

NRC FORM 366
(12-81)U.S. NUCLEAR REGULATORY COMMISSION
LICENSEE EVENT REPORTAPPROVED BY OMB
3150-0011
EXPIRES 4-30-82

CONTROL BLOCK: 1

(PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

01 M D C C N 2 0 0 - 0 0 0 0 0 - 0 0 3 4 1 1 1 1 4 5
7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50
LICENSEE CODE LICENSE NUMBER LICENSE TYPE CAT 5

CON'T

01 REPORT SOURCE L 6 0 5 0 0 0 3 1 8 7 0 8 0 9 8 3 8 0 3 3 0 8 4 9
7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50
DOCKET NUMBER EVENT DATE REPORT DATE

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES 10

02 At 1810 following a Reactor Trip a Steam Generator safety valve failed

03 to reseal. 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 CAUSE CODE CAUSE SUBCODE COMPONENT CODE COMP. SUBCODE VALVE SUBCODE
C C 11 E 12 B 13 V A L V E X 14 P 15 B 16
7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50
EVENT YEAR SEQUENTIAL REPORT NO. OCCURRENCE CODE REPORT TYPE REVISION NO.
8 3 0 4 3 0 3 X 1
17 LER/RO REPORT NUMBER 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50
ACTION TAKEN FUTURE ACTION EFFECT ON PLANT SHUTDOWN METHOD HOURS ATTACHMENT SUBMITTED NPRO-A FORM SUB. PRIME COMP. SUPPLIER COMPONENT MANUFACTURER
A 18 Z 19 C 20 Z 21 0 0 0 0 0 Y 23 N 24 A 25 D 2 4 3 26
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS 27

10 The valve opened on high pressure and failed to reseal due to a worn

11 locking pin allowing rotation of the blowdown ring. The vendor reports

12 this has been a rare occurrence. To prevent future recurrence Preventive

13 Maintenance items have been approved to inspect the valves to ensure the

14 blowdown ring and pin are not worn. No further corrective action required.

15 FACILITY STATUS % POWER OTHER STATUS 30 METHOD OF DISCOVERY DISCOVERY DESCRIPTION 32
G 28 0 0 0 29 N/A A 31 Operator Observation
7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

16 ACTIVITY CONTENT RELEASED OF RELEASE AMOUNT OF ACTIVITY 35 LOCATION OF RELEASE 36
Z 33 Z 34 N/A N/A
7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

17 PERSONNEL EXPOSURES NUMBER TYPE DESCRIPTION 39
0 0 0 37 Z 38 N/A
7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

18 PERSONNEL INJURIES NUMBER DESCRIPTION 41
0 0 0 40 N/A
7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

19 LOSS OF OR DAMAGE TO FACILITY TYPE DESCRIPTION 43
Z 42 N/A
7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

20 PUBLICITY ISSUED DESCRIPTION 45
N 44 N/A
7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

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NRC USE ONLY

NAME OF PREPARER R. J. Porter/C.R. Mahon/W.T. Lyons PHONE: 301-260-4747/4867/4861

LER NO.	83-43/3X
DOCKET NO.	50-318
LICENSE NO.	DPR 69
EVENT DATE	08-09-83
UPDATE REPORT DATE	03-30-84
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 resealed, 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. Even 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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DOCKET NO. 50-318
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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).

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 occurrence. To prevent future recurrence Preventive Maintenance items have been approved to inspect the safety valves and to ensure the blowdown ring and pin are not worn. No further corrective action required.

BALTIMORE GAS AND ELECTRIC COMPANY

P.O. BOX 1475

BALTIMORE, MARYLAND 21203

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

March 30, 1984

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

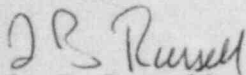
Docket NO. 50-318
License No. DPR-69

Dear Sirs:

The attached supplemental report to LER 83-43/3X, Revision 1, 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
Plant Superintendent


LBR:WTL:mst

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

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