

## LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Calvert Cliffs, Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 13 11 17	PAGE (3) 1 OF 0 12
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TITLE (4) Excessive Charging Pump Packing Failures
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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 NAMES	DOCKET NUMBER(S)
0 2	2 8	8 4	8 4	0 0 4	0 1	0 4	2 5	8 4		0 5 0 0 0
										0 5 0 0 0

OPERATING MODE (9) 1		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more of the following) (11)									
POWER LEVEL (10) 0 18 18		20.402(b)		20.405(e)	X	50.73(a)(2)(iv)		73.71(b)			
		20.406(a)(1)(i)		50.36(e)(1)	X	50.73(a)(2)(v)		73.71(c)			
		20.406(a)(1)(ii)		50.36(e)(2)	X	50.73(a)(2)(vii)		OTHER (Specify in Abstract below and in Text, NRC Form 306A)			
		20.406(a)(1)(iii)		50.73(a)(2)(i)		50.73(a)(2)(viii)(A)					
		20.406(a)(1)(iv)		50.73(a)(2)(ii)		50.73(a)(2)(viii)(B)					
		20.406(a)(1)(v)		50.73(a)(2)(iii)		50.73(a)(2)(ix)					

LICENSEE CONTACT FOR THIS LER (12)								TELEPHONE NUMBER			
NAME R. T. Jennings/J. J. Napier								AREA CODE 3 0 1 2 6 0 - 4 9 8 4			

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)											
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC	
B	C	B	P	A	4 18 0	Y					

SUPPLEMENTAL REPORT EXPECTED (14)						EXPECTED SUBMISSION DATE (15)		MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)						X NO				

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

During Mode 1 operation at 1025 on February 28, 1984, No. 12 Charging Pump (CB-P) was taken out of service due to excessive packing leakage. At 1840, No. 13 Charging Pump (CB-P) was taken out of service for the same reason and Unit 1 entered the action statement of T.S. 3.1.2.4. Power was reduced to 88% and the unit was manually tripped at 2027 due to the unavailability of spare charging pump packing. No. 11 Charging Pump remained operable throughout the event. No similar events have occurred.

This event was caused by the failure of No. 12 and No. 13 Charging Pump (CB-P) plunger packing and exacerbated by previous packing failures which depleted the stock of packing. Additional packing had been previously ordered and was in shipment at the time of this event.

An evaluation of alternative charging pump packing materials and plunger materials is in progress. The minimum order point for packing material is being increased. A performance specification has been written and will be used for future packing purchases.

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## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104

EXPIRES 8/31/85

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
Calvert Cliffs, Unit 1	0 5 0 0 0 3 1 7	8 4	- 0 0 4	- 0 1 0	2	OF	0 2

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

The packing in use at the time of the event was supplied by J&B Closures Inc. The maintenance history of the Unit 1 charging pumps with J&B packing indicates an average time between failures of 16 days with a maximum variance of +42 and -15 days. During the seven day period prior to this event the J&B packing was experiencing an average time to failure of 4.3 days for both Unit 1 and Unit 2 (Both units use the same packing material.). This failure rate was higher than expected. On the morning of February 27, 1984 (one day prior to the event) arrangements were made to air freight additional packing material to Calvert Cliffs from three different suppliers. The first shipment of expedited material was received on the morning following the event. Packing material supplied by J&B Closures is currently being used in Unit 1 and packing supplied by Utex is being used in Unit 2. An ongoing engineering evaluation is in progress to determine the optimum combination of packing and plunger materials to achieve a long service life. It is believed that an inferior batch of chemical compounds may have been used in the manufacture of the packing materials used immediately prior to this event. The average time to failure from the event to the present has been 10.4 days with a variance of +10 and -5 days.

During Mode 1 operation at 1025 on February 28, 1984, Number 12 Charging Pump (CB-P) was taken out of service due to excessive plunger packing leakage as noted by the Auxiliary Building Operator. Excessive packing leakage is a precursor of packing failure and subsequent degradation of pump performance. At 1840 on February 28, 1984, Number 13 Charging Pump (CB-P) was also taken out of service due to excessive plunger packing leakage and the action statement for Technical Specification 3.1.2.4 was entered. Since additional plunger packing was not available and the plunger packing in Number 11 Charging Pump (CB-P) was suspected to be near the end of its expected service life, based on recent packing performance, a plant shutdown was commenced. Unit 1 was manually tripped from 88% at 2027 on February 28, 1984, to expedite the shutdown. Number 12 Charging Pump was returned to service at 0645 on February 29, 1984. Since Number 11 Charging Pump remained operable, Unit 1 was within the action statement of Technical Specification 3.1.2.4 throughout the event. No similar events have occurred.

The Charging Pumps are Armco Steel Model J0531-M6DF triplex plunger pumps.

Prior to this event Unit 2 was escalating in power with one charging pump out of service. When this event occurred on Unit 1, Unit 2 was held at 30% power until its third charging pump was repacked and returned to service.

An alternative condition of the event could have been that 11 Charging Pump packing failed resulting in no available charging pumps to Unit 1. If this would have occurred it would have been necessary to manually trip the reactor, maintain the reactor coolant system (CBQ) at normal operating temperatures to minimize makeup requirements, isolate letdown flow and depressurize the reactor coolant system to less than 1300 PSIG in order to supply makeup to the reactor coolant system via the use of high pressure safety injection pumps (SFQ-P). To avoid this abnormal operating condition it was deemed prudent to shutdown Unit 1 and ensure Unit 2 had three fully operable charging pumps prior to increasing Unit 2 power level above 30 percent.

BALTIMORE GAS AND ELECTRIC COMPANY

P.O. BOX 1475

BALTIMORE, MARYLAND 21203

NUCLEAR POWER DEPARTMENT  
CALVERT CLIFFS NUCLEAR POWER PLANT  
LUSBY, MARYLAND 20657

April 25, 1984

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

Docket No. 50-317  
License No. DPR 53

Dear Sirs:

The attached revision to LER 84-04/3X is being forwarded to you for your information.

Should you have any questions regarding this report, we would be pleased to discuss them with you.

Very truly yours,

*L B Russell*

L. B. Russell  
Plant Superintendent

LBR:JJN:mst

cc: Dr. Thomas E. Murley  
Director, Office of Management Information  
and Program Control  
Messrs: A. E. Lundvall  
J. A. Tiernan

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