

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

10 CFR 50.73(a)(2)(i)

January 7, 2002  
2130-01-20264

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

Subject: Oyster Creek Nuclear Generating Station  
Docket No. 50-219  
Licensee Event Report 01-001  
Reactor Shutdown Completion Required by Technical Specifications

Enclosed is Licensee Event Report LER 01-001. This event did not affect the health and safety of the public.

If any additional information or assistance is required, please contact Mr. John Rogers of my staff at 609.971.4893.

Very truly yours,



Ron J. DeGregorio  
Vice President, Oyster Creek

RJD/JJR

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

IE 22

Rec'd  
01/31/02

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.

# LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Oyster Creek Unit 1		DOCKET NUMBER (2) 05000 - 219	PAGE (3) 1 of 4
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TITLE (4)  
Completion of Reactor Shutdown Required by Technical Specifications

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
11	12	01	01	-- 01	-- 00					05000
									FACILITY NAME	DOCKET NUMBER
										05000

  

OPERATING MODE (10)	N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)								
POWER LEVEL (10)	100	20.2201(b)	20.2203(a)(2)(v)	<input checked="" type="checkbox"/>	50.73(a)(2)(i)	50.73(a)(2)(viii)				
		20.2203(a)(1)	20.2203(a)(3)(i)		50.73(a)(2)(ii)	50.73(a)(2)(x)				
		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				
		20.2203(a)(2)(iii)	50.36(c)(1)		50.73(a)(2)(v)					
		20.2203(a)(2)(iv)	50.36(c)(2)		50.73(a)(2)(vii)					

LICENSEE CONTACT FOR THIS LER (12)

NAME John Rogers	TELEPHONE NUMBER (Include Area Code) 609.971.4893
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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 NPRDS
B	ED	LAR	Anaconda	Y					

SUPPLEMENTAL REPORT EXPECTED (14)

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

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

On November 11, 2001, a 4160 VAC cable failure de-energized the 1B2 Unit Substation of the 480 VAC system. Due to the equipment which was declared inoperable, it was determined that a reactor shutdown would be required. On November 12, 2001, at 3:33 am, the reactor was placed in the COLD SHUTDOWN CONDITION.

The cause of the cable failure was determined to be a localized insulation weakness aggravated by water intrusion into the cable conduit.

The safety significance of this occurrence was determined to be minimal. Although the 1B2 Unit Substation of the 480 VAC system was lost, the redundant electrical division remained fully operable at all times. At no time during this event did a functional failure of any safety system occur. The plant remained within Technical Specifications limits at all times, and achieved a COLD SHUTDOWN CONDITION within the allowed time limits.

The failed portion of the cable was replaced, the plant was restarted and resumed POWER OPERATION. Long term actions include evaluating a new design cable and possible rerouting of the cable run.

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

**DATE OF OCCURRENCE**

The condition described in this report occurred on November 12, 2001.

**IDENTIFICATION OF OCCURRENCE**

A 4160 VAC cable failure on November 11, 2001, de-energized the 1B2 Unit Substation of the 480 VAC system. This resulted in the requirement to isolate the Reactor Building Closed Cooling Water System containment penetrations. POWER OPERATION cannot continue with these valves closed. A normal reactor shutdown was commenced which was completed when the reactor was placed in the COLD SHUTDOWN CONDITION on November 12, 2001.

**CONDITIONS PRIOR TO DISCOVERY**

The plant was operating at approximately 100% power, with all reactor plant pressures and temperatures normal for full power operations.

**DESCRIPTION OF OCCURRENCE**

On Sunday, November 11, 2001, at 06:10 AM, power was lost to the 1B2 Unit Substation of the 480 VAC system (EIIS - EC). It was determined that the loss of 480VAC power was the supply breaker (EIIC - 52) from the 4160 VAC system (EIIS - EA) tripping open due to a ground fault. The 1B2 Unit Substation was declared inoperable. The loss of power to containment penetration isolation valves for the Reactor Building Closed Cooling Water System (EIIS - CC) rendered the isolation valves inoperable. Therefore, this inoperability required the isolation of the Reactor Building Closed Cooling Water System penetrations. POWER OPERATION can not continue with these penetrations isolated. At 6:10 AM, a four hour Technical Specification Limiting Condition for Operation was entered to allow for diagnostic evaluation.

Since power could not be restored in the four hour time frame allowing the penetration to remain open, at 9:36 AM a normal reactor shutdown was commenced, to be completed within 24 hours in accordance with Technical Specification 3.5.A.3.a.(2). It was subsequently determined that the ground fault was due to a faulted cable (EIIC - LAR) in an underground conduit (EIIC - CND) between the 1D 4160 VAC bus (EIIC - PL) and the 4160/480 VAC stepdown transformer (XFMR) at the 1B2 480VAC unit substation.

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**DESCRIPTION OF OCCURRENCE (Cont.)**

Additionally, the following trains in Safety Related Systems were declared inoperable: Standby Gas Treatment System 2; 480 VAC Substation 1B2 and Vital Motor Control Center 1B2; B 125 VDC Bus; Containment Spray System 2; B Hydrogen Monitor; A Isolation Condenser (due to no operable DC isolation valves); and Torus Wide Range Level Indicator.

During the normal reactor shutdown, on November 11, 2001, the voltage on the B 125 VDC bus decreased to the point that motor operated valve (EIIC - 20) operability and DC control power (EIS - EJ) to the plant approached operational limits. At 3:03 PM, a manual reactor scram was inserted, placing the plant in a SHUTDOWN CONDITION. At 10:05 PM, the cross tie between the A and B 480 VAC systems was closed, restoring power to the 1B2 Unit Substation loads, except for the B 125 VDC Battery Charger. The 1B2 480 VAC loads became fully functional, but remained inoperable due to the abnormal power supply. The normal reactor shutdown continued. The B 125 VDC Battery Charger was re-energized at 11:17 PM.

The shutdown was completed when the reactor was placed in the COLD SHUTDOWN CONDITION on Monday November 12, 2001, at 3:33 AM. At no time during this occurrence did any safety system functional failure occur.

**FAILURE DATA**

Cable - Anaconda Unishield; 5KV rated.

**APPARENT CAUSE**

The reactor shutdown was completed to satisfy the Technical Specification requirements for equipment declared inoperable due to the loss of power to the 1B2 Unit Substation in the 480 VAC system. The cause of the loss of power was a faulted 4160 VAC cable supplying the 1B2 Unit Substation. The faulted cable was removed and analyzed. It was determined that a localized weakness of the insulation due to delamination of the jacket caused the cable to fail. This weakness was aggravated by water intrusion into the underground conduit containing the cable, subsequent cable drying, and corona degradation of the insulation.

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**ANALYSIS OF OCCURRENCE AND SAFETY ASSESSMENT**

The safety significance of this occurrence was minimal. Although the 1B2 Unit Substation of the 480 VAC system was lost, the redundant electrical division remained fully operable at all times. At no time during this event did any functional failure of a safety system occur. The plant remained within Technical Specifications limits at all times, and achieved a COLD SHUTDOWN CONDITION within the allowed time limits. There was no radioactive release, nor was there any effect on the health and safety of the public.

**CORRECTIVE ACTIONS**

**Immediate Corrective Actions**

Immediately upon the completion of the reactor shutdown, the Maintenance organization began cable replacement activities, while the Engineering organization commenced the root cause analysis.

The cause of the cable failure was determined to be a localized weakness in the cable which was aggravated by the presence of moisture intrusion. The cable was replaced with a Cablec cable. Cables similar to the one that failed were tested. No additional concerns were noted.

After appropriate repairs and replacements were made, the 480 VAC system was restored to the normal split plant lineup on November 17, 2001. The loads which had been declared inoperable due to the cable failure were restored to full operability. The reactor plant was restarted on November 18, 2001, and commenced providing power to the grid on November 19, 2001.

**Long Term Actions**

New style cables are being evaluated which could take advantage of modern manufacturing and extrusion processes and potentially be used to replace the existing cables. Additionally, the possibility of re-routing the cables using above ground cable trays is being considered.