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10 CFR 50.73

December 5, 2003

RHLTR: #03-0080

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Dresden Nuclear Power Station, Unit 2
Facility Operating License No. DRP-19
NRC Docket No. 50-237

Subject: Licensee Event Report 2003-004-00, "Unit 2 HPCI System Inoperable Due To Leaking Gland Seal Leak Off Pump Check And Regulating Valves"

Enclosed is Licensee Event Report 2003-004-00, "Unit 2 HPCI System Inoperable Due To Leaking Gland Seal Leak Off Pump Check And Regulating Valves," for Dresden Nuclear Power Station Unit 2. This event is being reported in accordance with 10 CFR 50.73(a)(2)(v)(D), "Any event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to mitigate the consequences of an accident."

Should you have any questions concerning this report, please contact Jeff Hansen, Regulatory Assurance Manager, at (815) 416-2800.

Respectfully,

R. J. Hovey
Site Vice President
Dresden Nuclear Power Station

Enclosure

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

IE22

NRC FORM 366 (7-2001) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OBM NO. 3150-0104 EXP 7-31-2004

Estimated burden per response to comply with this mandatory information collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjs1@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose 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.

LICENSEE EVENT REPORT (LER)

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
Dresden Nuclear Power Station Unit 2	05000237	1 of 5

4. TITLE Unit 2 HPCI System Inoperable Due To Leaking Gland Seal Leak Off Pump Check And Regulating Valves

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MO	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
									N/A	N/A
10	06	2003	2003	– 004 –	00	12	05	2003	FACILITY NAME N/A	DOCKET NUMBER N/A

9. OPERATING MODE	1
10. POWER LEVEL	086

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)

	20.2201(b)		20.2203(a)(3)(ii)		50.73(a)(2)(ii)(B)	50.73(a)(2)(ix)(A)
	20.2201(d)		20.2203(a)(4)		50.73(a)(2)(iii)	50.73(a)(2)(x)
	20.2203(a)(1)		50.36(c)(1)(i)(A)		50.73(a)(2)(iv)(A)	73.71(a)(4)
	20.2203(a)(2)(i)		50.36(c)(1)(ii)(A)		50.73(a)(2)(v)(A)	73.71(a)(5)
	20.2203(a)(2)(ii)		50.36(c)(2)		50.73(a)(2)(v)(B)	OTHER
	20.2203(a)(2)(iii)		50.46(a)(3)(ii)		50.73(a)(2)(v)(C)	Specify in Abstract below or in NRC Form 366A
	20.2203(a)(2)(iv)		50.73(a)(2)(i)(A)	X	50.73(a)(2)(v)(D)	
	20.2203(a)(2)(v)		50.73(a)(2)(i)(B)		50.73(a)(2)(vii)	
	20.2203(a)(2)(vi)		50.73(a)(2)(i)(C)		50.73(a)(2)(viii)(A)	
	20.2203(a)(3)(i)		50.73(a)(2)(ii)(A)		50.73(a)(2)(viii)(B)	

12. LICENSEE CONTACT FOR THIS LER

NAME	TELEPHONE NUMBER (Include Area Code)
George Papanic Jr.	(815) 416-2815

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

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX

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

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

On October 6, 2003, a High Pressure Coolant Injection System (HPCI) Torus High Level switch was discovered inoperable during the functional testing of the switch. The Technical Specifications allow HPCI to remain operable with an inoperable Torus High Level switch if the HPCI pump suction is aligned to the suppression pool. When the HPCI pump suction was aligned to the suppression pool from the Condensate Storage Tank (CST), the HPCI Gland Seal Leak Off System (GSLO) pump unexpectedly operated due to high water level in the GSLO condenser. This required the realignment of the HPCI pump suction back to the CST. On October 6, 2003, at 2215 (CDT), the Unit 2 HPCI was declared inoperable due to the high water level in the GSLO condenser and the operation of the HPCI GSLO pump that prevented continued alignment of the HPCI to the suppression pool. The above-described events would not have prevented manual operation of HPCI from the control room and the Isolation Condenser System was operable during this event.

The unexpected high water level in the GSLO condenser and the operation of the HPCI GSLO pump was due to leaking pump discharge check and regulating valves. The root cause of the leaking valves was the preventive maintenance performed on the valves did not adequately assess or test the leak tight condition of the valves. A new procedural requirement to perform periodic seat leakage testing for the Unit 2 and 3 HPCI GSLO pump discharge check and regulating valves will be prepared.

Dresden Nuclear Power Station Unit 2 is a General Electric Company Boiling Water Reactor with a licensed maximum power level of 2957 megawatts thermal. The Energy Industry Identification System codes used in the text are identified as [XX].

A. Plant Conditions Prior to Event:

Unit: 02 Event Date: 10-06-2003 Event Time: 2215 CDT
Reactor Mode: 1 Mode Name: Power Operation Power Level: 86 percent
Reactor Coolant System Pressure: 1000 psig

B. Description of Event:

On October 6, 2003, during the performance of procedure DIS 2300-08, "Unit 2 Contaminated Condensate Storage Tank Level Switches Functional Test and Unit 2 Torus Level Switches Functional Test," the Unit 2 High Pressure Coolant Injection System (HPCI) [BJ] Torus High Level switch 2-2351B [LS] was determined to be inoperable. Technical Specification 3.3.5.1, "Emergency Core Cooling System (ECCS) Instrumentation," Required Action D.2.2 allows HPCI to remain operable with an inoperable Torus High Level switch provided the HPCI pump suction is aligned to the suppression pool within 24 hours. HPCI pump suction is normally aligned to the Condensate Storage Tank (CST) [TK] to minimize injection of suppression pool water into the reactor pressure vessel [RPV]. A simplified drawing of this alignment is contained in Figure1 on page 5. When the Unit 2 HPCI pump suction was aligned to the suppression pool in accordance with procedure DOP-2300-01, "High Pressure Coolant Injection (HPCI) System Standby Operation," the water level in the HPCI Gland Seal Leak Off System (GSLO) condenser increased causing the HPCI GSLO pump [P] to operate. In this configuration, the GSLO pump has no discharge flow path unless HPCI is operating. The increasing water level in the GSLO condenser was unexpected in this HPCI system alignment since there is normally not a source of steam or water to the HPCI GSLO condenser that would cause the HPCI GSLO pump to operate. The Unit 2 HPCI pump suction had to be realigned to the CST to allow the pumping of the GSLO condenser. On October 6, 2003, at 2215 (CDT), the Unit 2 HPCI was declared inoperable.

An Emergency Notification System (ENS) call was made on October 7, 2003, at 0520 hours (CDT), for the above-described event. The assigned ENS event number was 40227.

This event is being reported in accordance with 10 CFR 50.73(a)(2)(v)(D), "Any event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to mitigate the consequences of an accident." The Unit 2 HPCI is a single train system.

The cause of the inoperability of the Unit 2 Torus High Level switch 2-2351B was indeterminate. The Torus High Level switch is a Magnetrol Model Number 291-S-13-512 level switch that uses a float and a magnet assembly to indicate water level. The potential failure mechanism was anticipated to be corrosion or foreign material in the switch. No foreign material was discovered when the float chamber was disassembled and no deficiencies were identified during an inspection of the magnet assembly. However, it was conservatively decided to replace the float assembly. Subsequent testing found that the switch functioned satisfactorily.

HPCI was declared operable on October 7, 2003.

C. Cause of Event:

The unexpected operation of the HPCI GSLO pump was due to a high level in the HPCI GSLO condenser that was caused by leaking GSLO pump discharge check valve 2-2301-76 [V] and regulating valve 2-2399-79 [V]. The root cause of the leaking valves was the preventive maintenance performed on the valves did not adequately assess or test the leak tight condition of the valves. The inability of the GSLO pump discharge check and regulating valves to prevent leakage became evident when HPCI was aligned to the suppression pool. By design, the back pressure on the valves increased to approximately 50 pounds per square inch due to alignment of the Emergency Core Cooling System keepfill-system to the HPCI piping in this configuration. The GSLO pump check valve was replaced with a check valve that has softer seats and better leak tight characteristics.

D. Safety Analysis:

The function of the HPCI is to provide water from either the CST or the suppression pool to the reactor pressure vessel. HPCI pump suction is normally aligned to the CST to minimize injection of suppression pool water into the reactor pressure vessel. However, if the CST water supply is low, or if the suppression pool water level is high, an automatic transfer of HPCI pump suction to the suppression pool water source ensures a water supply for the continuous operation of HPCI. The HPCI system can be initiated automatically or manually from the control room. The manual initiation of HPCI is not credited in any Update Final Safety Analysis Report accident or transient analyses.

The function of the Torus High Level signal is to transfer the suction source of the HPCI pump from the CST to the suppression pool to eliminate the possibility of the HPCI providing additional water to the suppression pool from an outside source when the water level in the suppression pool is high. Excessively high suppression pool water level could result in the loads on the Torus exceeding design values during a postulated design basis accident or transient. The Torus High Level signal can be generated by either of the two Unit 2 Torus High Level switches, 2-2351A and 2-2351B. The failure of the Torus High Level switch 2-2351B would not have prevented the operable Torus High Level switch 2-2351A from generating a Torus High Level signal and would not have prevented manual operation of the HPCI system.

The function of the HPCI GSLO system is to condense leakage from the HPCI steam turbine and the turbine's stop and control valves. The major components of the GSLO are a condenser and pump. The GSLO pump automatically operates to control the water level in the GSLO condenser and a discharge flow path must be available for this to operate correctly. The pump discharges the condensate to the CST when the HPCI pump suction is aligned to the CST or to the suction side of the HPCI pump when the HPCI pump is operating. The GSLO pump is equipped with discharge check and regulating valves, which prevent back leakage into the GSLO condenser. The failure of the GSLO pump discharge check and regulating valves to prevent back leakage would not have prevented the successful operation of the GSLO system during HPCI pump operation.

In summary, the event did not prevent the generation of a Torus High Level signal from switch 2-2351A and manual operation of HPCI from the control room. Additionally, the Isolation Condenser System [BL] was operable

during this event. Therefore, the consequences of this event had minimal impact on the health and safety of the public and reactor safety.

E. Corrective Actions:

The Unit 2 HPCI GSLO pump discharge check valve 2-2301-76 was replaced.

A new procedural requirement to perform periodic seat leakage testing for the Unit 2 and 3 HPCI GSLO pump discharge check and regulating valves will be prepared and is being tracked in our Corrective Action Program by A/R 179654-30.

Initial seat leakage testing in accordance with the new procedural requirement will be performed for the Unit 2 and 3 HPCI GSLO pump discharge check and regulating valves and is being tracked in our Corrective Action Program by A/R 179654-31.

Operating procedure DOP-2300-01 will be revised to include additional guidance on the affect to the HPCI GSLO of aligning the HPCI to the Torus and is being tracked in our Corrective Action Program by A/R 179654-36.

The Torus High Level switch float was replaced.

F. Previous Occurrences:

A review of recent Dresden Nuclear Power Station Licensee Event Reports and operating experience identified no previous events that were associated with HPCI inoperability due to back leakage into the GSLO condenser.

G. Component Failure Data:

N/A

FIGURE 1
SIMPLIFIED DRAWING of HPCI ALIGNED to the CST