

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)
Calvert Cliffs Unit 1

DOCKET NUMBER (2)

0 5 0 0 0 3 1 1 7 1 OF 0 3

PAGE (3)

TITLE (4)

Reactor Trip Breakers Opened Simultaneously Without Known Cause

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	1	2	7	8	4	8	4	0	0	2	0	0	0	0	0	0	
N/A												0	5	0	0	0	0

OPERATING MODE (9)	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more of the following) (11)														
1	20.402(b)			20.406(e)			X			50.73(a)(2)(iv)			73.71(b)		
POWER LEVEL (10)	11010			20.406(a)(1)(i)			50.36(e)(1)			50.73(a)(2)(v)			73.71(c)		
				20.406(a)(1)(ii)			50.36(e)(2)			50.73(a)(2)(vii)			OTHER (Specify in Abstract below and in Test, NRC Form 366A)		
				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)

NAME
L. E. Salyards, Senior Operational Safety Analyst

TELEPHONE NUMBER

AREA CODE

3 0 1 2 6 9 - 4 9 7 2

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)										
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NFRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NFRDS	

SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO				

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

At 1347 on January 27, 1984, Calvert Cliffs Unit 1 reactor tripped. The root cause of the event is unknown. It appears that all 8 reactor trip breakers opened simultaneously. All safety systems functioned as expected following the event. No input parameters to the reactor protective system had exceeded their trip setpoints just prior to the trip.

The following corrective actions were taken following the trip: 1) a video monitoring system was utilized to monitor the reactor protective system panel for indications of inadvertent actuations or grounds, 2) the power supplies to the matrix relays were verified to function properly, and 3) a detailed system failure evaluation was performed to attempt to identify the cause.

The following corrective actions are planned to attempt to establish the cause and prevent recurrence:

- 1) a modification will be evaluated which will allow monitoring the matrix relays of the reactor protective system for grounds or other faults, and
- 2) an independent system failure evaluation will be performed to verify the results of the original evaluation.

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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 (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
Calvert Cliffs Unit 1	05000317	84	002	00	02	OF	03

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

At 1347 on January 27, 1984, during normal Mode 1 operation, all 8 reactor trip breakers (JC-BKR) opened simultaneously without apparent cause. Following the reactor trip, the operators quickly ascertained that the trip breakers had opened by observing annunciators in the control room, and properly carried out the procedure for reactor trip, Emergency Operating Procedure (EOP) Number 1. All safety systems functioned as expected following the event. No personnel errors occurred during the event.

Post trip reviews verified that no input parameters to the reactor protective system (JC) had exceeded their setpoints immediately prior to the event. Although a surveillance test had been terminated on the reactor protective system matrix relays (JC-94) approximately 30 seconds prior to the event, there was no clear correlation between the reactor trip and the surveillance test. Review of post trip data confirmed that the reactor trip breakers were restored to normal prior to the event.

Following the reactor trip, a non safety-related main feedwater pump (SJ-P) tripped; however, the remaining main feedwater pump and the auxiliary feedwater system (BA) were available throughout the event to provide secondary makeup water for decay heat removal, as necessary. In addition, the motor-driven auxiliary feedwater pump (BA-P) was started automatically following the trip.

Subsequent to the event, at 2125 on January 27, 1984, the reactor trip breakers were response-time tested satisfactorily. A video monitoring system was utilized to monitor the face of the reactor protective system panel for grounds or other faults and inadvertent actuations. A detailed system failure evaluation was performed prior to restart to attempt to identify the root cause of the event. This evaluation did not identify any internal system faults which we believe could have caused the event.

Prior to unit criticality, the surveillance test on the reactor protective system matrix relays was performed twice under plant conditions similar to those before the event. The event was not repeated. No problems were noted during the testing. The power supplies (JC-RJX) to the matrix relays for the reactor protective system were functionally tested by cycling the breakers for the power supplies.

The following actions will be taken to ascertain the cause and/or prevent recurrence:

- 1) a modification will be evaluated which will allow monitoring of the individual matrix relays of the reactor protective system for grounds or other faults, and
- 2) an independent system failure evaluation will be performed to verify the results of the original system failure evaluation. Although we do not expect any additional system failure modes to be identified, we wish to ensure that no potential failure modes were overlooked in the original evaluation.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/85

FACILITY NAME (1) Calvert Cliffs Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 3 1 7 8 4	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
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TEXT (If more space is required, use additional NRC Form 366A's) (17)

Although the event resulted in an apparently unnecessary demand on the reactor trip breakers, the failure mode was conservative in that it caused the reactor trip breakers to open. This failure mode did not prevent the system from performing its design function, i.e., shutting down the reactor. This event would not have been more severe under credible alternative circumstances.

A review of previous reportable events at Calvert Cliffs revealed no similar events where all 8 reactor trip breakers have opened without cause.

The contact for further discussion of this event is L. E. Salyards,
(301) 269-4972.

BALTIMORE GAS AND ELECTRIC COMPANY

P.O. BOX 1475

BALTIMORE, MARYLAND 21203

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

February 15, 1984

Dr. Thomas E. Murley
Regional Administrator
U. S. Nuclear Regulatory Commission
Region 1
631 Park Avenue
King of Prussia, PA 19406

Docket No. 50-317
License No. DPR 53

Dear Dr. Murley:

The attached LER 84-02 is being sent to you as required by
10 CFR 50.73.

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:LES:bsb

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

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