LICENSEE EVENT REPORT (LER)

Form Rev 2.0

Facility Name (1)	Docket Number (2)	Page (3)
Dresden Nuclear Power Station, Unit 3	0 5 0 0 0 2 4 9	1 of 0 3

Title (4)

High Pressure Coolant Injection System Declared Inoperable Due to Failed Room Cooler Fan Drive Belts

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)
									None	0 5 0 0 0
1 0	2 2	8 9	8 9	0 0 4	0 1	0 6	2 8	9 0		0 5 0 0 0

OPERATING MODE (9)	N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)			
POWER LEVEL (10)	0 9 3	___ 20.402(b)	___ 20.405(c)	___ 50.73(a)(2)(iv)	___ 73.71(b)
		___ 20.405(a)(1)(i)	___ 50.36(c)(1)	X 50.73(a)(2)(v)	___ 73.71(c)
		___ 20.405(a)(1)(ii)	___ 50.36(c)(2)	___ 50.73(a)(2)(vii)	___ Other (Specify in Abstract below and in Text)
		___ 20.405(a)(1)(iii)	___ 50.73(a)(2)(i)	___ 50.73(a)(2)(viii)(A)	
		___ 20.405(a)(1)(iv)	___ 50.73(a)(2)(ii)	___ 50.73(a)(2)(viii)(B)	
		___ 20.405(a)(1)(v)	___ 50.73(a)(2)(iii)	___ 50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

Name	TELEPHONE NUMBER (AREA CODE)
Jerry F. Lizalek, Technical Staff System Engineer Ext. 2421	8 1 5 9 4 2 - 2 9 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	F A N	B 5 1 5						

SUPPLEMENTAL REPORT EXPECTED (14)		Expected Submission Date (15)	Month	Day	Year
___ Yes (If yes, complete EXPECTED SUBMISSION DATE)	X NO				

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

At 0833 hours on October 22, 1989 during normal Unit 3 operation at 93% rated core thermal power, it was determined that the High Pressure Coolant Injection (HCPI) system room cooler drive belts had failed. The HPCI system was then declared inoperable in accordance with Station policy. The root cause of this event was determined to be component failure of the drive belts. Immediate corrective actions were initiated to replace the drive belts. In addition, long term corrective actions have been initiated to prevent recurrence.

The safety significance of this event was determined to be minimal since the HPCI system remained capable of automatically initiating and fulfilling its design basis operational requirements before system isolation on high area temperature. A similar previous occurrence was reported by LER 89-002 on docket 050237.

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PLANT AND SYSTEM IDENTIFICATION:

General Electric - Boiling Water Reactor - 2527 MWt rated core thermal power.

Nuclear Tracking System (NTS) tracking code numbers are identified in the text as (XXX-XXX-XX-XXXXX).

EVENT IDENTIFICATION:

High Pressure Coolant Injection (HPCI) [BJ] System Declared Inoperable Due to Failed Room Cooler Fan Drive Belts

A. CONDITIONS PRIOR TO EVENT:

Unit: 3 Event Date: October 22, 1989 Event Time: 0833 hours

Reactor Mode: N Mode Name: Run Power Level: 93%

Reactor Coolant System (RCS) Pressure: 1000 psig

B. DESCRIPTION OF EVENT:

At 0833 hours on October 22, 1989, during normal Unit 3 operation at 93% rated core thermal power and while performing normal routine operational round checks, it was determined that the HPCI room cooler drive belts had failed. The HPCI system was then declared inoperable in accordance with Station policy and Unit 3 was entered into a seven day Limiting Condition for Operation (LCO) in accordance with Technical Specification 3.5.C.2.

C. APPARENT CAUSE OF EVENT:

This report is submitted in accordance with 10CFR 50.73(a)(2)(v)(D) which requires the reporting of any event or condition that alone could have prevented the fulfillment of the safety function of a system required to mitigate the consequences of an accident.

On October 19, 1989, it was previously identified by Mechanical Maintenance Department and Technical Staff personnel that the HPCI room cooler shaft motor side bearing was worn. This resulted in misalignment of the shaft and misalignment of the fan belts on the motor pulley. Upon this discovery, Work Request 88016 was written to repair the worn bearing. Inspection of the bearing verified that inadequate lubrication had not been the cause of its failure. These bearings were previously lubricated on 2/22/89. The maintenance was planned and scaffolding was being erected when the room cooler drive belts failed. The root cause of the belt failure has been attributed to the shaft misalignment due to the worn bearing. The exact root cause of the worn bearing remains unknown; however, the most probable cause is inappropriate drive belt tensioning. Currently, Dresden Electrical Procedure (DEP) 5700-4, Electrical Maintenance and Surveillance of HPCI Room Fan Motors, is utilized to replace and tension the fan drive belts. The procedure instructs the user to ensure that proper belt tension is achieved; however, no additional guidance or value as to what this tension should be is delineated. Therefore, procedure deficiency could have possibly been a contributing factor to the belt tensioning problem. A maintenance and system history search indicated that a Preventive Maintenance surveillance for periodic replacement of the drive belts is performed during each refuel outage; the belt was previously replaced on 6/10/88. The frequency for this surveillance is believed to be adequate due to the contributing factor of shaft misalignment in this event. The shaft bearings are included in a quarterly lubrication surveillance. The Technical Staff engineer will continue to monitor the effectiveness of this program.

D. SAFETY ANALYSIS OF EVENT:

Although the HPCI system was declared inoperable in accordance with Station policy as a conservative operating practice following the room cooler failure, its automatic function was not hindered. Upon automatic initiation to mitigate the consequence of a small high energy line break (HELB), Final Safety Analysis Report (FSAR) figure 6.2.5:5 indicates that the HPCI system will reduce reactor pressure to 350 psig in approximately 300 seconds. Nuclear Fuel Services Department report RSA-D:89-01 indicates that the HPCI system can operate approximately 80 hours at full capacity prior to reaching the high room temperature HPCI system isolation setpoint even with the room cooler inoperable. In addition, the Isolation Condenser system [BL], the Automatic Depressurization System (ADS) [SM], and the Low Pressure Emergency Core Cooling Systems (ECCSs) [BO,BM] were available to mitigate the consequences of a small HELB.

For these reasons, the safety significance of this event is minimal.

E. CORRECTIVE ACTIONS:

Immediate corrective actions included replacement of the HPCI room cooler drive belts and replacement of the shaft bearing. Additionally, a second bearing was placed adjacent to the original bearing. This provided a greater bearing surface for the shaft and in order to help maintain the shaft in proper alignment. These repairs were performed under the direction of Work Request 88016 and temporary alteration number III-43-89. The drive shaft/bearing assembly was replaced during the subsequent refuel outage, and temporary alteration III-43-89 was terminated on 2/9/90 (249-200-89-09701).

Additionally, to help prevent recurrence, a procedural inquiry has been initiated to include guidance within DEP 5700-4 to denote the proper belt tension. The Electrical Maintenance Department will revise DEP 5700-4 to include the proper belt tension information (249-200-89-09702).

F. PREVIOUS EVENTS:

LER/Docket Numbers	Title
89-022/050237	HPCI System Inoperable Due to Room Cooler Broken Drive Belts

The HPCI system was declared inoperable as a result of the room cooler being inoperable due to broken drive belts. The cause of the broken drive belts was due to the increased operating frequency of the room cooler due to increased HPCI room ambient temperatures. The drive belts were replaced and HPCI was returned to service.

G. COMPONENT FAILURE DATA:

Manufacturer	Nomenclature	Model Number	Mfg. Part Number
OPTI Belt	V-Belt	B-51	N/A

The drive belt is not reportable to NPRDS data base.