| (7-77) | LICENSEE EVENT REPORT |
|-------------------|---|
| • | CONTROL BLOCK: |
| | M A P P S 1 0 <td< td=""></td<> |
| | REPORT L 6 0 5 0 - 0 2 9 3 7 1 0 0 1 8 0 8 1 0 3 1 8 0 9 SOURCE 60 61 DOCKET NUMBER 68 69 EVENT DATE 74 75 REPORT DATE 80 |
| 10121 | EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10) |
| 013 | line high radiation. During the process of reducing plant pressure, the 'D' Relief Valve stuck open causing a complete depressurization of the reactor and requiring a drywell entry to inspect and repair the valve. A Target Rock representative arrived |
| 04 | on site Wednesday, October 1 to assist station personnel in replacing testing, |
| 0 5 | completed Friday, October 3. |
| 06 | lJ |
| 07 | L |
| 0 <u>8</u> 7 8 | 9 SYSTEM CAUSE CAUSE COMP VALVE |
| 09 | CODE CODE SUBCODE COMPONENT CODE SUBCODE SUBCODE SUBCODE $\begin{bmatrix} S & F \\ 9 & 10 \end{bmatrix}$ $\begin{bmatrix} 12 \\ 11 \end{bmatrix}$ $\begin{bmatrix} B \\ 12 \end{bmatrix}$ $\begin{bmatrix} 13 \\ 13 \end{bmatrix}$ $\begin{bmatrix} V \\ A \end{bmatrix}$ $\begin{bmatrix} V \\ 0 \end{bmatrix}$ $\begin{bmatrix} 14 \\ 19 \end{bmatrix}$ $\begin{bmatrix} 15 \\ 2 \\ 20 \end{bmatrix}$ $\begin{bmatrix} Z \\ 16 \end{bmatrix}$ $\begin{bmatrix} 16 \\ 2 \end{bmatrix}$ |
| | Image: Number 1 LER/RO EVENT YEAR SEQUENTIAL REPORT NO. OCCURRENCE CODE REPORT TYPE REVISION NO. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. Image: No. |
| | ACTION FUTURE EFFECT SHUTDOWN HOURS 22 ATTACHMENT NPRD-4 PRIME COMP. COMPONENT TAKEN ACTION ON PLANT METHOD HOURS 22 SUBMITTED FORM SUB. SUPPLIER MANUFACTURER A 18 Z 19 C 20 C 21 0 0 0 V 23 N 24 N 25 T 0 2 0 26 |
| | $\begin{array}{cccccccccccccccccccccccccccccccccccc$ |
| 10 | Investigation indicated that the probable cause of the valve failing was scoring on |
| 11 | the main piston. |
| 12 | Startup commenced and the unit returned to service at 0209 hours Monday October 6. |
| 13 | L] |
| 14 7 B | 9 80 |
| 1 5 | ACILITY & POWER OTHER STATUS 30 METHOD OF DISCOVERY DESCRIPTION 32 X 28 1 0 0 29 NA A A 45 46 Operational Event 30 |
| | CTIVITY CONTENT ELEASED OF RELEASE AMOUNT OF ACTIVITY 35 2 33 2 34 NA LOCATION OF RELEASE 36 NA NA |
| 17 | PERSONNEL EXPOSURES NUMBER TYPE DESCRIPTION (39) 0 0 0 37 Z 38 NA |
| 7 8 | 9 PERSONNEL INJURIES 80 |
| 7 8 | 9 11 12 SO DAMAGE TO FACILITY (2) SO |
| 19 | DESCRIPTION (43) NA NA |
| 20 | PUBLICITY NRC USE ONLY SSUED DESCRIPTION (45) NA 8 0 11060484 |
| 7 8 | Mr. M. Thomas McLoughlin NAME OF PREPARER Mr. M. Thomas McLoughlin BHONE |

BOSTON EDISON COMPANY PILGRIM NUCLEAR POWER STATION DOCKET NO. 50-293

Attachment to LER 80-079/03L-0

Description

On October 1, 1980 subsequent to a reactor scram, Relief Valve 203-3D opened. Repeated attempts at control room switch to energize/deenergize solenoid valve did not effect valve closure. The valve remained in the open position until RPV pressure decreased to 20 psig. Accoustic instrument action installed on each valve indicated that main stage of 'D' valve was open and flowing. Discharge thermocouple further supported that observation.

On October 2, 1980, exhaustive testing of the valve while it was on line, revealed no abnormal conditions. The valve was removed as a complete assembly (less the solenoid assembly which was removed from valve as a subassembly to preclude damage to the solenoid bonnet during handling of the valve assembly). A spare valve assembly and solenoid were installed.

Bench testing, disassembly, and inspection of the solenoid and air operator assemblies revealed the following anomalies.

- A. Air operator assembly leakage was measurable as greater than 0.5 SCFH.
- B. Solenoid assemblies internal '0' ring exhibited slight deterioration adhesion to the mating parts.
- C. Air operator assembly bushing '0' ring seal exhibited deterioration loss of resiliency resulting in loss of effective sealing of air operator "working" volume. '0' ring was soft and difficult to extract in one piece.
- D. The solenoid assembly bonnet tube exhibited evidence of "loctite" contamination at I.D., indication of mating contact area on plunger was noted.
- E. Main guide of main stage internals exhibited two (2) local and side by side indentations or stellite hardfaced 6½ dia. and similar scoring on 0.D. of piston.
- F. Air operator assembly thread seal ('thred seal') rubber insert exhibited brittleness - loss of effective sealing characteristic could not be measured due to condition of bushing oring (comment 'C' above).

Conclusions

A. Tests, disassembly observations, and inspection revealed only one condition that's considered the probable cause of valve failure to close.

The indentation noted on I.D. of guide and scores on O.D. of main piston have similar signatures and may be the result of foreign material becoming lodged (wedged) between the guide and piston rod and possibly holding the main disc/ piston assembly in the partially open position. The suspected foreign material was not discovered during disassembly of the main stage.

- B. Presence of "loctite" contamination on I.D. of solenoid assembly bonnet did not affect solenoid assembly operation for intended design conditions.
- C. Leakage is attributed to deterioration of "o" ring.
 - NOTE: O ring deterioration is suspected to result from application of "castor oil" to "o" ring at time of production.

Embrittlement of thread seal, "thredseal" is considered an acceptable condidtion based on visual observation which indicate an effective seal was present.

D. Deterioration of internal solenoid assembly "o" rings did not affect leak tightness characteristics of solenoid assembly.

Existing procedures and requirements for valve overhaul are considered adequate for refurbishing of worn parts of relief valves.

This is an isolated event.