

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

10 CFR 50.73

September 26, 2003  
2130-03-20249

United States Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, DC 20555-0001

Oyster Creek Generating Station  
Facility Operating License No. DPR-16  
NRC Docket No. 50-219

**Subject:** Licensee Event Report 2003-003-00:  
Actuation of Reactor Protection System due to Grid Transient

Enclosed is Licensee Event Report 2003-003, Revision 0. This event did not affect the health and safety of the public or plant personnel.

If any further information or assistance is needed, please contact Mr. William Stewart, of my staff, at 609.971.4775.

Very truly yours,



Ernest J Harkness P.E., Vice President  
Oyster Creek Generating Station

EJH/RAM  
Enclosure

cc: Regional Administrator, USNRC Region I  
USNRC Senior Project Manager, Oyster Creek  
USNRC Senior Resident Inspector, Oyster Creek  
File No. 03081

IE22

**LICENSEE EVENT REPORT (LER)**

(See reverse for required number of digits/characters for each block)

Estimated burden per response to comply with this mandatory information collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjs1@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

FACILITY NAME (1)

Oyster Creek, Unit 1

DOCKET NUMBER (2)

05000 219

PAGE (3)

1 OF 4

TITLE (4)

**Actuation of Reactor Protection System due to Grid Transient**

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MO	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
08	14	2003	2003	- 003	- 00	09	26	2003		05000
OPERATING MODE (9)			THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply) (11)							
N			20.2201(b)			20.2203(a)(3)(ii)			50.73(a)(2)(ii)(B)	50.73(a)(2)(ix)(A)
POWER LEVEL (10)			20.2201(d)			20.2203(a)(4)			50.73(a)(2)(iii)	50.73(a)(2)(x)
100			20.2203(a)(1)			50.36(c)(1)(i)(A)	X		50.73(a)(2)(iv)(A)	73.71(a)(4)
			20.2203(a)(2)(i)			50.36(c)(1)(ii)(A)			50.73(a)(2)(v)(A)	73.71(a)(5)
			20.2203(a)(2)(ii)			50.36(c)(2)			50.73(a)(2)(v)(B)	OTHER Specify in Abstract below or in NRC Form 366A .
			20.2203(a)(2)(iii)			50.46(a)(3)(ii)			50.73(a)(2)(v)(C)	
			20.2203(a)(2)(iv)			50.73(a)(2)(i)(A)			50.73(a)(2)(v)(D)	
			20.2203(a)(2)(v)			50.73(a)(2)(i)(B)			50.73(a)(2)(vii)	
			20.2203(a)(2)(vi)			50.73(a)(2)(i)(C)			50.73(a)(2)(viii)(A)	
			20.2203(a)(3)(i)			50.73(a)(2)(ii)(A)			50.73(a)(2)(viii)(B)	

**LICENSEE CONTACT FOR THIS LER (12)**

NAME	William Stewart	TELEPHONE NUMBER (Include Area Code)	609.971.4775
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**COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)**

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX

**SUPPLEMENTAL REPORT EXPECTED (14)**

YES (if yes, complete EXPECTED SUBMISSION DATE).	X	NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
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**ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)**

On August 14, 2003, an electrical disturbance in the off-site electrical power grid caused an overexcitation condition in the main generator. This resulted in a main generator lockout, turbine trip, and reactor scram from 100% power. The reactor shut down as designed. Plant cooldown to cold shutdown was required due to the trip of all five recirculation pumps (three auto trip and two manual trip). Off-site power was available throughout the event.

The safety significance of this event is considered minimal. The plant responded as designed for this type of event. Technical Specification limits were maintained. There was no radioactive release. Off-site power was not lost. Operator response was appropriate.

**LICENSEE EVENT REPORT (LER)**

FACILITY NAME (1)	DOCKET (2)	LER NUMBER (6)			PAGE (3)	
Oyster Creek, Unit 1	05000 0219	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2	OF 4
		2003	003	00		

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

**DATE OF DISCOVERY**

This event occurred on August 14, 2003.

**IDENTIFICATION OF OCCURRENCE**

Note: System Identification codes from IEEE 805-1984 are indicated with SI. Component Function Identifiers from ANSI/IEEE 803A-1983 are indicated by CFI.

An electrical disturbance in the off-site electrical power grid (SI - FK) caused an overexcitation condition in the main generator (SI - TB, CFI - GEN & TG). In response to the overexcitation condition, protective relaying (CFI - 86) locked out the main generator which tripped the main turbine (SI - TA, CFI - TRB) and scrambled the reactor (SI - AC, CFI - RCT). Off-site power was not lost. Actuation of the Reactor Protection System is reportable under 10 CFR 50.73(a)(2)(iv)(A).

**CONDITIONS PRIOR TO DISCOVERY**

The plant was operating at approximately 100% power with all reactor plant pressures and temperatures normal for full power operation. All safety-related equipment was operable.

**DESCRIPTION OF OCCURRENCE**

On August 14, 2003, at 1610 hours, annunciators (CFI - ANN) in the Main Control Room indicated a voltage transient and Main Generator Overexcitation. The sequence of alarms (SI - IQ) shows that the initial condition was a low voltage and low VAR condition on the main generator. Within seconds, the low voltage alarm (CFI - EA) cleared and over-voltage and over excitation alarms (CFI - IA) were received. About nine seconds later protective relaying locked out the Main Generator which tripped the main turbine and resulted in a reactor scram.

**LICENSEE EVENT REPORT (LER)**

FACILITY NAME (1)	DOCKET (2)	LER NUMBER (6)			PAGE (3)
Oyster Creek, Unit 1	05000 219	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	3 OF 4
		2003	- 003	- 00	

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

The turbine trip caused a pressure increase which caused one of five Electromatic Relief Valves (CFI - RV) to open momentarily, three of five Reactor Recirculation Pumps (SI - AD, CFI - P) to trip due to the pressure signal in the Anticipatory Trip Without Scram logic, and both Isolation Condensers (SI - BL) to actuate. The reactor scram shut down the reactor as designed. During scram follow-up actions, the locking feature of the Reactor Mode Switch prevented placing it in the Shutdown Position before reactor pressure decreased to 850 psig. As a result, the Main Steam Isolation Valves (MSIVs) (SI - SB, CFI - ISV) automatically shut. Operators manually tripped the two operating Reactor Recirculation pumps, as required by procedure due to the auto trip of three of the recirculation pumps, and stabilized plant conditions. Off-site power was available throughout the event.

Although no Technical Specification required the plant to be placed in the Cold Shutdown condition, the trip of all reactor recirculation pumps required cooldown to cold shutdown to recover the plant. Plant cooldown was begun at 1902 hours using the Isolation Condensers. Shutdown Cooling (SI - BO) was placed in service at 0030 hours on August 15, 2003 and the cold shutdown condition was reached at 0236 hours.

**APPARENT CAUSE**

Actuation of the Reactor Protection System was caused by closure of the turbine stop valves when the turbine tripped. The turbine trip was caused by the Main Generator Lockout, which was caused by protective relaying in response to an overexcitation condition on the main generator. The overexcitation condition was caused by a significant transient on the off-site power grid external to the station. Subsequently, it was recognized the transient on the power grid was related to a cascading blackout affecting a large part of the northeast United States and adjacent parts of Canada.

**ANALYSIS OF OCCURRENCE AND SAFETY ASSESSMENT**

The safety significance of this event is considered minimal. The plant is designed for this type of transient and responded as designed. Technical specification limits were maintained. There was no radioactive release, nor any effect on the health and safety of the public. Off-site power was available throughout the event. Operator response was appropriate.

**LICENSEE EVENT REPORT (LER)**

FACILITY NAME (1)	DOCKET (2)	LER NUMBER (6)			PAGE (3)	
Oyster Creek, Unit 1	05000 219	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	4 OF 4	
		2003	- 003	- 00		

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

**CORRECTIVE ACTIONS**

Evaluated generator-related electrical components for damage from the transient and determined no repair was needed.

Investigated the problem with the reactor mode switch and determined the locking mechanism was operating properly and no repair was needed.

Training on Mode Switch operating technique will be provided to Operations personnel.

**SIMILAR EVENTS**

LER 1992-005, Reactor Scram & Engineered Safety Features Actuation caused by Offsite Fire

LER 1994-007, Reactor Scram due to Personnel Error while Performing Switchyard Work