

AmerGen Energy Company, LLC  
Oyster Creek  
US Route 9 South  
P.O. Box 388  
Forked River, NJ 08731-0388

April 24, 2001  
2130-01-20080

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 00-002, Revision 2: Unanalyzed Condition with Backup  
Pressure Regulator Inoperable between  
25% and 90% Power

Enclosed is Licensee Event Report 00-002, Revision 2. Vertical bars have been placed in the right margin to indicate the text changes. 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. John Rogers of my staff at 609-971-4893.

Very truly yours,



Ron DeGreggorio, Vice President  
Oyster Creek Generating Station

RJD/JJR

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

IE22

**LICENSEE EVENT REPORT (LER)**

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY INFORMATION 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)  
Oyster Creek Unit 1

DOCKET NUMBER (2)  
05000 - 219

PAGE (3)  
1 of 4

TITLE (4)  
Unanalyzed Condition With Backup Pressure Regulator Inoperable Between 25% and 90 % Power

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
02	8	00	00	002	2	04	24	01		05000
										05000

OPERATING MODE (9) N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR (Check one or more) (11)									
POWER LEVEL (10) 60%	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(i)	<input type="checkbox"/> 50.73(a)(2)(viii)						
	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input checked="" type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(x)						
	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 73.71						
	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> OTHER						
	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(1)	<input type="checkbox"/> 50.73(a)(2)(v)							
	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(vii)							

LICENSEE CONTACT FOR THIS LER (12)

NAME John Dougher	TELEPHONE NUMBER (Include Area Code) 609-971-2130
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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			MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE).	<input checked="" type="checkbox"/> NO									

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 that sufficient margin to thermal limits exists while operating at greater than or equal to 90% rated thermal power.

**LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION**

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

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

**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 may 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%.

**LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION**

FACILITY NAME (1)	DOCKET (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REV	
Oyster Creek, Unit 1	05000 -219	00	002	00	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 could 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.

**LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION**

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

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

**CORRECTIVE ACTION**

Appropriate plant administrative controls have been implemented to restrict plant operation when the backup pressure regulator is out of service. Operation at or above 90% power will be allowed for a period not to exceed 30 days without a backup regulator. If one of the two regulators becomes inoperable while operating between 25% and 90%, the pressure regulator will be repaired or power will be increased to above 90% power within the next two hours. If this is not done, power will be decreased below 25% within the following 8 hours.

A plant specific analysis has confirmed that sufficient margin to thermal limits exists while operating greater than or equal to 90% rated thermal power.

**SIMILAR EVENTS**

None

AmerGen Energy Company LLC  
Oyster Creek  
10000 Highway 100  
P.O. Box 1000  
Oyster Creek, NJ 08552

April 24, 2001  
2130-01-20080

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 00-002, Revision 2: Unanalyzed Condition with Backup  
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If any additional information or assistance is required, please contact Mr. John Rogers of my staff at 609-971-4893.

Very truly yours,



Ron DeGreggioro, Vice President  
Oyster Creek Generating Station

RJD/JJR

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

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FACILITY NAME (1) Oyster Creek Unit 1	DOCKET NUMBER (2) 05000 - 219	PAGE (3) 1 of 4
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EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
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										05000

OPERATING MODE (9) N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 11: (Check one or more) (11)									
POWER LEVEL (10) 60%	<input type="checkbox"/>	20.2201(b)	<input type="checkbox"/>	20.2203(a)(2)(v)	<input type="checkbox"/>	50.73(a)(2)(i)	<input type="checkbox"/>	50.73(a)(2)(viii)	<input type="checkbox"/>	
	<input checked="" type="checkbox"/>	20.2203(a)(1)	<input type="checkbox"/>	20.2203(a)(3)(i)	<input checked="" type="checkbox"/>	50.73(a)(2)(ii)	<input type="checkbox"/>	50.73(a)(2)(x)	<input type="checkbox"/>	
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	<input type="checkbox"/>	20.2203(a)(2)(iii)	<input type="checkbox"/>	50.36(c)(1)	<input type="checkbox"/>	50.73(a)(2)(v)	<input type="checkbox"/>		<input type="checkbox"/>	
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NAME John Dougher						TELEPHONE NUMBER (Include Area Code) 609-971-2130				

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		
YES (If yes, complete EXPECTED SUBMISSION DATE).	<input checked="" type="checkbox"/> NO		MONTH	DAY	YEAR		

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

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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.

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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	2	2	of 4

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**CONDITIONS PRIOR TO DISCOVERY**

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

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

**CORRECTIVE ACTION**

Appropriate plant administrative controls have been implemented to restrict plant operation when the backup pressure regulator is out of service. Operation at or above 90% power will be allowed for a period not to exceed 30 days without a backup regulator. If one of the two regulators becomes inoperable while operating between 25% and 90%, the pressure regulator will be repaired or power will be increased to above 90% power within the next two hours. If this is not done, power will be decreased below 25% within the following 8 hours.

A plant specific analysis has confirmed that sufficient margin to thermal limits exists while operating greater than or equal to 90% rated thermal power.

**SIMILAR EVENTS**

None