUMBER (2) 05000219	PAGE (3) 1 OF 4
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TITLE (4)  
Single Failure Potential In Diesel Generator Fast Start Logic Circuit due to Original Plant Design

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 NAME	DOCKET NUMBER
07	01	94	94	-- 009 --	00	7	25	94	FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9) N	POWER LEVEL (10) 100	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)								
		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)(ii)		50.36(c)(2)		50.73(a)(2)(vii)		OTHER		
		20.405(a)(1)(iii)		50.73(a)(2)(i)		50.73(a)(2)(viii)(A)		Specify in Abstract below and in Text, NRC Form 366A		
	20.405(a)(1)(iv)	X	50.73(a)(2)(ii)		50.73(a)(2)(viii)(B)					
	20.405(a)(1)(v)		50.73(a)(2)(iii)		50.73(a)(2)(x)					

LICENSEE CONTACT FOR THIS LER (12)

NAME J. Munley	TELEPHONE NUMBER (Include Area Code) 609-971-4252
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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 (16)

As a result of design reviews for modifications to be implemented during the 15R refueling outage, an existing design deficiency was identified. A postulated single failure of either of two terminal blocks, one located in each non-vital 4160 volt switchgear 1A and 1B, could render the automatic initiation of both Diesel Generator Systems inoperable. The safety significance of this postulated single failure mode is considered to be minimal based upon the very low probability of occurrence of this postulated single failure and the fact that the activation of the Appendix R Local Shutdown Panel would have isolated the single failure and allowed the operators to take manual control of Diesel Generator number 2.

Temporary modifications completed July 12 and 13, 1994, lifted leads associated with this logic. This eliminated the single failure concern.

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**DATE OF DISCOVERY**

The condition described within this report was identified on July 1, 1994. This condition has existed since initial plant operation.

**IDENTIFICATION OF OCCURRENCE**

During a design review for modifications to be implemented during the upcoming refueling outage (15R), a design deficiency was identified. A single failure of either of two terminal blocks, one located in each non-vital 4160 volt switchgear 1A and 1B, would render the automatic initiation of both Diesel Generator Systems inoperable.

This condition is considered reportable under 10CFR50.73(a)(2)(ii).

**CONDITIONS PRIOR TO DISCOVERY**

The reactor was at full power at the time of discovery. As this deficiency was a part of original construction, the plant has been operated in all modes with the design deficiency.

**DESCRIPTION OF OCCURRENCE**

While reviewing design documents for modifications to be implemented during the 15R refueling outage, an existing design deficiency was identified in the diesel generator (EIIS-EK) automatic initiation logic. The 125 volt DC control power (EIIS-EJ) from both Diesel Generators is terminated on electrically separate, but adjacent terminals on two common terminal blocks, one in non-vital 4160 volt switchgear 1A (EIIS-EA) and the other in non-vital 4160 volt switchgear 1B. A single failure of either of two terminal blocks could prevent the automatic start of both diesel generators.

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**APPARENT CAUSE OF OCCURRENCE**

The cause of this occurrence has been attributed to an original plant design.

**ANALYSIS OF OCCURRENCE AND SAFETY ASSESSMENT**

The two diesel generators provide the emergency source of power to the 4160 volt buses 1C and 1D in the event of a loss of normal power. They are designed to start and load automatically upon loss of power or undervoltage upon the 4160 volt buses 1C and 1D. The diesel generators can both be operated either from the local panels or from the Control Room. They may be started for test purposes from the Control Room panels by manual operation of a normal start/stop switch. A fast start pushbutton for each diesel generator is also provided in the Control Room. In addition, Diesel Generator 2 can be operated from the Appendix R local shutdown panel. The capacity of the units is sufficient to sequentially energize for starting all safety related pumps and auxiliaries required for a safe shutdown of the reactor in the event of a Design Basis Accident.

The following automatic fast start signals were designed to start the diesel generators, energize the emergency buses, and begin restoring power to the vital loads within 20 seconds of the start signal:

1. Breaker 1C (1D) open and breaker EC (ED) open coincident with a persistent undervoltage on Bus 1C (1D) and no fault on Bus 1C (1D).
2. Emergency start pushbutton located in the Control Room.
3. Operation of both the 86/1A and 86/1B bus fault lockout relays.

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**ANALYSIS OF OCCURRENCE AND SAFETY ASSESSMENT (Cont'd)**

The postulated single failure was discovered in the fast start circuitry derived from the simultaneous lockout of bus 1A and 1B. The fast start logic circuits for the two Diesel Generators are electrically separate, but share the common lockout relays, 86/1A located on bus 1A and 86/1B located on bus 1B. The Diesel Generator 1 and 2 fast start circuitry is wired to adjacent terminals on common terminal blocks in both switchgear 1A and switchgear 1B.

A postulated single failure short circuit of either one of these two terminal blocks could cause the positive and/or negative control fuses to blow for both diesel generators, resulting in the loss of ability to supply emergency power in the event normal power were lost.

The most probable single failure mode would be a fire induced short circuit, which would have prevented the fast start of both diesel generators. In this event, Appendix R procedures identify Diesel Generator Number 2 as potentially affected and provide direction to operators to utilize Local Shutdown Panel DG2 to isolate the failed portion of the circuit and provide a fast start signal to Diesel Generator Number 2, restoring emergency power. The safety significance of this single failure mode is considered to be minimal based upon these procedures and the very low probability of occurrence of this postulated single failure.

**CORRECTIVE ACTION**

Prior to the discovery of this potential single failure condition, a modification had been scheduled for the 15R refueling outage to remove the simultaneous lockout of Bus 1A and 1B from the diesel generator fast start logic for other reasons. Temporary modifications completed on July 12 and 13, 1994 lifted leads associated with this logic. This removed the single failure concerns.

**SIMILAR OCCURRENCES**

None.