



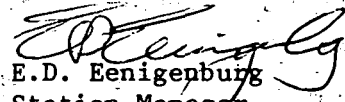
Commonwealth Edison
Dresden Nuclear Power Station
R.R. #1
Morris, Illinois 60450
Telephone 815/942-2920

September 11, 1990

EDE LTR #90-596

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

Licensee Event Report #90-008-0, Docket #050237 is being submitted as required by Technical Specification 6.6, NUREG 1022 and 10 CFR 50.73(a)(2)(v)(D).


E.D. Eenigenburg
Station Manager
Dresden Nuclear Power Station

EDE/ade

Enclosure

cc: A. Bert Davis, Regional Administrator, Region III
File/NRC
File/Numerical

07003

(ZDVR/31)

9009210304 900911
PDR ADDCK 05000237
S PNU

IE 22
11

Facility Name (1) Dresden Nuclear Power Station, Unit 2 Docket Number (2) 0 5 10 10 10 12 13 17 Page (3) 1 of 0 5

Title (4) Failure of HPCI Steam Line High Flow Isolation Differential Pressure Transmitter Due to Unknown Cause

Event Date (5)			LER Number (6)			Report Date (7)			Other Facilities Involved (8)													
Month	Day	Year	Year	Sequential Number	Revision Number	Month	Day	Year	Facility Names	Docket Number(s)												
0	8	2	0	9	0	9	0	0	0	0	0	1	1	9	0	0	0	0	0	0	1	1
										NONE	0	5	10	10	10	1	1	1	1	1	1	
											0	5	10	10	10	1	1	1	1	1	1	1

OPERATING MODE (9) N

POWER LEVEL (10) 0 8 2

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)

<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.405(c)	<input type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 73.71(b)
<input type="checkbox"/> 20.405(a)(1)(i)	<input type="checkbox"/> 50.36(c)(1)	<input checked="" type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 73.71(c)
<input type="checkbox"/> 20.405(a)(1)(ii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> Other (Specify in Abstract below and in Text)
<input type="checkbox"/> 20.405(a)(1)(iii)	<input type="checkbox"/> 50.73(a)(2)(i)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)	
<input type="checkbox"/> 20.405(a)(1)(iv)	<input type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)	
<input type="checkbox"/> 20.405(a)(1)(v)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

Name: David B. Throne, Technical Staff System Engineer Ext. 2513

TELEPHONE NUMBER: AREA CODE 8 1 5 9 4 2 1 -2 19 2 0

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS
X	B	J	P D T R	3 6 9	Y				

SUPPLEMENTAL REPORT EXPECTED (14)

Expected Submission Date (15) 0 1 1 0 1 9 1

X Yes (If yes, complete EXPECTED SUBMISSION DATE) NO

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On August 20, 1990 at 0645 hours, with Unit 2 at 82% rated core thermal power, during performance of routine surveillance testing, differential pressure transmitter (dPT) 2352, which monitors High Pressure Coolant Injection (HPCI) steam supply line flow, was found to be outside of the established tolerance limits. With only one operable instrument channel, when two are required by the Technical Specifications, the HPCI system was declared inoperable, and a seven-day Limiting Condition for Operation (LCO) was entered. The failed transmitter was replaced and the LCO terminated on August 22, 1990. The safety significance of this event was minimal, as the redundant transmitter was determined to be operable, and would have provided the required primary containment isolation signal. The root cause of the transmitter failure will be determined by the manufacturer. A similar event occurred when the same transmitter failed in 1988, due to a loss of transmitter fill oil. That event was documented in LER 88-15, docket 050237.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)						Page (3)		
		Year	///	Sequential Number	///	Revision Number				
Dresden Nuclear Power Station	0 5 0 0 0 2 3 7	9 0	-	0 0 8	-	0 0	0 3	OF	0 5	

TEXT Energy Industry Identification System (EIIS) codes are identified in the text as [XX]

The new dPT was successfully installed, calibrated and tested utilizing DIS 2300-10, and Dresden Instrument Procedure (DIP) 010-6, Rosemount Transmitter Model 1153 and 1154 Full Operating Range Calibration Check. Upon verification that the equipment was in satisfactory condition, the HPCI system was declared operable at 1640 hours on August 22, 1990. The seven-day LCO was terminated at that time.

No systems or components were inoperable at the time of the event which could have contributed to the event. Also, no manual or automatic safety system actuation occurred as a result of this event.

APPARENT CAUSE OF EVENT:

Because this event required isolation of the HPCI system, this event is reported in accordance with 10CFR59.73(a)(2)(v)(D), which requires the reporting of any event or condition that prevented the fulfillment of the safety function of a system used to mitigate the consequences of an accident.

To determine the root cause of this event the IMD prepared WR 94703 to investigate the failure mode of the transmitter. To facilitate the investigation, the IMD prepared a series of work instructions designed to provide a systematic approach for determining the root cause. These steps included:

1. As found calibration.
2. Attempt to calibrate dPT and record as left data.
3. Sensing module check.
4. If sensing module is operable, replace amplifier circuit board, attempt another calibration, recording results.

During performance of this diagnostic testing of the failed component, the transmitter was recalibrated successfully. However, after reviewing the circumstances of the failure, including original as found data and corrective actions, IMD personnel contacted Rosemount for consultation because no specific cause of the failure could be determined. Based on recommendations from the vendor, the transmitter will be returned to the manufacturer for performance of a failure analysis. A supplement will be written to this LER when the failure analysis is received from the vendor.

A maintenance history review was performed to determine if any adverse trends are developing for the HPCI high steam flow dPTs. The Total Job Management (TJM) system revealed that no maintenance, other than routine surveillances, has been required for the Unit 2 2353 and Unit 3 2352 and 2353 transmitters. It was observed that a failure of the Unit 2 2352 transmitter occurred in 1988. The transmitter which failed during this event was installed on August 25, 1988 via WR 77919. Review of the previous 1988 test data for the previously failed dPT showed the failed transmitter was out of tolerance, and workman's notes on the test report indicated that the dPT was experiencing a slow response time. The root cause of that previous failure was determined by the manufacturer to be loss of fill oil in the transmitter. This failure mode has been previously identified as a 10 CFR Part 21 notification and is also the subject of NRC Bulletin 90-01, Loss of Fill Oil in Transmitters Manufactured by Rosemount.

Generic corrective actions have been previously implemented concerning Rosemount transmitters of this type at Dresden Station, including phased-in replacement with an upgraded sensing module, less susceptible to fill oil leakage and specific checks during routine IMD surveillances for symptoms of this problem.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)						Page (3)		
		Year	Sequential Number	Sequential Number	Revision Number	Revision Number	Revision Number			
Dresden Nuclear Power Station	0 5 0 0 0 2 3 7	9 0	- 0 0 8	-	0 0	0 4	OF	0 5		

TEXT Energy Industry Identification System (EIIS) codes are identified in the text as [XX]

D. SAFETY ANALYSIS OF EVENT:

The dPT 2-2352 senses flow in the steam supply line to the HPCI turbine, line 2-2305-10"-8. The pressure differential is measured across taps on the 10" Schedule 80 elbow located near the reactor vessel nozzle upstream of MOV 2-2301-4. The common 3/4" instrument line from the elbow supplies process flow to both dPTs 2-2352 and 2-2353. The purpose of the dPTs is to sense steam flow, so a trip signal can be provided if flow reaches the trip setpoint. This function provides for the detection of a HPCI steam supply line break. The trip setpoint corresponds to a 300% maximum rated steam flow. Upon reaching the trip setpoint, the result is a closure signal to valves MOV 2-2301-3, 4, 5, 35, and 36.

The safety significance of the failure of the 2-2352 dPT is minimal, due to the fact that both instrument channels are not required to actuate primary containment isolation capabilities. As shown by the completion of DIS 2300-10, dPT 2-2353 was still operable and within calibration tolerances at the time of the failure of dPT 2-2352. Based on dPT 2-2353 being operable, had a HPCI steam line break occurred during the time dPT 2-2352 was inoperable, the HPCI system isolation valves would have isolated, and primary containment integrity would have been maintained.

In addition, while the HPCI system was isolated and considered inoperable, the ADS system, LPCI subsystem, Core Spray subsystem and Isolation Condenser system were all operable. Therefore, the safety significance of HPCI being inoperable is considered to be minimal.

E. CORRECTIVE ACTIONS:

Immediate corrective action was to initiate WR 94624 to facilitate replacement of the failed transmitter. The replacement transmitter utilized was of the same type, because an improved model replacement transmitter was unavailable. Subsequent testing by the IMD utilizing DIS 2300-10 and DIP 010-6 provided verifiable data supporting the operability of the dPT (237-200-90-08201).

Subsequent corrective action was to issue WR 94703 to test the failed transmitter. The failure mode of the dPT could not be determined by this on-site diagnostic testing (237-200-90-08202). Consultation with the manufacturer, Rosemount, resulted in recommendations to return the unit to the manufacturer for performance of a failure analysis (237-200-90-08203). A supplement will be written to this LER when the failure analysis is received from the vendor (237-200-90-08204).

The replacement dPT (which was installed via WR 94624) is included on a Rosemount Inc. listing summarizing transmitters which are more susceptible to the loss of fill oil phenomenon, as detailed in NRC Bulletin 90-01. Therefore, the IMD plans to replace the newly installed transmitter again during the upcoming Unit 2 D2R12 refuel outage, currently scheduled to begin in September of 1990. The work for dPT 2-2352 will be accomplished via WR 94889 (237-200-90-08205). In addition, the 2-2353 dPT will be replaced via WR 94887 by the end of the following Unit 2 D2R13 refuel outage (237-200-90-08206). The IMD also plans to replace dPT 3-2353 by the end of the Unit 3 D3R13 refueling outage. A work request will be written by the IMD to facilitate this replacement (237-200-08207). Unit 3 HPCI dPT 3-2352 is not included on the Rosemount transmitter listing, and as such does not need inclusion into the replacement program. All Rosemount transmitters of this type will also be monitored for symptoms of fill oil leakage through continued regular surveillance testing, in accordance with the corrective action program outlined in NRC Bulletin 90-01; replacement of all transmitters susceptible to this failure mode is scheduled for completion by the Unit 2 D2R13 and Unit 3 D3R13 refuel outages, respectively.

FACILITY NAME (1) Dresden Nuclear Power Station	DOCKET NUMBER (2) 0 5 0 0 0 2 3 7	LER NUMBER (6)			Page (3)		
		Year 9 0	Sequential Number - 0 0 8	Revision Number - 0 0			
TEXT: Energy Industry Identification System (EIIS) codes are identified in the text as [XX]							

F. PREVIOUS EVENTS:

A review of system records showed that a similar event has occurred previously. This event is detailed below.

LER Number Title

88-15/050237 HPCI System Isolated Upon Discovery of a Failed High Steam Flow Transmitter Due to Unknown Causes

This event involved the previous failure of dPT 2-2352, as described in Section C of this report. The root cause of the failure was determined by the manufacturer to be loss of fill oil. A leakage path was discovered at the glass to metal seal. Reference NTS item 237-200-88-100-01.

G. COMPONENT FAILURE DATA:

<u>Manufacturer</u>	<u>Nomenclature</u>	<u>Model Number</u>	<u>Mfg. Part Number</u>
Rosemount, Inc.	Differential Pressure Transmitter	1153D85PA	N/A

An industry wide NPRDS data base search will be conducted to determine if similar events of this type have occurred at other stations in the country when the failure analysis is received from Rosemount.