



**Commonwealth Edison**  
Dresden Nuclear Power Station  
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Morris, Illinois 60450  
Telephone 815/942-2920

August 27, 1993

GFSLTR 93-0058

U. S. Nuclear Regulatory Commission  
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Washington, D.C. 20555

License Event Report 93-016, Docket 050237 is being submitted as required by Technical Specification 6.6, NUREG 1022 and 10 CFR 50.73 (a) (2) (v).

Gary E. Spedl  
Station Manager  
Dresden Station

GFS/slb

Enclosure

cc: J. Martin, Regional Administrator, Region III  
NRC Resident Inspector's Office  
File/NRC  
File/Numerical

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PDR ADCK 05000237  
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LICENSEE EVENT REPORT (LER)

Form Rev 2.0

Facility Name (1) Dresden Nuclear Power Station, Unit 2				Docket Number (2) 0 5 0 0 0 2 3 7				Page (3) 1 of 0 4			
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Title (4)  
High Pressure Coolant Injection Declared Inoperable Due to Turning Gear Failure

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	0	9	3	0	1	6	0	0	N/A			
										N/A			

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)	20.402(b)			20.405(c)			50.73(a)(2)(iv)			73.71(b)					
	0	0	0	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)					

LICENSE CONTACT FOR THIS LER (12)

NAME						TELEPHONE NUMBER					
Mark Churilla System Engineering Department						Ext. 2788					
						AREA CODE					
						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	T G R	G O B O					

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

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

On August 5, 1993 at 1000 hours, with Unit 2 at 92% rated core thermal power, while performing Dresden Operating Surveillance (DOS) 2300-7, High Pressure Coolant Injection (HPCI) Cold Quick Initiation, the HPCI Turning Gear (TGR) failed to engage. The HPCI System Engineer observed that a pin which holds the engagement linkage together had fallen out. Without the ability to engage the TGR from the control room the HPCI system was declared inoperable and a seven day Limiting Condition for Operation (LCO) was entered per Technical Specification (TS) 3.5. A work request was written for the Electrical Maintenance Department (EMD) to reinstall the pin. The HPCI TGR was tested satisfactorily, and the seven day LCO was terminated on August 6, 1993. The Safety Significance of this event is minimal because the HPCI System was available for core injection if needed, and since all other Emergency Core Cooling Systems (ECCS) required by TS 3.5.C.2.a were operable. A previous event involving Unit 2 HPCI TGR engagement failure is documented in LER 92-024/050237.

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

**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 [BJ] Declared Inoperable Due to Turning Gear Failure

**A. CONDITIONS PRIOR TO EVENT:**

Unit: 2                      Event Date: August 5, 1993      Event Time: 1000  
 Reactor Mode: N              Mode Name: Run                      Power Level: 92%  
 Reactor Coolant System Pressure: 982 psig

**B. DESCRIPTION OF EVENT:**

On August 5, 1993 at 1000 hours, with Unit 2 at 92% rated core thermal power, while performing Dresden Operating Surveillance (DOS) 2300-7, High Pressure Coolant Injection (HPCI) Cold Quick Initiation, the HPCI Turning Gear (TGR) failed to engage. The HPCI System Engineer observed that a pin which holds the engagement linkage together had fallen out. Without the ability to engage the TGR from the control room the HPCI system was declared inoperable and a seven day Limiting Condition for Operation (LCO) was entered per Technical Specification (TS) 3.5. A work request was written for the Electrical Maintenance Department (EMD) to reinstall the pin. One of the cotter pins which holds the pin in place was found to be missing. The pin was reinstalled and new cotter pins were installed. The HPCI TGR was tested satisfactorily, and the seven day LCO was terminated on August 6, 1993. The Safety Significance of this event is minimal in that the HPCI System was available for core injection if needed, and since all other Emergency Core Cooling Systems (ECCS) required by TS 3.5.C.2.a were operable. A previous event involving Unit 2 HPCI TGR engagement failure is documented in LER 92-024/050237.

**C. APPARENT CAUSE OF EVENT:**

This report is being submitted in accordance with 10CFR50.73 (a) (2) (v) (D), which requires the reporting of any condition that could have prevented the fulfillment of a safety system needed to mitigate the consequences of an accident. It should be noted, however, that this condition would not have prevented initial HPCI initiation for core injection.

The HPCI TGR is designed to be engaged from the control room to prevent turbine shaft bowing following operation. In this event the TGR could not be engaged from the control room following DOS 2300-7 due to the TGR engagement linkage coming apart. The linkage came apart when the pin which connects the linkage to the TGR solenoid fell out during the Cold Quick Start. It was discovered that one of the two cotter pins which holds the linkage pin in place had fallen out. It is believed that the cotter pin was worn and had vibrated out allowing the linkage pin to become loose. The Electrical Maintenance Department (EMD) reassembled the TGR linkage with new cotter pins. The TGR was tested satisfactorily and the seven day LCO was terminated on August 5, 1993.

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It should be noted that the Unit 2 HPCI System had been tested similarly since Unit 2 start up in May 1993. In addition, the System Engineer had performed a detailed walkdown of the TGR following a HPCI Surveillance on August 2, 1993. The walkdown verified that both cotter pins were in place and the TGR was functioning as designed.

A history review indicated that similar events involving Unit 2 and Unit 3 occurred in February 1992 and December 1992 respectively. During the investigation of the Unit 2 TGR concern, it was determined that dirty auxiliary contacts in the engagement circuit and a mispositioned spring clip prevented TGR engagement. During the investigation into the Unit 3 TGR concern, it was determined that contacts in the auto engage circuit degraded as a result of dirty auxiliary contacts in the TGR motor circuit. The aforementioned events involved the failure of the engagement circuit, whereas this event is attributed to the failure of a cotter pin on the linkage assembly.

D. SAFETY ANALYSIS OF EVENT:

The HPCI TGR is used to rotate the turbine shaft after system operation to prevent bowing of the shaft while cooling. An Operability Determination was written on August 13, 1991 that addressed the operability of the HPCI system without TGR. The Evaluation concluded that the TGR function is needed to support HPCI restart under design basis accident conditions, and the ability to remotely engage the TGR is necessary to declare the HPCI system operable. Without the TGR, the HPCI system would still initiate and supply the necessary pump discharge pressure and flow. If the system were to operate for a prolonged period of time, the shaft can manually be turned at the turbine to prevent bowing. In addition, the Isolation Condenser and Automatic Depressurization systems were operable throughout this event. Therefore, since HPCI initiation was possible without TGR and the necessary safety systems were operable during the time of this event, the safety significance is minimal.

E. CORRECTIVE ACTIONS:

Work Request D12004 was initiated to repair the TGR engagement linkage. The linkage pin was reinstalled and the TGR tested satisfactorily.

Unit 3 HPCI TGR was inspected immediately following the event and found to be acceptable.

The EMD will add a requirement to the HPCI TGR PM program requiring the linkage pin cotter pins be replaced every cycle by January 30, 1994 (237-180-93-01601).

F. PREVIOUS OCCURRENCES:

<u>LER/Docket Numbers</u>	<u>Title</u>
92-017/050249	HPCI Declared Inoperable Due to Turning Gear Engagement Failure
	While performing DOP 2300-02 the HPCI TGR failed to engage due to degraded auxiliary contacts in the TGR breaker. The auxiliary contacts were cleaned and adjusted and the TGR was declared operable.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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92-024/050237

HPCI Declared Inoperable Due to Turning Gear Motor Failure

The investigation determined that the TGR motor contacts would not close due to low voltage across the motor solenoids. The low voltage was caused by an in line contact which was dirty causing a voltage drop across it. The contact was cleaned and the HPCI system was declared operable.

G. COMPONENT FAILURE DATA:

<u>Manufacturer</u>	<u>Nomenclature</u>	<u>Model Number</u>	<u>Mfg. Part Number</u>
General Electric	Turning Gear	N/A	N/A