

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

10 CFR 50.73

September 19, 2003  
2130-03-20244

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 2002-003-01: Insufficient Appendix R Electrical Separation due to Sand Void

Enclosed is Licensee Event Report 2002-003, Revision 1. 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 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. 02083

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)

**Insufficient Appendix R Electrical Separation due to Sand Void**

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	
10	10	2002	2002	- 003 - 01		09	19	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)			X	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)
0			20.2203(a)(1)			50.36(c)(1)(i)(A)				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
			20.2203(a)(2)(iii)			50.46(a)(3)(ii)				50.73(a)(2)(v)(C)	Specify in Abstract below or in NRC Form 366A
			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)(iii)(A)				50.73(a)(2)(viii)(B)	

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

NAME

William Stewart

TELEPHONE NUMBER (Include Area Code)

609.971.4775

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

**SUPPLEMENTAL REPORT EXPECTED (14)**

YES (If yes, complete EXPECTED SUBMISSION DATE).

X NO

EXPECTED SUBMISSION DATE (15)

MONTH DAY YEAR

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

While performing a cable pulling evolution, it was noticed that a void existed beneath a portion of the two 480 VAC switchgear rooms. This void created an open area between two 4160 VAC feeder conduits. Because of the void, Appendix R electrical separation criteria were no longer met. Apparently, sand may not have completely filled the area and/or had settled over time, thus causing this void beneath the A and B 480 VAC switchgear rooms.

The safety significance of this discovery is minimal, as there is no combustible material in the void. Both cables are contained in conduit and have sufficient Class 1E electrical separation.

Immediately upon discovery, a continuous fire watch was stationed. Additional actions were subsequently taken to open communication between the void and adjacent area smoke detectors. This would provide early warning of a degraded condition. A three-hour rated fire barrier will be installed between or around the two 4160 VAC feeder conduits to meet Appendix R requirements

**LICENSEE EVENT REPORT (LER)**

FACILITY NAME (1)	DOCKET (2)	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
Oyster Creek, Unit 1	05000 0219	2002	- 003	- 01	2	OF 4

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

**DATE OF DISCOVERY**

This event was discovered on October 10, 2002, at 5:59 PM.

**IDENTIFICATION OF OCCURRENCE**

While performing a cable pulling evolution, it was noticed that a void existed beneath a portion of the two 480 VAC switchgear rooms. This void created an open area between two 4160 VAC feeder conduits to Unit Sub Stations (USS) 1A2 and 1B2. This discovery was considered reportable under 10 CFR 50.73(a)(2)(ii).

**CONDITIONS PRIOR TO DISCOVERY**

At the time of discovery, the plant was in cold shutdown for refueling. However, it is not known when the void formed and it has been concluded that it existed during all modes of plant operation.

**DESCRIPTION OF OCCURRENCE**

During replacement of the 4160 VAC feeder cable to transformers in the 480 VAC A switchgear room, it was discovered that an opening existed around the conduit that penetrated the floor. This opening had previously been sealed with M-board and Kaowool and had been broken during the cable replacement project. Upon examination to determine a repair for the floor seal, an open underground void was discovered (approximately four feet deep, three feet wide, and 50 feet long) in the area between the Reactor and Turbine Building walls. This void affected the Appendix R fire separation of the 4160 VAC feeder cables. With this area open, the 4160 VAC feeder cables to USS 1A2 and 1B2 were not sufficiently separated from each other under the floor area. These cables were routed in separate conduits. And the conduits were separated horizontally by approximately ten feet. Without the sand in place, the separation of these redundant cables failed to meet Appendix R Section III.G.2 requirements (provide a three hour fire barrier; or provide a one hour barrier with automatic suppression and detection; or provide 20 ft separation with no intervening combustibles with automatic suppression and detection).

As the cables are both enclosed in rigid steel conduit, they do meet class 1E electrical separation criteria as required by Installation Specification SP-9000-41-005.

**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
		2002	- 003	- 01	

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

**APPARENT CAUSE**

The apparent cause of this discovery is that sand may not have completely filled the area and/or had settled over time, thus opening this void beneath the A and B 480 VAC switchgear room floors.

**ANALYSIS OF OCCURRENCE AND SAFETY ASSESSMENT**

This discovery has minimal safety significance for Appendix R scenarios. The only combustible material within the void is in the cables in the conduits. A fire in either conduit would not propagate to the other conduit. Additionally, the rooms where the conduits terminate have detection systems, which would alert operators to any fire. The most likely source of fire exposure to these cables is from the 480 v room(s) directly above the void. These rooms are provided with automatic fire suppression and detection, making it unlikely that a fire of sufficient magnitude would develop capable of affecting the cables. Any combustible attempting to enter the void would have to originate from an area, which also has detection capability, again alerting operators to the fire.

This discovery has no impact on the safety significance for non-Appendix R scenarios. This discovery does not affect the Class 1E operability of the 4160 VAC feeder cables to USS 1A2 & 1B2 as the Class 1E separation criteria is maintained and would be fully operable during a non-Appendix R scenario.

**CORRECTIVE ACTIONS**

**Immediate Corrective Actions**

1. A continuous fire watch was stationed.
2. A rated fire seal was installed at the floor penetration of both A and B transformers where feeder cables enter, to prevent a fire in either 480 VAC room from propagating into the void area.
3. Holes were drilled in hallway floor plate above the void to allow any potential smoke to communicate with hallway area smoke detectors.
4. Potential seismic issues were reviewed and found not to be an issue.
5. Extent review was performed for possible other cases where below grade conduits are required to be covered for Appendix R separation criteria, no other concerns were discovered.

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FACILITY NAME (1)	DOCKET (2)	LER NUMBER (6)			PAGE (3)	
Oyster Creek, Unit 1	05000 219	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	4 OF 4	
		2002	- 003	- 01		

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

**Short term corrective actions**

1. A supporting Operability Documentation review was completed prior to plant start-up from the 1R19 refueling outage.
2. The Fire Brigade received additional instructions on this discovery. The Fire Brigade Pre-Fire Information Plan was updated for a fire in this area.
3. Tools, additional fire extinguishers, and a cellar nozzle were stationed for use in the unlikely event of a fire in the void area.

**Long term corrective actions**

A three-hour rated fire barrier will be installed between or around the two 4160 VAC feeder conduits to USS 1A2 and 1B2 to meet Appendix R, Section III.G.2 requirements. This installation is expected to be completed by April 30, 2004.

**SIMILAR EVENTS**

None.