

November 2, 2000

PSLTR: #00-0155

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

Dresden Nuclear Power Station, Unit 3
Facility Operating License No. DPR-25
NRC Docket No. 50-249

Subject: Licensee Event Report 2000-007-00, "HPCI System Declared Inoperable due to Faulty HPCI Pressure Switch Resulting in the Loss of Ability to Reset the HPCI Turbine"

Enclosed is Licensee Event Report 2000-007-00, "HPCI System Declared Inoperable due to Faulty HPCI Pressure Switch Resulting in the Loss of Ability to Reset the HPCI Turbine," for the Dresden Nuclear Power Station (DNPS). This condition is being reported pursuant to 10 CFR 50.73 (a)(2)(v)(A), which requires the reporting of any event or condition that could have prevented the fulfillment of a safety function required to shutdown the reactor and maintain it in a safe condition.

The following action was taken:

Pressure Switch 3-2303-PS1 was replaced, calibrated and tested satisfactorily.

This correspondence contains the following new commitments.

Instrument maintenance to remove and send the 3-2303-PS1 pressure switch in approximately one year from the date of this event to the Exelon Failure Analysis Laboratory and obtain an evaluation of the pressure switch contacts for possible degradation. Results of this evaluation will be obtained and forwarded to System Engineering.

System Engineering to evaluate the results of the 3-2303-PS1 pressure switch analysis for potential increase in frequency of preventive maintenance activities for the switch.

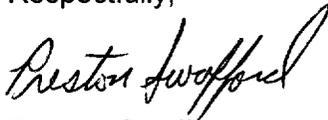
System Engineering to incorporate an additional post maintenance testing requirement for the failure of the SV8 solenoid into EWCS to include an inspection of the 3-2303-PS1 pressure switch.

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If you have any questions, please contact Dale Ambler, Dresden Regulatory Assurance Manager at (815) 942-2920 extension, 3800.

Respectfully,



Preston Swafford
Site Vice President
Dresden Nuclear Power Station

Enclosure

cc: Regional Administrator – NRC Region III
NRC Senior Resident Inspector – Dresden Nuclear Power Station

LICENSEE EVENT REPORT (LER)

Estimated burden per response to comply with this mandatory information collection request: 50 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Forward comments regarding burden estimate to the information and Records Management Branch (t-6 f33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the Paperwork Reduction Project (3150-0104), Office Of Management And Budget, Washington, DC 20503. If an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

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TITLE (4)
HPCI System Declared Inoperable due to Faulty HPCI Pressure Switch Resulting in the Loss of Ability to Reset the HPCI Turbine

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MON TH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
10	03	2000	2000	007	00	11	02	2000	N/A	N/A
									FACILITY NAME	DOCKET NUMBER
									N/A	N/A

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more) (11)								
POWER LEVEL (10)	023	20.2201(b)			20.2203(a)(2)(v)			50.73(a)(2)(i)		50.73(a)(2)(viii)
		20.2203(a)(I)			20.2203(a)(3)(I)			50.73(a)(2)(ii)		50.73(a)(2)(x)
		20.2203(a)(2)(I)			20.2203(a)(3)(ii)			50.73(a)(2)(iii)		73.71
		20.2203(a)(2)(ii)			20.2203(a)(4)			50.73(a)(2)(iv)		OTHER
		20.2203(a)(2)(iii)			50.36(c)(1)			X	50.73(a)(2)(v)	
20.2203(a)(2)(iv)			50.36(c)(2)			50.73(a)(2)(vii)				

LICENSEE CONTACT FOR THIS LER (12)

NAME Richard A. Kelly, Regulatory Assurance	TELEPHONE NUMBER (Include Area Code) (815) 942-2920 Ext. 2924
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
X	BJ	PS	S345	Y					

SUPPLEMENTAL REPORT EXPECTED (14)				EXPECTED SUBMISSION DATE (15)		
YES (If yes, complete EXPECTED SUBMISSION DATE.)	X	NO		MONTH	DAY	YEAR

ABSTRACT (Limit to 1400 spaces, i. e., approximately 15 single-spaced typewritten lines) (16)

On October 3, 2000, at 2151 hours, with Unit 3 returning to full power after completion of a refuel outage (D3R16), the High Pressure Coolant Injection (HPCI) System was declared inoperable during the performance of DOS 2300-03, "High Pressure Coolant Injection System Operability Verification," when a Nuclear Station Operator identified that the blue turbine trip reset light on main control room panel 903-3 was not illuminated. During troubleshooting of the HPCI Turbine Stop Valve Reset Pressure Switch, it was determined that the internally sealed contacts for the pressure switch had failed preventing remote reset of the HPCI logic. The cause of this event was determined to be degradation of the Unit 3 HPCI Turbine Stop Valve Reset Pressure Switch 3-2303-PS1 accelerated by a switch solenoid valve failure on June 12, 1997 allowing the maximum inrush current for the switch to be exceeded. Corrective actions for this event include replacement, calibration and satisfactory testing of the pressure switch, perform an evaluation of the pressure switch upon removal in approximately one year, evaluate those results for potential increase in preventive maintenance frequencies and incorporate additional post maintenance testing requirements for the SV8 solenoid valve. The safety significance of this event was determined to be minimal.

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TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

PLANT AND SYSTEM IDENTIFICATION:

General Electric – Boiling Water Reactor – 2527 MWt rated core thermal power
Energy Industry Identification System (EIS) Codes are identified in the text as [XX] and are obtained from IEEE Standard 805-1984, IEEE Recommended Practice for System Identification in Nuclear Power Plants and Related Facilities.

EVENT IDENTIFICATION:

HPCI System Declared Inoperable due to Faulty HPCI Pressure Switch Resulting in the Loss of Ability to Reset the HPCI Turbine

A. PLANT CONDITIONS PRIOR TO EVENT:

Unit: 3	Event Date: 10-03-2000	Event Time: 2151
Reactor Mode: 1	Mode Name: Power Operation	Power Level: 23%
Reactor Coolant System Pressure: 1000 psig		

B. DESCRIPTION OF EVENT:

This LER is being submitted pursuant to 10 CFR 50.73 (a)(2)(v)(A), which requires the reporting of any event or condition that could have prevented the fulfillment of a safety function required to shutdown the reactor and maintain it in a safe condition.

The sequence of events leading up to the failure of the pressure switch were as follows:

At 1530 hours on 10/3/00 Technical Specification TS 3.5.A was entered declaring HPCI [BJ] Inoperable to allow for the performance of surveillance procedure DOS 2300-03, "High Pressure Coolant Injection System Operability Verification."

At 1800 hours on 10/3/00 HPCI was secured and the operability requirements for DOS 2300-03 were determined to be satisfied. Subsequently, during post surveillance activities related to placing the system to normal standby status, a Nuclear Station Operator (NSO) identified that the turbine trip reset light on main control room panel 903-3 was not illuminated. Maintenance began troubleshooting in order to determine why the turbine trip reset light was not illuminating.

Troubleshooting determined that the internally sealed contacts for the Unit 3 HPCI Turbine Stop Valve Reset Pressure Switch 3-2303-PS1 had failed. At 2151 Hours on 10/3/00 TS 3.5.A Action 3 was entered and the HPCI system declared inoperable. This failure prevented remote reset of the HPCI logic and also would have prevented ability of the HPCI turbine to automatically start if needed.

The Instrument Maintenance Department (IMD) replaced pressure switch 3-2303-PS1. The pressure switch was then calibrated and tested satisfactorily. The HPCI Turbine was declared operable by the control room operators at 0410 on 10/4/00 and TS 3.5.A Action 3 was exited.

The following additional information was identified during the investigation of this event:

During the initial troubleshooting of the pressure switch it was noted that the switch contacts would not reset after pressure was applied, and removed from the pressure port. The contact plunger of the switch was observed as not

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being fully depressed thus permitting the contact to re-close. Severe overheating was observed on the terminal 3 fixed contact, and some degradation was observed on terminal 4 fixed contact of the switch. The fixed contact of the terminal 3 had melted increasing the distance of travel of the movable contact and not allowing the contact to close. The movable contact had signs of discoloration due to the overheating.

A review of the pressure switch and solenoid valve history was performed and it was determined that the pressure switch was replaced on 04/24/97 and the solenoid valve was replaced on 06/12/97. The reason for replacing the solenoid valve was that it had failed to energize and reposition which can result in the pressure switch receiving an excessive inrush current.

As a result of previous events on the HPCI System, a point-to-point analysis of the HPCI system was initiated in October 1998 and completed in May 1999. This review included evaluating preventive maintenance activities performed to ensure adequacy of scope and frequency for all components in the system. This portion of the review identified that pressure switch 3-2303-PS1 was evaluated by two existing activities. First, the switch is challenged on a quarterly basis during a quarterly operability performance run of the system. The second activity is a calibration of the pressure switch that is performed every two years. The point-to-point evaluation determined that these preventive maintenance tasks were appropriate for the pressure switches in the system.

C. CAUSE OF EVENT:

The cause of the failure of the 3-2303-PS1 pressure switch has been determined to be equipment degradation accelerated by the failure of the SV8 solenoid valve on June 12, 1997 (NRC Cause Code X). The failure of the SV8 solenoid valve in 1997 resulted in excessive inrush current to the pressure switch resulting in damage to the pressure switch contacts allowing for the equipment degradation process to begin. This degradation did not impact the function of the pressure switch until the failure occurred on October 3, 2000.

D. SAFETY ANALYSIS

The HPCI system is designed to provide make up coolant to the reactor in the event of a small-break Loss of Coolant Accident (LOCA). The 3-2303-PS1 pressure switch is designed to close and align the logic system to allow HPCI turbine steam stop valve to be remotely reset using manual reset push button or auto start at either -59 inches reactor vessel water level, or 2 PSI drywell pressure. Since the pressure switch functioned properly during start of HPCI operability test the system would have functioned properly if needed. However, with the pressure switch failure and the inability to reset the turbine trip logic at the end of the test when the turbine stop valve was tripped, subsequent remote reset and auto start capability would have been lost. As a result, this event is classified as a safety system functional failure in accordance with 10 CFR 50.73(a)(2)(v)(A). Additionally, all other emergency core cooling systems were available during the time that the HPCI system was inoperable.

Based upon this evaluation, the safety significance of this event has been determined to be minimal.

E. CORRECTIVE ACTIONS:

Pressure Switch 3-2303-PS1 was replaced, calibrated and tested satisfactorily. (Complete)

Instrument maintenance to remove and send the 3-2303-PS1 pressure switch in approximately one year from the date of this event to the Exelon Failure Analysis Laboratory and obtain an evaluation of the pressure switch contacts for possible degradation. Results of this evaluation will be obtained and forwarded to System Engineering. (ATI 36068-14)

System Engineering to evaluate the results of the 3-2303-PS1 pressure switch analysis for potential increase in

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frequency of preventive maintenance activities for the switch. (ATI 36068-15)

System Engineering to incorporate an additional post maintenance testing requirement for the failure of the SV8 solenoid into EWCS to include an inspection of the 3-2303-PS1 pressure switch. (ATI 36068-16)

F. PREVIOUS OCCURRENCES:

None

G. COMPONENT FAILURE DATA:

Manufacturer
Square D Co.

Nomenclature
Pressure Switch

Model Number
Class 9012
Series C
Type GAW-5

Mfg. Part Number
N/A