

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Oyster Creek, Unit 1									DOCKET NUMBER (2) 0 1 5 0 1 0 2 1 1 9			PAGE (3) 1 OF 0 1 4			
TITLE (4) CONTAINMENT SPRAY INAPPROPRIATELY RETURNED TO SERVICE DUE TO IMPROPERLY PERFORMED SURVEILLANCE TEST															
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 6 2	2	8 8	8 8	-	0 1 1	-	0 0	0 7 2	1 8 8			0 5 0 0 0			
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OPERATING MODE (9)		N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)												
			20.402(b)			20.406(e)			50.73(a)(2)(iv)			73.71(b)			
			20.408(a)(1)(i)			50.38(c)(1)			50.73(a)(2)(v)			73.71(e)			
			20.408(a)(1)(ii)			50.38(c)(2)			50.73(a)(2)(vii)			OTHER (Specify in Abstract below and in Text, NRC Form 388A)			
			20.408(a)(1)(iii)	X		50.73(a)(2)(i)			50.73(a)(2)(viii)(A)						
			20.408(a)(1)(iv)			50.73(a)(2)(ii)			50.73(a)(2)(viii)(B)						
			20.408(a)(1)(v)			50.73(a)(2)(iii)			50.73(a)(2)(x)						
LICENSEE CONTACT FOR THIS LER (12)															
NAME Roger B. Gayley, Operations Engineer										TELEPHONE NUMBER 610 19 917 111 - 444 611					
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)															
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPPDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPPDS					
SUPPLEMENTAL REPORT EXPECTED (14)										EXPECTED SUBMISSION DATE (15)		MONTH	DAY	YEAR	
<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)										<input type="checkbox"/> NO					

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

A Containment Spray System (EIIS Code BE) System I Surveillance Test was performed on June 19, 1988, following system maintenance that began on June 14, 1988. The surveillance test was performed incorrectly and on June 22, 1988 it was determined that System I had been inappropriately placed in service on June 19, 1988. During this period, the reactor was in operation in violation of Technical Specification 3.4.C.3. An engineering evaluation performed later that day concluded the system was, in fact, operable since June 19, 1988. The cause was a poorly human factored labelling design for the delta P instrumentation. This unnecessarily challenged the operator resulting in the instrument line-up error. Actions taken to prevent recurrence included procedure revision and clear labelling of system components.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

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			
Oyster Creek, Unit 1	0 5 0 0 0 2 1 9	8 8	- 0 1 1 -	0 0	0 2	OF	0 4

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

Date of Discovery

The condition was discovered on June 22, 1988.

Identification of Occurrence

On June 22, 1988, Containment Spray System I was declared inoperable, based on high differential pressure across the tubeside divider plate of the 1-1 and 1-2 heat exchangers. Since the reactor was in operation greater than 7 days with an inoperable Containment Spray System loop, this was a violation of Technical Specification 3.4.C.3. The condition was discovered during a System I surveillance test performed in preparation for removing System II from service for heat exchanger cleaning.

Conditions Prior to Occurrence

The plant was operating at rated thermal output generating approximately 630 MW(e).

Description of Occurrence

On June 14, 1988, Containment Spray System I was removed from service to repair pipe wall thinning discovered in the inlet elbow to the 1-2 heat exchanger. Inlet elbow repairs were completed, and the Containment Spray surveillance test was performed on June 19, 1988. Due to an improper valve line-up, inaccurate, low heat exchanger tubeside differential pressure readings were recorded in the surveillance test procedure. The readings were used in determining System I operability and the Containment Spray System I was returned to service on June 19, 1988.

On June 22, 1988, a System I surveillance test was performed in preparation for removing System II from service for heat exchanger cleaning. Containment Spray System I was declared inoperable, based on the differential pressure across the tubeside divider plate of the 1-1 and 1-2 heat exchangers exceeding the surveillance procedure acceptance criteria. An operability surveillance test was performed on System II as a result of the findings on System I. Heat exchanger differential pressure readings were acceptable, but were elevated on System II, indicating the heat exchangers needed cleaning.

A plant shutdown was initiated per Technical Specification 3.0.A. An engineering evaluation was performed later in the day, June 22, 1988, that determined that the tubeside differential pressure acceptance criteria in the

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

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Containment Spray System surveillance procedure was excessively conservative. The procedure was revised with new, more realistic acceptance criteria. Based on the new heat exchanger tubeside differential pressure acceptance criteria, it was concluded the system was, in fact, operable since June 19, 1988. The plant shutdown was terminated upon determination that Containment Spray System I was operable.

Apparent Cause of Occurrence

The event began when an equipment operator failed to properly position a three way valve to obtain heat exchanger tubeside differential pressure during the surveillance test performed June 19, 1988. The root cause of this event is that the differential pressure gauge instrument line configuration was complex and inadequately labelled, resulting from an inadequate human factors review of the modification, thereby making it difficult to understand and properly execute the procedure. Improper positioning of the valve caused an inaccurate, low tubeside differential pressure reading during the Containment Spray System surveillance test. The inaccurate differential pressure reading was used to determine system operability, consequently System I was inappropriately, with regard to the test acceptance criteria, returned to service.

The high tubeside differential pressure in the Containment Spray Heat Exchangers was attributed to heat exchanger fouling caused by an accumulation (approximately 3 inches thick) of empty Blue Mussel shells.

Analysis of Occurrence and Safety Assessment

The Containment Spray System consists of two independent cooling loops. Each loop is capable of removing fission product decay heat from the primary containment after a postulated loss of coolant accident. Each independent loop has two heat exchangers and two pumps. Cooling water for the heat exchangers is provided by the Emergency Service Water System.

The safety significance of this event is considered low. An Engineered Safeguards System (Containment Spray/Emergency Service Water System I) was inappropriately returned to service on June 19, 1988, based on inaccurate data taken during a surveillance test; however, an engineering evaluation performed on June 22, 1988 determined the surveillance test acceptance criteria was excessively conservative. The actual tubeside differential pressure limit is considerably higher than that specified in the surveillance procedure. Based on this evaluation, it was concluded that the system was actually operable on June 19th.

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Oyster Creek, Unit 1	0 5 0 0 0 2 1 9	8 8	- 0 1 1	- 0 0	0 4	OF 0 4

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Corrective Actions

Upon discovery of the high tubeside differential pressure condition, the following actions were performed:

1. Containment Spray/Emergency Service Water System II was surveilled to confirm that it was operable.
2. The System I heat exchanger inlet and outlet pressure gauges were checked for accuracy and a calibration check was performed.

Note: The gauges were found to be within acceptable tolerance.

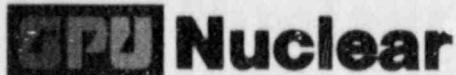
3. A plant shutdown was initiated per Technical Specification 3.0.A. The plant shutdown was terminated upon determination that Containment Spray System I was operable.
4. The heat exchangers were cleaned.
5. The differential pressure gauge instrument lines were properly labelled and demarcated.
6. A revision to the surveillance procedure acceptance criteria section was performed based on the engineering evaluation described above.
7. The procedures for the performance of minor modifications will be reviewed to determine if a formal input should be required for Human Factor Engineering.

Operations shift personnel will receive additional guidance in the operation of the differential pressure instrument and its principle of operation. The valve lineups in the Containment Spray System Operation and Surveillance procedures will be revised to assist operators in the execution of the procedures.

Similar Occurrences

None

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GPU Nuclear Corporation
Post Office Box 388
Route 9 South
Forked River, New Jersey 08731-0388
609 971-4000
Writer's Direct Dial Number:

July 21, 1988

Director of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Mail Station P1-137
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. 88-011.

Very truly yours,

E.E. Fitzpatrick
E. E. Fitzpatrick
Vice President & Director
Oyster Creek

EEF:GB:dmd(0521A)
Enclosures

cc: Mr. William T. Russell, Administrator
Region I
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406

Mr. Alexander W. Dromerick
U.S. Nuclear Regulatory Commission
Washington, DC 20555

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

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