



Public Service Electric and Gas Company P.O. Box L Hancocks Bridge, New Jersey 08038  
Hope Creek Operations

June 24, 1988

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

Dear Sir:

HOPE CREEK GENERATING STATION  
DOCKET NO. 50-354  
UNIT NO. 1  
SPECIAL REPORT 88-001-01

This revised Special Report is being submitted pursuant to  
the requirements of Technical Specification 4.8.1.1.3.

Sincerely,

A handwritten signature in black ink, appearing to read "S. LaBruna".

S. LaBruna  
General Manager -  
Hope Creek Operations

AME:

Attachment

C Distribution

8807010162 880624  
PDR ADOCK 05000354  
S DCD

The Energy People

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## LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)										DOCKET NUMBER (2)			PAGE (3)		
Hope Creek Generating Station										0 5 0 0 0 3 5 4			1 OF 0 16		
TITLE (4) Invalid Failure to Start of "A" Emergency Diesel Generator Caused by Misconfigured Part Received From Vendor - Special Report 88-001															
EVENT DATE (6)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)						
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES			DOCKET NUMBER(S)			
0	1	2	6	8	8	0	6	2	4	8	8	0	5	0 0 0	
OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)													
1		20.406(a)		20.406(c)		50.73(a)(2)(iv)		73.71(b)							
POWER LEVEL (10)		20.406(a)(1)(ii)		50.36(a)(1)		50.73(a)(2)(v)		73.71(c)							
1 0 0		20.406(a)(1)(iii)		50.36(a)(2)		50.73(a)(2)(vi)		X OTHER (Specify in Abstract Below and in Text, NRC Form 368A)							
		20.406(a)(1)(iv)		50.73(a)(2)(i)		50.73(a)(2)(vii)(A)									
		20.406(a)(1)(v)		50.73(a)(2)(ii)		50.73(a)(2)(viii)(B)									
		20.406(a)(1)(vi)		50.73(a)(2)(iii)		50.73(a)(2)(x)									
SPECIAL REPORT 88-001-01															
LICENSEE CONTACT FOR THIS LER (12)															
NAME										TELEPHONE NUMBER					
A. M. Ervin, Lead Engineer - Technical										AREA CODE	6 0 9 3 3 9 1 - 5 2 3 1 9				
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)															
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS					
SUPPLEMENTAL REPORT EXPECTED (14)										EXPECTED SUBMISSION DATE (15)					
<input checked="" type="checkbox"/> YES // <input type="checkbox"/> NO										MONTH	DAY	YEAR			
ABSTRACT (Limit to 1,400 characters, 1400 characters remaining) On January 26, 1988 at 2003, the "A" Emergency Diesel Generator experienced an invalid failure to start during a post-maintenance retest to return the EDG to operability. At the onset of the operability run, the diesel engine started as expected, but the generator failed to flash and thus was incapable of being loaded. The EDG was secured, and troubleshooting commenced to determine the source of the problem. During the course of the day shift on 1/27/88, it was determined that a jumper wire was missing in the voltage regulator AC shutdown contactor. The contactor had been replaced at the direction of the EDG vendor during the previously described scheduled maintenance due to a previously identified problem with the contactor latching mechanism. Investigation of this incident determined that the primary cause of this event was the installation of a vendor-supplied spare part (contactor) that was wired differently than the original part. Immediate corrective actions included the replacement of the missing jumper wire in the contactor, visually inspecting all other similar spare contactors in the storeroom to ensure proper electrical configuration or to document the lack thereof, and notifying other utilities with similar contactors that a potential problem existed. Longer term corrective actions included requesting that the contactor vendor investigate the source of the missing jumper wire and report the findings of such investigation to PSE&G.															

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104  
EXPIRES 8/31/85

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (3)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
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TEXT / If more space is required, use additional NRC Form 368A's (17).

PLANT AND SYSTEM IDENTIFICATION

General Electric - Boiling Water Reactor (BWR/4)  
Emergency Diesel Generators (EIIS Designation: EK)

IDENTIFICATION OF OCCURRENCE

Invalid Failure To Start Of "A" Emergency Diesel Generator  
Caused By Misconfigured Part Received From Vendor - Special  
Report 88-001

Event Date: 01/26/88

Event Time: 2003

This Special Report was initiated by Incident Report No.  
88-010

CONDITIONS PRIOR TO OCCURRENCE

Plant in OPERATIONAL CONDITION 1 (Power Operation), Reactor  
Power 100%, Unit Load 1110 MWe.

DESCRIPTION OF OCCURRENCE

On January 26, 1988 at 2003 the Operations Department attempted to start the "A" Emergency Diesel Generator (EDG) as part of the monthly operability surveillance test following scheduled EDG maintenance. As expected, the diesel engine started, but the generator failed to flash and thus was incapable of being loaded. The EDG was secured, and troubleshooting commenced to determine the source of the problem. During the course of the day shift on 1/27/88, it was determined that a required jumper wire was missing from the voltage regulator AC shutdown contactor (the contactor had been replaced at the direction of the vendor during the previously described scheduled maintenance due to a problem with the contactor latching mechanism). The required jumper wire was placed in the contactor, and the EDG was subsequently run and loaded successfully. The EDG was declared operable on 1/27/88 at approximately 1000.

APPARENT CAUSE OF OCCURRENCE

The EDG vendor shipped a part that was not electrically configured consistent with the original part, even though the vendor supplied a Certificate of Conformance for the purchase order stating that the part was an equivalent replacement.

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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APPROVED OMB NO 3150-0104  
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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
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TEXT (If more space is required, use additional NRC Form 388A's) (17)

ANALYSIS OF OCCURRENCE

A system outage for "A" EDG was scheduled to commence on 1/24/88. One of the workorders to be completed during the system outage dealt with swapping out the AC shutdown contactors due to a potential problem that had been previously identified by the EDG vendor.

When the contactors were actually swapped, the electrician performing the job visually compared the internal wiring of the old and new contactors. The electrician noted that the wiring internal to both contactors appeared the same (all wires were red and appeared to be connected to the same points), and felt that if there was any discrepancy or problem, the component functional test of the contactor would reveal the problems. After completing the swap, the component functional test, as stated on the workorder, was performed satisfactorily and the workorder was turned over to Operations Department. The final retest for completing the maintenance outage consisted of performing the monthly EDG operability surveillance procedure prior to declaring the EDG operable.

At 2003, an attempt was made to start "A" EDG. When the diesel engine was started, it came up to speed within the required time, but did not come up to the required voltage. The field failed to flash, and as such, was classified as an invalid failure to start and an incident report was initiated.

Following the failure, troubleshooting of the EDG commenced. After extensive investigation, a jumper was determined to be missing from the newly installed shutdown contactor. The missing jumper was removed from the old contactor, installed in the new contactor, and "A" EDG monthly surveillance was completed in a satisfactory manner.

At the time that the missing jumper wire was discovered, it appeared that the new contactor shipped from the vendor was missing the jumper when it was received by the procurement department. Two other contactors, shipped under the same purchase order but still in the storeroom, were checked. These contactors were also missing the jumper wire. The ensuing investigation focused on concerns associated with the manufacturing history of the potentially defective contactors.

On 1/29/87, the EDG vendor notified Hope Creek of a potential problem with the AC shutdown contactors for all of the stations EDGs. It was agreed that the vendor would forward

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (3)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
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TEXT / If more space is required, use additional NRC Form 366A(s) (17).

ANALYSIS OF OCCURRENCE, CONT'D

HCGS 4 new contactors, and that when the old contactors were replaced, they would be returned to the vendor for refurbishment. This was noted in the NRC Resident Inspectors Report # 50-354/87-11 (4/14/ to 5/11/87).

On 10/20/87, the new contactors were received, and all paperwork was deemed to be in order. A Certificate of Conformance accompanied the order stating that the new contactors met "the requirements of the ... order and are equivalent to those originally supplied...". It appears, in retrospect, that the parts (contactors) were not equivalent. The vendor is currently investigating the manufacturing and procurement history of the contactors to determine where the responsibility for this deficiency lies (it should be noted that the contactors are merely supplied to the EDG vendor through a network of sub-suppliers).

During the course of investigating this incident, it was determined that some "missed opportunities" for discovering the misconfigured contactor existed prior to the EDG operability run. A closer visual verification of the contactor wiring by the personnel performing the swapout and more comprehensive component functional test requirements of the contactor might have aided in discovering the missing wire prior to the operability run. The corrective actions to address these "missed opportunities" will be addressed internally by the station as these items had no impact on the root cause of this incident.

This incident had no potential for impact on the safe operation of the station, as the EDG could not have been returned to an operable status with the contactor wired as supplied. The unsuccessful attempt to perform an operability run of the EDG following the previously described maintenance outage demonstrated this fact.

The circumstances surrounding this event were reviewed to determine if any previous problems of a similar nature had occurred (receipt of a part, in any system, that was discovered inconsistent with the originally supplied part). No previous instances were noted.

This Special Report is being submitted IAW the requirements of Technical Specification 4.8.1.1.3 and Regulatory Guide 1.108.

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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APPROVED OMB NO. 3150-0104

EXPIRES 8/31/85

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (8)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
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TEXT (If more space is required, use additional NRC Form 366A's.) (17)

CORRECTIVE ACTIONS

1. The subject AC shutdown contactor was reconfigured to be electrically consistent with the original contactor.
2. Spare AC shutdown contactors in the Hope Creek storeroom have been tagged to identify the need for field installing the subject jumper wire prior to installation.
3. A review of the potential 10CFR21 reportability of the AC shutdown contactors was initiated. It was determined that, because the EDG could not have been returned to an operable status with the contactor wired as supplied, this incident did not constitute a 10CFR21 reportable condition.
4. Because an outside vendor has direct control over the component manufacturing process and its sub-suppliers /contractors, specific corrective action cannot be formulated in this regard. PSE&G has requested that the vendor investigate this incident and to identify any other areas of potential concern with respect to spare parts for the Emergency Diesel Generators.
5. Procurement and Material Control has followed-up on the vendor's response, however a satisfactory resolution to the problem has not yet been reached. Efforts to resolve this problem will continue until resolved.
6. A further supplement to this report will be submitted by 10/1/88 detailing the results of the vendors response.
7. As previously discussed, the "missed opportunities" discovered during the investigation of this incident are being addressed internally by the station. Among the items that will be reviewed are the need for more thorough visual inspection during component swapouts, and the need for well defined component functional test requirements, where applicable. These actions will be reviewed with those station personnel who are responsible for specifying test requirements, supervising maintenance activities, and performing maintenance activities.

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APPROVED OMB NO. 3150-0104

EXPIRES 6/31/85

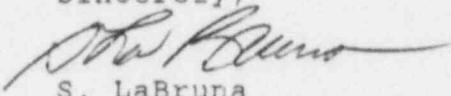
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TEXT (If more space is required, use additional NRC Form 366A 8/17)

CORRECTIVE ACTIONS, CONT'D

8. In correspondence with the vendor, another nuclear facility was identified as a potential recipient of similarly configured contactors. PSE&G has taken action to contact Shoreham Nuclear Station to identify the problems encountered at Hope Creek.

Sincerely,



S. LaBruna  
General Manager-  
Hope Creek Operations

AME: