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May 22, 2000 1940-00-20128

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

Subject: Oyster Creek Nuclear Generating Station
Facility License No. DPR-16
Docket No. 50-219
Licensee Event Report 00-002, Supplement 1:
Unanalyzed Condition with Backup Pressure Regulator Inoperable
Between 25% and 90% Power

Enclosed is Licensee Event Report 00-002, Supplement 1. Vertical lines in the right margin indicate text revisions. This event did not affect the health and safety of the public or plant personnel.

If any additional information or assistance is required, please contact Mr. Paul Czaya of my staff at 609-971-4139.

Very truly yours,

Sander Levin Acting Director Oyster Creek

SL/PFC

Attachment

cc: Administrator, USNRC Region I USNRC Senior Project Manager USNRC Senior Resident Inspector



NIC FORM	366
(4-95)	

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104 EXPIRES 04/30/98

LICENSEE EVENT REPORT (LER)

EAT INES 04/30/20 ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY ENFORMATION COLLECTION REQUEST: 50.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 F33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Oyster Creek Unit 1	05000 - 219	1 of 4

TITLE (4)

Unanalyzed Condition With Backup Pressure Regulator Inoperable Between 25% and 90 % Power

EVE	NT DAT	E (5)	LER NUMBER (6) REPORT DATI			Έ(7)		OTHER FACILITIES INVOLVED (8)					
MONTH	DAY	YEAR	YEAR	SEQUENTIAL	REVISION	MONTH	DAY	YEAR	FACILITY	ACILITY NAME		DC	OCKET NUMBER
				NUMBER	NUMBER								05000
02	8	00	00	002	1	05 00 FACIL		FACILITY NAME		DC	DOCKET NUMBER		
													05000
OPERATING THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIRE						IREME	NTS	OF 10 CFR 8: (Che	eck one or m	ore) (11)			
_ MOD	E (9)	Ň	20.:	2201(b)		20.2203(a)(2)(v)				50.	73(a)(2)(i)		50.73(a)(2)(viii)
POW	/ER		20.	2203(a)(1)		20.2203(a)(3)(i)			X	50.	73(a)(2)(ii)		50.73(a)(2)(x)
LEVE	L (10)	60%	20.:	2203(a)(2)(i)		20.2203(a)(3)(ii)				50.	73(a)(2)(iii)		73.71
			20.:	2203(a)(2)(ii)		20.2203(a)(4)				50.	73(a)(2)(iv)		OTHER
			20.3	2203(a)(2)(iii)		50.36(c)(1)		50.36(c)(1)		50.	73(a)(2)(v)		
			20.:	2203(a)(2)(iv)		50.36(c)(2)			50.1	73(a)(2)(vii)			
LICENSEE CONTACT FOR THIS LER (12)													
NAME					TE	TELEPHONE NUMBER (Include Area Code)							
John Dougher, Manager, Shift Eng			gineering 609-971-2130			0							

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE To NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFAC	TURER	REPORTABLE To NPRDS
] [
	S	UPPLEMENTA	L REPORT EXP	ECTED (14)			EXP	ECTED	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE).				XNO		SUBIA	115510N				

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

Power operation with the electric pressure regulator or the mechanical pressure regulator out of service is not described in the Final Safety Analysis Report. General Electric Service Information Letter (SIL) 614 warns that during operation without a backup pressure regulator, a downscale failure of the primary pressure regulator could cause closure of the turbine control valves (TCV) without opening the bypass valves or actuation of the anticipatory reactor scram associated with TCV fast closure. Consequently, a scram would occur on either high neutron flux or high reactor pressure, depending on valve closure speed and initial reactor power. The SIL also states that, at less than 90% power for a downscale pressure regulator failure without backup, the margin to thermal limits would be less than previously analyzed.

A review of the Oyster Creek operating history has determined there have been periods of power operation at less than 90% power when the backup pressure regulator was out of service.

Administrative controls have been implemented to restrict plant operation when the backup pressure regulator is out of service. Additionally, plant specific analysis has confirmed sufficient margin to thermal limits while operating at greater than or equal to 90% rated thermal power.

(4-95)LICENSEE EVENT REPORT (LER) TEXT CONTINUATION DOCKET (2) LER NUMBER (6) **FACILITY NAME (1)** PAGE (3) SEQUENTIAL YEAR REV 05000 NUMBER 1 2 -219 00 002 of 4 Oyster Creek, Unit 1

U.S. NUCLEAR REGULATORY COMMISSION

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

NI C FORM 366A

DATE OF OCCURRENCE

The condition described in this report was determined to be reportable on February 8, 2000.

IDENTIFICATION OF OCCURRENCE

As a follow up action to a corrective action report associated with General Electric (GE) SIL 614, a review of the operating history for the electric pressure regulator (EPR) (EIIC-RG) and the mechanical pressure regulator (MPR) determined there have been periods during power operation when the backup pressure regulator was out of service with power level less than 90%. This condition is reportable pursuant to 10 CFR 50.73 (a)(2)(ii) as a condition that resulted in the plant being in an unanalyzed condition that significantly compromises plant safety.

CONDITIONS PRIOR TO DISCOVERY

The plant was operating at approximately 60% power at the time of the discovery with load limited by the out-of-service main transformer (EIIC-XFMR) M1A. However, the plant had been operating at many different power levels with this condition since initial startup. The backup pressure regulator remains in service.

DESCRIPTION OF OCCURRENCE

GE SIL 614 alerted owners of GE boiling water reactors (BWR) that operating without a backup pressure regulator may be an unanalyzed condition and reemphasized the correct setting of the backup pressure regulator. During normal plant operation, both pressure regulators are in service. The purpose of the backup pressure regulator is to take over reactor (EIIC-RCT) pressure control if the controlling pressure regulator fails downscale. Should the controlling pressure regulator experience a downscale failure during plant operation its output signal will begin to close the turbine (EIIC-TRB) control valves (EIIC-PCV) and reactor pressure will increase. The backup pressure regulator is designed to take over pressure control and stabilize pressure at a slightly higher value resulting in a relatively mild transient.

The transient analysis in the Final Safety Analysis Report (FSAR), Section 15.2.1 (Steam Pressure Regulator Failure), assumes that the failure of the primary pressure regulator results in operation of the backup regulator to limit the resulting pressure rise. GE SIL 614 states that a downscale pressure regulator failure transient at reduced power (less than 90%) without a backup regulator will result in fuel thermal margins being less than previously analyzed. If the failure occurs during power operation between 25% and 90% and under minimum allowable fuel thermal margin conditions, the resulting transient will fall outside the licensing basis.

A review of the operating history for the EPR and the MPR determined that there have been periods during power operation when the backup pressure regulator was out of service with power level greater than 25% and less than 90%.

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FACILITY NAME (1)	DOCKET (2)		LER NUMBER ((6)	P	AGE (3))
	05000	YEAR	SEQUENTIAL NUMBER	REV			
Oyster Creek, Unit 1	-219	00	002	1	3	of	4

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

APPARENT CAUSE OF OCCURRENCE

The NSSS vendor for the Oyster Creek Plant discovered a previously unanalyzed transient that is more limiting than the current Licensing Basis transient analysis.

ANALYSIS OF OCCURRENCE AND SAFETY ASSESSMENT

The Turbine Pressure Control System (EIIS-JI and JJ) which is part of the non-safety-related Turbine System (EIIS-TA) affects reactor pressure. Reactor pressure is controlled by the position of the main turbine control valves and bypass valves (EIIC-PCV). The pressure regulator controls the position of these valves. The MPR has a setpoint range of 112 to 1084 psig and the EPR has a setpoint range of 890 to 1010 psig. The pressure regulators compare pressure sensed at the common 30-inch steam header (upstream of the control valves and stop valves) with the setpoint, and adjust valve position accordingly. Prior to exceeding 25% power, the EPR is put into service by lowering its setpoint to a pressure just below the MPR setpoint. The turbine is then synchronized and loaded. From then on the bypass valves are held closed and the EPR adjusts the turbine control valve position to maintain pressure. The MPR acts as a backup. If the EPR were to fail, the MPR would take over and control pressure at its setpoint. The design basis of the pressure control system is that the two pressure regulators are to operate in this manner at reactor power greater than 25%.

A review of the operating history of the plant has identified instances when the EPR was taken out of service for maintenance. During these periods, the MPR served as the primary pressure regulator without a backup. However, failure of the MPR did not occur and these situations did not result in conditions outside the design basis of the plant.

The safety significance of this event is that if a failure of the primary pressure regulator were to occur with the backup pressure regulator out of service, then the resulting transient would be more severe than the turbine trip without bypass transient currently analyzed in the FSAR. Although this event is expected to remain bounded by other limiting transients when initiated at full power, the resulting impact on fuel thermal margins may not remain bounded when initiated at partial power under minimum allowable fuel thermal margin conditions. The severity of this event is dependent on the turbine control valve stroke time in that longer stroke times decrease the effect on the fuel limits. In the power range of 25% to 90%, a failure of the pressure regulator without a backup pressure regulator would result in exceeding the fuel thermal limits. However, there was no safety consequence as a result of this event, as a pressure regulator transient did not occur during the periods when the backup regulator was out of service.

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FACILITY NAME (1)	DOCKET (2)	LER NUMBER (6	PAGE (3)				
	05000	YEAR SEQUENTIAL NUMBER	REV				
Oyster Creek, Unit 1	-219	00 002	1	4	of	4	
TEXT (If more space is required, use additional copies of NRC Form 366A) (17)	/ <u></u>		/	. <u></u>			
CORRECTI	VE ACTION						
Appropriate plant administrative controls have been in	nplemented to r	estrict plant operation	when t	he bac	kup		
pressure regulator is out of service. Operation above	90% power or b	elow 25% will be allo	wed for	a per	iod		
not to exceed 30 days without a backup regulator. If c	one of the two re	gulators becomes ino	perable	while	_		
operating between 25% and 90%, the pressure regulat	or will be repair	increased above 90%	or decr	nn 11 based) below	7	
2.5% within the following 8 hours.	s, power will be			cascu	0010 1	, ,	
A plant specific analysis has confirmed sufficient mar	gin to thermal li	mits while operating	at great	er thar	ı or		
equal to 90% rated thermal power.							
SIMILAR	EVENTS						
None							
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