LICENSEE EVENT REPORT

CONTROL BLOCK: [ ] (1 . 6) (PLEASE PRINT ALL REQUIRED INFORMATION)

LICENSEE NAME	LICENSE NUMBER	LICENSE TYPE	EVENT TYPE
01 ILDRS2 (7 8 9 14)	00-00000-00 (15 25)	4 1 1 1 1 (26 30)	01 (31 32)

CON'T	CATEGORY	REPORT TYPE	REPORT SOURCE	DOCKET NUMBER	EVENT DATE	REPORT DATE
01 (7 8)	[ ] (57 58)	T (59)	L (60)	050-0237 (61 68)	1 1 1 3 7 6 (69 74)	1 1 2 3 7 6 (75 80)

EVENT DESCRIPTION

02 DURING A WEEKEND MAINTENANCE OUTAGE, HPCI INJECTION VALVE MO 2-
03 2301-8 WAS FOUND TO BE IN THE CLOSED POSITION WITH ITS VALVE STEM
04 SEVERED. THE VALVE WAS LAST OBSERVED TO FUNCTION PROPERLY DURING
05 THE PREVIOUS REFUELING OUTAGE. THE VALVE IS LOCATED IN THE "X-AREA,"
06 WHICH IS NOT ROUTINELY ACCESSIBLE DURING OPERATION. FROM THE
(SEE ATTACHED SHEET)

SYSTEM CODE	CAUSE CODE	COMPONENT CODE	PRIME COMPONENT SUPPLIER	COMPONENT MANUFACTURER	VIOLATION
07 SF (7 8 9 10)	E (11)	VALVEX (12 17)	N (43)	C665 (44 47)	N (48)

CAUSE DESCRIPTION

08 THE CAUSE OF THE VALVE STEM FAILURE CANNOT BE DEFINITIVELY ESTABLISHED
09 AT THIS TIME. INSPECTION OF THE VALVE REVEALED THE PRESENCE OF SEV-
10 ERAL INCHES OF WATER IN THE MOTOR OPERATOR, A CONDITION WHICH
(SEE ATTACHED SHEET)

FACILITY STATUS	% POWER	OTHER STATUS	METHOD OF DISCOVERY	DISCOVERY DESCRIPTION
11 G (7 8 9)	000 (10 12)	NA (13 44)	C (45)	DC GROUND ELECTRICAL INSPECTION (46 80)

FORM OF ACTIVITY RELEASED	CONTENT OF RELEASE	AMOUNT OF ACTIVITY	LOCATION OF RELEASE
12 Z (7 8 9)	Z (10)	NA (11 44)	NA (45 80)

PERSONNEL EXPOSURES

NUMBER	TYPE	DESCRIPTION
13 000 (7 8 9 11)	Z (12)	NA (13 80)

PERSONNEL INJURIES

NUMBER	DESCRIPTION
14 000 (7 8 9 11)	NA (12 80)

OFFSITE CONSEQUENCES

15 NA (7 8 9 80)

LOSS OR DAMAGE TO FACILITY

TYPE	DESCRIPTION
16 Z (7 8 9 10)	NA (80)

8304050139 770513
PDR ADOCK 05000237
S PDR

PUBLICITY

17 NA (7 8 9 80)

ADDITIONAL FACTORS

18 NA (7 8 9 80)

19 [ ] (7 8 9 80)

NAME: GREGG REIMERS PHONE: EXT. 265

EVENT DESCRIPTION (Continued)

beginning of this fuel cycle until 10/12/76, the valve was cycled on a monthly basis with proper control room position indication. On 10/12/76, valve 2301-8 was taken out of service in the open position (according to position indication) in order to isolate a 250V DC ground which was present only when the valve was closed. The HPCI pump discharge line was then isolated by closing valve 2301-9. This is not a repetitive occurrence. (50-237/1976-66)

CAUSE DESCRIPTION (Continued)

evidently produced the 250V DC system ground. Condensation from various leaks in the "X-area" apparently entered the valve operator via the control circuitry cable, which was not adequately sealed.

The valve stem failure may have been caused by several factors. The water accumulation found in the valve operator may have caused the operator torque switch contacts to remain energized momentarily after the valve seated, allowing the DC motor operator to compress and deform the valve stem. A design error has been identified in the 2301-8 valve control circuitry which causes the valve to cycle excessively during refueling surveillance testing. This cycling may have fatigued the valve stem after a period of several years. Additionally, it had been determined prior to this failure that the motor operators for valve 2301-8 and several other safety-related valves are oversized for the valve applications. The oversized operators may subject valve stems to higher stresses under conditions such as excessive cycling.

In our judgment, the valve stem failed on 10/12/76, when the valve was racked out in the open position. The valve was cycled at least twice in the course of determining the location of the 250V DC ground, and, had the stem been severed prior to the final complete cycle, the operator torque switch would not have tripped the motor, nor would the valve have subsequently "reopened."

During the month that HPCI was inoperable, the automatic depressurization system (ADS) was available and operable, as were the remaining ECCS subsystems. With the exception of the "B" core spray system, which was unavailable briefly in July, 1976, all other ECCS subsystems were operable during the entire fuel cycle.

Because parts are presently unavailable, valve 2301-8 has been clamped in the open position, and valve 2301-9 is being used to isolate the HPCI pump discharge. Both valves will be visually inspected on a monthly basis until repairs are completed. A modification request has been initiated to replace the motor operators on several safety-related valves with reduced-capacity units. Completion of this modification will preclude valve stem failures caused by oversized motor operators.

A modification request has been submitted to alter the 2301-8 valve control circuitry so as to eliminate excessive cycling during routine surveillance testing. In keeping with sound maintenance practices, steam and water leaks in the "X-area" will continue to be repaired or minimized wherever practicable.

CAUSE DESCRIPTION (Continued)

Additionally, junction boxes and conduits in the "X-area" will be visually inspected for leak-tightness during the next refueling outage.

A section of the damaged valve stem has been forwarded to the company's Operational Analysis Department for evaluation. The results of that evaluation will be submitted in a supplemental report. Modifications and corrective actions which may pertain to Unit-3 will be discussed under separate cover. Valve MO 2-2301-8 is a Crane 14-inch gate valve, equipped with a Limitorque SMB-4 motor operator rated at 200 ft-lb.

Commonwealth Edison
Dresden Nuclear Power Station
R.R. [redacted]
Morris, Illinois 60450
Telephone 815/942-2920

BBS Ltr. #76-822

November 26, 1976

Mr. James G. Keppler, Regional Director
Directorate of Regulatory Operations - Region III
U. S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Enclosed please find Reportable Occurrence report number 50-237/1976-66. This report is being submitted to your office in accordance with the Dresden Nuclear Power Station Technical Specifications, Section 6.6.B.

B. B. Stephenson
Station Superintendent
Dresden Nuclear Power Station

BBS:jo

Enclosure

cc: Director of Inspection & Enforcement
Director of Management Information & Program Control
File/NRC

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