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

10 CFR 50.73

July 17, 2003  
2130-03-20173

U. S. 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 2003-002-00: Completion of Reactor Shutdown  
Required by Tech Specs due to Cable Fault

Enclosed is Licensee Event Report 2003-002-00. 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 William Stewart at  
(609) 971-4775.

Sincerely,



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

EJH/WVS  
Enclosure - LER 2003-002-00

cc: H. J. Miller, Administrator, USNRC Region I  
P. S. Tam, USNRC Senior Project Manager, Oyster Creek  
R. J. Summers, USNRC Senior Resident Inspector, Oyster Creek  
File No. 03067

IEU

<b>NRC FORM 366</b> (7-2001)			<b>U.S. NUCLEAR REGULATORY COMMISSION</b>			<b>APPROVED BY OMB NO. 3150-0104</b> <small>Estimated burden per response to comply with this mandatory information collection request: 60 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.</small>			<b>EXPIRES 7-31-2004</b>		
<b>LICENSEE EVENT REPORT (LER)</b> <small>(See reverse for required number of digits/characters for each block)</small>											
<b>1. FACILITY NAME</b> Oyster Creek Unit 1						<b>2. DOCKET NUMBER</b> 05000 219			<b>3. PAGE</b> 1 OF 3		
<b>4. TITLE</b> Completion of reactor Shutdown Required by Tech Specs due to a Cable Fault											
<b>5. EVENT DATE</b>			<b>6. LER NUMBER</b>			<b>7. REPORT DATE</b>			<b>8. OTHER FACILITIES INVOLVED</b>		
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MO	DAY	YEAR	FACILITY NAME	DOCKET NUMBER	
05	20	2003	03	002	00	7	17	03	FACILITY NAME	DOCKET NUMBER	
										05000	
										05000	
<b>9. OPERATING MODE</b>		N		<b>11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)</b>							
<b>10. POWER LEVEL</b>		100		20.2201(b)		20.2203(a)(3)(ii)		50.73(a)(2)(ii)(B)		50.73(a)(2)(x)(A)	
				20.2201(d)		20.2203(a)(4)		50.73(a)(2)(iii)		50.73(a)(2)(x)	
				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)		<b>OTHER</b> 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)			
<b>12. LICENSEE CONTACT FOR THIS LER</b>											
<b>NAME</b> William V. Stewart								<b>TELEPHONE NUMBER (Include Area Code)</b> (609) 971-4775			
<b>13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT</b>											
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX		
B	EB	CBL5	Anaconda	Y							
<b>14. SUPPLEMENTAL REPORT EXPECTED</b>					<b>15. EXPECTED SUBMISSION DATE</b>		MONTH	DAY	YEAR		
YES (If yes, complete EXPECTED SUBMISSION DATE)					NO						
<b>16. ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)</b>  <p>On May 20, 2003, at 0030 hours, 4160 VAC bus 1C locked out due to a ground fault. The plant continued operating at full power. Due to the equipment made inoperable by the loss of power to bus 1C, Technical Specifications required the reactor to be placed in the COLD SHUTDOWN CONDITION. The reactor was manually scrammed at 0943 hours. The COLD SHUTDOWN CONDITION was reached at 1913 hours.</p> <p>The safety significance of this event is considered minimal. The redundant 4160 VAC bus remained in service and redundant safety-related equipment remained operable. The plant remained within Technical Specification limits and achieved SHUTDOWN and COLD SHUTDOWN within the allowed time limits.</p> <p>Previous experience has shown this type of cable is subject to accelerated degradation from water at the site of any defects in the insulation. All cables in this run were replaced with cables of a different manufacture. Corrective action included confirming that all buried cable powering safety-related equipment was not of the type that failed.</p>											

## LICENSEE EVENT REPORT (LER)

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		2003	-- 002	-- 00	

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

## DATE OF OCCURRENCE

This event occurred on May 20, 2003

## IDENTIFICATION OF OCCURRENCE

An electrical fault on an underground cable (EIS Component CBL5) between the output breaker of Diesel Generator 1 (EIS Code DG) and the 4160 VAC (Volts Alternating Current) bus 1C (EIS Component BU) caused bus 1C to lockout. Power to Safety Related equipment fed from bus 1C was unavailable. Technical Specifications required the plant to be placed in the cold shutdown condition. Completion of the shutdown is reportable under 10 CFR 50.73(a)(2)(i)(A).

## CONDITIONS PRIOR TO OCCURRENCE

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 May 20, 2003, at 0030 hours, power to the 4160 VAC bus 1C was lost when breaker 1C tripped and locked out due to a ground fault. Lockout of the faulted bus prevented Diesel Generator 1 from starting and re-energizing bus 1C. The loss of power to bus 1C de-energized one division of safety-related equipment, including Reactor Protection System 1, Core Spray Main and Booster Pumps A and D, Containment Spray and Emergency Service Water pumps A and B, Standby Gas Treatment System 1, and related equipment. The other division of safety-related equipment was powered from bus 1D which remained energized and operable. The loss of power to Reactor Protection System 1 caused a half-scam. No other safety systems were required to actuate and no spurious actuations occurred.

After the bus fault, the plant remained at full power with normal operating reactor temperature, pressure, and water level. The loss of power to bus 1C caused entry into several Limiting Conditions for Operation, the most limiting of which was to be in the SHUTDOWN CONDITION within 12-hours due to loss of ability to monitor Primary Containment Identified and Unidentified Leak Rates. After making preparations, reactor power was reduced and a planned reactor scram was manually initiated at 0943 hours. At 1134 hours, the Unit Substation providing power to safety-related equipment was re-energized from the other division.

The next most limiting LCO was to be in the COLD SHUTDOWN CONDITION within 24 hours due to inoperability of various primary containment isolation valves. Plant cooldown was begun at 0954 hours and the COLD SHUTDOWN CONDITION was reached at 1913 hours. At 2040 hours, the Unit Substation providing power to loads in the Turbine Building was re-energized from the other division. At 0411 hours on May 21, 2003, the remaining Unit Substation was re-energized from the other division.

## APPARENT CAUSE

The reactor shutdown was completed to satisfy Technical Specification Limiting Conditions for Operation due to the equipment made inoperable by the loss of power to 4160 VAC bus 1C. The loss of power was caused by an electrical fault on bus 1C, specifically in a power feeder cable between the output breaker of Diesel Generator 1 and 4160 VAC bus 1C. The cable was a shielded power cable, type MV90, manufactured by Anaconda circa 1977 with ethylene propylene insulation and chlorinated polyethylene jacket. Previous experience with this type of cable has been that the manufacturing process had a potential for insulation defects and the presence of water accelerated cable degradation at any defect in the insulation.

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## ANALYSIS OF OCCURRENCE AND SAFETY ASSESSMENT

The safety significance of this event is considered minimal. Power remained available to the redundant trains of safety-related equipment from 4160 VAC bus 1D. The plant remained within Technical Specification limits at all times. The SHUTDOWN and COLD SHUTDOWN conditions were achieved within the allowed time limits. There was no radioactive release, nor any effect on the health and safety of the public.

## CORRECTIVE ACTIONS

## Immediate Actions

The plant was stabilized, brought to a shutdown condition as required by Technical Specifications, and placed in the cold shutdown condition as required by Technical Specifications.

## Short Term

Cables between Diesel Generator 1 and bus 1C were replaced with cables of a different manufacture prior to startup.

The faulted section of the cable was recovered and sent to a laboratory for analysis.

An Extent of Condition review was completed. The review found that a Root Cause Analysis after a similar cable fault in 2001 had incorrectly identified the cable type installed in this run. Therefore, the review was expanded to include physical verification that the type of cable installed between Diesel Generator 2 and bus 1D was not the same type that failed and confirmation that all of the buried cable powering safety-related equipment was not the same type that failed.

## SIMILAR EVENTS

LER 1996-009 Actuation of Engineered Safety Features Caused by A Loss of Power due to a Cable Fault  
LER 2001-001, Completion of Reactor Shutdown Required by Technical Specifications