

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 4
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TITLE (4)
REACTOR LOW LEVEL SENSORS FOUND OUT OF SPECIFICATION

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 1	1 7	8 6	8 6	0 0 1	0 0	0 2	1 4	8 6			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)									
POWER LEVEL (10) 0 9 8	20.402(b)	20.406(e)	90.73(a)(2)(iv)	73.71(b)						
	20.406(a)(1)(i)	90.38(e)(1)	90.73(a)(2)(v)	73.71(e)						
	20.406(a)(1)(ii)	90.38(e)(2)	90.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)						
	20.406(a)(1)(iii)	X 90.73(a)(2)(i)	90.73(a)(2)(viii)(A)							
	20.406(a)(1)(iv)	90.73(a)(2)(ii)	90.73(a)(2)(viii)(B)							
20.406(a)(1)(v)	90.73(a)(2)(iii)	90.73(a)(2)(ix)								

LICENSEE CONTACT FOR THIS LER (12)		TELEPHONE NUMBER	
NAME L. Leitman, Operations Engineering		AREA CODE	6 1 0 1 9 9 1 7 1 1 - 1 4 1 3 1 8 1 9

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)	MONTH	DAY	YEAR
<input checked="" type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)	<input type="checkbox"/> NO			0 1 4	3 1 0	8 1 6

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

On January 17, 1986, three out of four reactor low level scram sensors were found out of specification during the monthly surveillance. The plant was operating at 98% power. Upon discovery, the setpoints were immediately adjusted within acceptable ranges. On January 20, two of the sensors were retested and both were found in specification, but one failed to reset when valved back into service. The switch was determined to have failed and was replaced. During the additional testing of the failed sensor, its monthly out-of-service limit of 60 minutes was exceeded, and a shutdown was commenced. The shutdown was terminated at 0055 hours on January 21 when a new sensor was placed in service. The cause of the occurrence has been attributed to instrument drift, and the cause of the sensor failure is being investigated at the vendor's facilities. The safety significance of this event is considered minimal since the low level alarm was operable and a manual scram is required by procedure if an automatic scram doesn't occur at 138" above the top of active fuel (TAF). With the instrument drift the automatic scram would have occurred at 136.6" above TAF. The test and calibration procedure will be revised to provide a more restrictive tolerance on "as-left" setpoints.

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

Date of Occurrence

The condition was discovered on January 17, 1986 at approximately 1400 hours.

Identification of Occurrence

Three out of four reactor low water level scram sensors were found out of specification during the monthly surveillance. This event is considered reportable under 10CFR50.73(a)(2)(i)B.

Conditions Prior to Occurrence

The plant was operating at approximately 98% of rated thermal power, 1895 MWt, and generator load was 642 MWe.

Description of Occurrence

The regular monthly test and calibration surveillance of the reactor low water level scram sensors was performed on January 17, 1986. During this surveillance, it was found that three out of four sensors had trip setpoints out of specification in the non-conservative direction (low level). The required as-found trip setpoint (in units of applied pressure, inches of water) is less than or equal to 60.22 inches, corresponding to 137 inches above the top of active fuel (TAF). The as-found setpoint of sensor RE05/19B1 was 60.5 inches; that of sensor RE05/19A1 was 61.0 inches; and that of RE05A1 was 64.5 inches. The three setpoints were immediately adjusted to acceptable ranges (58.9 + 1" water) in accordance with the surveillance procedure. Two of the sensors, RE05A1 and RE05/19A1, were tested again on January 20. Both were found to be within acceptable tolerances, but RE05A1 failed to reset when valved back into service. RE05A1 was rechecked and its setpoint was approximately 5 inches lower (more conservative) than just previously verified. RE05A1 was then recalibrated and was determined to trip properly. During the additional testing of RE05A1, its monthly out-of-service time limit of 60 minutes was exceeded (69 minutes out of service) and a plant shutdown was commenced. The sensor was returned to service after calibration but not declared operable until its condition was further evaluated. The plant load reduction was stopped pending the results of the engineering evaluation. Because of the sensor's previous performance it was declared inoperable after evaluation and the shutdown was recommenced. The sensor was replaced and the shutdown was terminated when the new sensor was placed in service at 0055 hours on January 21, 1986.

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

Apparent Cause of Occurrence

The cause of the event for each of the three switches may be different. First, RE05A1 (the sensor that failed) was disassembled and inspected on-site by the vendor but a cause for the failure was not determined. The cause of the sensor failure will be further investigated at the vendor's facilities. Second, RE05/19B1 was left at the upper limit of its permissible band during the previous surveillance and experienced drift within manufacturer's specifications (0.6 inches of water). Third, the cause of RE05/19A1 being out of specification was instrument drift.

Analysis of Occurrence and Safety Assessment

The low reactor vessel level scram is designed to prevent continued reactor operation with steam carry-under from the reactor vessel steam separators. Steam carry-under is a condition which results from uncovering the bottom of the steam separators allowing steam to be drawn into the downcomer region. The condition increases the temperature in the downcomer region resulting in less subcooling, which leads to possible recirculation pump cavitation, decreased plant efficiency, increased core average void content, increased core pressure drop and reduced critical power ratio.

If a condition had occurred which decreased reactor level, the low level scram would not have occurred at its required setpoint of 137" above TAF, but would have occurred at 136.6" above TAF. Other protective functions were available, however, to mitigate such an event. The reactor low water level alarm sensor is separate from the low level scram sensors and was operable at the time. The low level alarm annunciation at 147" above TAF would initiate corrective actions by the Control Room operators to restore vessel level. If level were to drop as far as the low-low level setpoint (86" above TAF), a reactor isolation would occur, followed by a scram caused by the Main Steam Isolation Valves being more than 10% closed. In addition, an indicated level of less than 138" above TAF is an entry condition for the plant's Emergency Operating Procedures (EOPs). The EOPs direct the Control Room operator to manually scram the reactor if the automatic scram has not occurred.

The safety significance of this event is considered minimal, since another low level alarm was operable and operator actions would have been taken in the event of a lowered reactor vessel water level.

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Corrective Actions

The sensors were reset to trip within desired setpoints and the sensor that experienced failure was replaced. The test and calibration procedure will be revised to provide a more restrictive tolerance on "as-left" setpoints.

A supplemental LER will be submitted when the evaluation of the failed sensor is completed by the vendor. The component failure data required on page 1 of this report will be submitted at that time.

(0149A)



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February 14, 1986

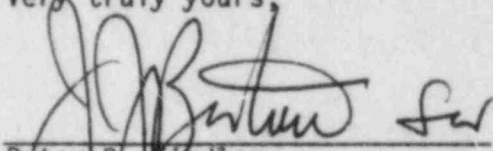
U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

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. 86-001.

Very truly yours,



Peter B. Kiedler
Vice President and Director
Oyster Creek

PBF:JR:dsm(0149A)
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