

LICENSEE EVENT REPORT

CONTROL BLOCK: \_\_\_\_\_ (1) (PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

0 1 | P | A | T | M | I | 1 | \_\_\_\_\_ (2) | \_\_\_\_\_ (3) | 4 | 1 | 1 | 1 | 1 | \_\_\_\_\_ (4) | \_\_\_\_\_ (5)  
7 8 9 LICENSEE CODE 14 15 LICENSE NUMBER 25 26 LICENSE TYPE 30 57 CAT 58

CON'T  
0 1 | REPORT SOURCE | L | 6 | 0 | 5 | 0 | 0 | 0 | 2 | 8 | 9 | \_\_\_\_\_ (7) | 0 | 2 | 1 | 1 | 8 | 3 | \_\_\_\_\_ (8) | 0 | 3 | 0 | 7 | 8 | 3 | \_\_\_\_\_ (9)  
7 8 60 61 DOCKET NUMBER 68 69 EVENT DATE 74 75 REPORT DATE 80

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)

0 2 | During long term cold shutdown, the PORV was removed for a special inspection to  
0 3 | ensure that corrosion found in a previously installed PORV had not occurred with  
0 4 | the existing PORV. The pilot valve disc was found stuck open and the main valve  
6 5 | disc was found stuck closed. Additionally, yellow deposits were found on the  
0 6 | valve body inlet (Sulfur). The RCS has been open to atmospheric pressure so no  
0 7 | over pressure protection has been required. Public health and safety remain  
0 8 | unaffected. This is reportable per Tech. Spec. 6.9.2.A.9.  
7 8 9

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

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)

1 0 | Root cause is still under investigation, although damage appears to be related  
1 1 | to sulfur contamination. This LER will be updated when results are received.  
1 2 | Failed parts will be replaced prior to RCS pressurization.  
1 3 |  
1 4 |  
7 8 9

1 5 | FACILITY STATUS | X | \_\_\_\_\_ (28) | % POWER | 0 | 0 | 0 | 0 | \_\_\_\_\_ (29) | OTHER STATUS | NRC Order | \_\_\_\_\_ (30) | METHOD OF DISCOVERY | C | \_\_\_\_\_ (31) | DISCOVERY DESCRIPTION | Special Component Inspection | \_\_\_\_\_ (32)  
7 8 9 10 12 13 44 45 46 80

1 6 | ACTIVITY CONTENT | Z | \_\_\_\_\_ (33) | RELEASED OF RELEASE | Z | \_\_\_\_\_ (34) | AMOUNT OF ACTIVITY | N/A | \_\_\_\_\_ (35) | LOCATION OF RELEASE | N/A | \_\_\_\_\_ (36)  
7 8 9 10 11 44 45 80

1 7 | PERSONNEL EXPOSURES | 0 | 0 | 0 | \_\_\_\_\_ (37) | TYPE | Z | \_\_\_\_\_ (38) | DESCRIPTION | N/A | \_\_\_\_\_ (39)  
7 8 9 11 12 13 80

1 8 | PERSONNEL INJURIES | 0 | 0 | 0 | \_\_\_\_\_ (40) | DESCRIPTION | N/A | \_\_\_\_\_ (41)  
7 8 9 11 12 80

1 9 | LOSS OF OR DAMAGE TO FACILITY | Z | \_\_\_\_\_ (42) | DESCRIPTION | N/A | \_\_\_\_\_ (43)  
7 8 9 10 80

2 0 | PUBLICITY ISSUED | N | \_\_\_\_\_ (44) | DESCRIPTION | N/A | \_\_\_\_\_ (45)  
7 8 9 10 80

## NARRATIVE REPORT

TMI-1

LER 83-003

### I. Current Activities at the Time of Occurrence

TMI-1 was in long term cold shutdown. Special inspection of the PORV (RC-RV2) and PORV Block Valve (RC-V2) was in progress.

### II. Leading Circumstances

In early July, 1981 the PORV, Serial No. BS03989, was installed on the pressurizer. Both PORV and Block Valve operated satisfactorily during HFT in September 1981 in both open and closed directions. During the week of February 7, 1983, this valve was removed for a special inspection to confirm that the corrosion reported to the NRC by LER 82-011 on an equivalent model of this valve was not occurring.

### III. Description of the Occurrence

Removal and initial disassembled inspection of the PORV and Block Valve were completed on February 10, 1983. The pilot disc, pilot disc spring and pilot seat bushing were found corroded such that the pilot disc was stuck in the full open position. The PORV main disc was found corroded and stuck to the guide in the closed position. Additionally, small yellow deposits (later identified as 99% pure elemental state sulfur) were found inside the main valve body at the inlet.

The following is a summary of the as found conditions of the internal parts as is currently known:

- (1) the pilot disc spring and disc spring (Inconel X-750 materials) were corroded.
- (2) The pilot seat bushing (SB-166 material) was corroded and stuck to the pilot disc and pilot disc spring.
- (3) The pilot disc, lower spindle and main disc (AISI 616 stainless steel materials) were corroded.
- (4) The guide (AWS-5387 R-CoCr - A material) was stuck to the main disc.
- (5) The guide retainer plug (13% chrome stainless steel material) was corroded.
- (6) The lock screw and retaining lock screw (304 S.S. materials) showed orange and black discoloration.

#### IV. Significant Resultant Events

None. The plant has been in cold shutdown since the last time this valve was verified to be operable. Also, the RCS has been open to the atmosphere for OTSG repairs and, therefore, overpressure protection has not been required. However, from observation of the corroded parts, it appears that the main valve was in a closed state and the pilot section was in an open state when the corrosion attack occurred. This valve would not have operated properly due to the corrosion problem without remedial action and is, therefore, considered reportable per Technical Specification 6.9.2.A.9. It is noted the Block Valve was found fully capable of performing its isolation function.

#### V. Previous Events of Similar Nature

The PORV Serial No. BL8905 which was removed from service in 1981 exhibited similar corrosion (perhaps a little more severe in some areas). See LER 82-011/99X-0. Decontamination of those corroded parts had removed any chemical evidence which might have indicated the cause of corrosive attack on that valve.

#### VI. Root Cause of Occurrence

The root causes of the corrosion have not, as yet, been determined. The corrosion damage appears to be related to sulfur contamination. Confirmation of the corrosion requires further investigation. There will be a final metallurgical evaluation prepared by April 1983.

#### VII. Immediate Correction Action

- (1) Metallurgical evaluations and failure analysis of PORV internal parts is currently in progress.
- (2) Because the RCS is opened for OTSG tube repairs, no immediate action to provide additional overpressure protective measures was required by Tech. Spec. 3.1.12.

#### VIII. Long Term Corrective Action

- (1) Identify mechanism for the corrosive failure of the affected PORV parts. Laboratory work will confirm this mechanism by 3/31/83.
- (2) Failed PORV parts will be replaced prior to RCS pressurization
- (3) Upon review of the corrosion mechanism and other potentially affected system components, further corrective action will be defined in a followup report.

#### IX. Component Failure Data

Consolidated Electromagnetic Relief valve  
Manufacturer - Dresser Industries  
Valve Type No. 2½ - 31533VX-30  
Serial No. BS03989