NRC FORM 366 (12-81)

U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT

APPROVED BY OMB 3150-0011 EXPIRES 4-30-82

CONTROL BLOCK: [| | | | |] (1) (PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

Line	Field	Value
01	LICENSEE CODE (2)	M D C C N 2
	LICENSE NUMBER (3)	0 0 - 0 0 0 0 0 - 0 0
	LICENSE TYPE (4)	4 1 1 1 1
	CAT (5)	
CON'T 01	REPORT SOURCE (6)	L
	DOCKET NUMBER (7)	0 5 0 0 0 3 1 8
	EVENT DATE (8)	0 8 0 9 8 3
	REPORT DATE (9)	0 9 0 6 8 3

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)

02 At 1810 following a Reactor Trip a Steam Generator safety valve failed
03 to reseat. At 2230 the valve was gagged shut. The Power Level-High trip
04 was reduced as per T.S. 3.7.1.1.a. The remaining safety valves remained
05 operable during this event. On 12 August the valve had been repaired,
06 tested and returned to service.
07 Similar events: none.
08

09	SYSTEM CODE (11)	CAUSE CODE (12)	CAUSE SUBCODE (13)	COMPONENT CODE (14)	COMP. SUBCODE (15)	VALVE SUBCODE (16)
	C C	E	B	V A L V E X	P	B

(17) LER/RO REPORT NUMBER	EVENT YEAR		SEQUENTIAL REPORT NO.		OCCURRENCE CODE	REPORT TYPE		REVISION NO.
	8 3	—	0 4 3	/	0 3	L	—	0

ACTION TAKEN (18)	FUTURE ACTION (19)	EFFECT ON PLANT (20)	SHUTDOWN METHOD (21)	HOURS (22)	ATTACHMENT SUBMITTED (23)	NPRD-4 FORM SUB. (24)	PRIME COMP. SUPPLIER (25)	COMPONENT MANUFACTURER (26)
A	Z	C	Z	0 0 0 0	Y	N	A	D 2 4 3

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)

10 The valve opened on high pressure and failed to reseat due to a worn
11 locking pin allowing rotation of the blowdown ring. The vendor reports
12 this has been a rare occurence. Steps will be inserted to the technical
13 manual to inspect the locking pins and a periodic inspection of the
14 valves initiated.

15	FACILITY STATUS (28)	% POWER (29)	OTHER STATUS (30)	METHOD OF DISCOVERY (31)	DISCOVERY DESCRIPTION (32)
	G	0 0 0	N/A	A	Operator Observation

16	ACTIVITY RELEASED (33)	CONTENT OF RELEASE (34)	AMOUNT OF ACTIVITY (35)	LOCATION OF RELEASE (36)
	Z	Z	N/A	N/A

17	PERSONNEL EXPOSURES NUMBER (37)	TYPE (38)	DESCRIPTION (39)
	0 0 0	Z	N/A

18	PERSONNEL INJURIES NUMBER (40)	DESCRIPTION (41)
	0 0 0	N/A

19	LOSS OF OR DAMAGE TO FACILITY TYPE (42)	DESCRIPTION (43)
	Z	N/A

8309190306 830906
PDR ADOCK 05000318
S PDR

20	PUBLICITY ISSUED (44)	DESCRIPTION (45)	NRC USE ONLY
	N	N/A	

NAME OF PREPARER R. J. Porter/C. R. Mahon PHONE: 301-269-4747/4867

BALTIMORE GAS AND ELECTRIC COMPANY

P.O. BOX 1475

BALTIMORE, MARYLAND 21203

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

September 6, 1983

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

Docket No. 50-318
License No. DPR 69

Dear Dr. Murley:

Attached is LER 83-43/3L, as required per Technical Specification 6.9.

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

Very truly yours,

L. B. Russell
Plant Superintendent

LBR:CRM:bsb

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

LER NO. 83-43/3L
DOCKET NO. 50-318
LICENSE NO. DPR 69
EVENT DATE 08-09-83
REPORT DATE 09-06-83
ATTACHMENT

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (CONT'D)

On August 9, 1983 at 1810, Calvert Cliffs Unit 2 experienced a sudden pressure excursion and trip due to a problem with the Turbine Throttle and Governor valves. During this excursion, pressure in the Main Steam header reached 1027 PSIA. This exceeded the set pressure of twelve of the Main Steam Safety valves. One valve, 2-MS-3994-RV, did not reseat.

When the operators realized that the valve was partially open and should have reseated, they called in maintenance personnel. They first attempted to further lift the valve, by means of the manual lifting lever, to blow free any foreign matter which might have been trapped between the disc and the seat. This had no apparent effect. The valve was then gagged shut to stop the steam flow, and repair action was initiated. Power Level-High trip setpoint was reduced in accordance with T.S. 3.7.1.1.a. All remaining Main Steam Safeties remained operable during this event.

In operation, the safety valve stays shut as long as the upward force felt due to steam pressure is less than the downward force exerted by the spring. If, however, the steam pressure increases enough to overcome the spring tension, the valve opens. Once the disc has lifted a sufficient distance, a back pressure will be built up under the disc and disc holder due to a flow restriction between the outer edge of the blowdown ring and the disc holder The steam pressure is then effecting a much larger area than before and will cause the valve to stay open until the steam pressure drops to a point somewhat lower than the lift pressure. If the blowdown ring is moved upward, the flow resistance is greater, causing a higher back pressure and a longer blowdown. Conversely, if the ring were moved downward, the restriction becomes less and the valve will close at a higher pressure (closer to the opening setpoint).

In the case of this failure, a vibration had existed between the blowdown ring and its locking pin for some time, causing damage to both parts. Over a period of possibly several years, the end of the pin became flattened to the point where it no longer prevented rotation of the ring. When the ring was allowed to rotate freely, it unscrewed and moved upward toward the seat.

The normal setting of the ring is approximately 0.047 in. below contact with the disc holder. Evidence indicates that the ring, in this case, unscrewed itself during normal operation to the point where it contacted and actually applied pressure to the disc holder. Then, when the valve lifted, the ring further unscrewed to a position approximately 0.140 in. above its original setpoint. In this condition the pressure in the steam header would have had to drop to around 750 PSIG before the valve would try to reseat. Event then it could not have done so, because the ring was still holding the disc holder (and therefore the disc) approximately 0.093 in. off the seating surface. This is the position in which it was found upon disassembly.

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CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (CONT'D)

The valve was disassembled and inspected revealing minimal damage:

(1) small, corresponding nicks in the disc and nozzle (apparently caused by something caught between them), and;

(2) damaged areas on the blowdown ring and its locking pin (evidence of the above described situation).

When a new ring pin is installed it must be ground by hand to the correct length for the ring to which it is being applied. It is likely, judging by the shape of the pin as found on disassembly, that the original shape of the pin was not as good as it could have been. The shape was determined by the machinist performing the valve assembly at the factory.

The damage to the disc and seat was corrected by grinding and lapping both to mirror surfaces. The blowdown ring and the locking pin were both replaced from spares. The valve was returned to service on August 12, 1983.

The vendor reported this problem is a very rare occurence. The vendor technical manual will be changed to note the inspection of the locking pin and a periodic inspection started for the Main Steam Safeties' internals.