Commonwealth Edison
Dresden Nuclear Power Station
6500 North Dresden Road
Morris, Illinois 60450
Telephone 815/942-2920

September 7, 1994

EDELTR 94-0011

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

Licensee Event Report 94-022, Docket 50-237 is being submitted as required by Technical Specification 6.6, NUREG 1022 and 10CFR50.73(a)(2)(i) and 10CFR50.73(a)(2)(ii).

Sincerely,

E. D. Eenigenburg
Unit 2 Station Manager
Dresden Station

EDE/MMc:cfq

Enclosure

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

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NRC FORM 366 (5-92) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES 5/31/95

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), 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.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Dresden Nuclear Power Station, Unit 2	05000237	1 OF 4

TITLE (4)
Type B and C Leakage Limit Exceeded due to Worn Seating Surface of HPCI Check Valve

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 NAME	DOCKET NUMBER
08	08	94	94	-- 022 --	00	09	07	94	None	
									FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9)	N
POWER LEVEL (10)	099

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)

	20.2201(b)		20.2203(a)(3)(i)		50.73(a)(2)(iii)		73.71(b)
	20.2203(a)(1)		20.2203(a)(3)(ii)		50.73(a)(2)(iv)		73.71(c)
	20.2203(a)(2)(i)		20.2203(a)(4)		50.73(a)(2)(v)		OTHER
	20.2203(a)(2)(ii)		50.36(c)(1)		50.73(a)(2)(vii)		(Specify in Abstract below and in Text, NRC Form 366A)
	20.2203(a)(2)(iii)		50.36(c)(2)		50.73(a)(2)(viii)(A)		
	20.2203(a)(2)(iv)	X	50.73(a)(2)(i)		50.73(a)(2)(viii)(B)		
	20.2203(a)(2)(v)	X	50.73(a)(2)(ii)		50.73(a)(2)(x)		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
M. McGivern, Local Leak Rate Test Coordinator Ext. 2526	(815) 942-2920

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	BJ	ISV	M358	Yes						
E	BJ	ISV	R340	Yes						

SUPPLEMENTAL REPORT EXPECTED (14)				EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
X	YES (If yes, complete EXPECTED SUBMISSION DATE).		NO		11	18	94

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

At approximately 0600, on August 8, 1994 with Unit 2 operating at 99% power, the performance of Dresden Technical Surveillance DTS 1600-01, Local Leak Rate Testing Of Primary Containment Isolation Valves, identified the High Pressure Coolant Injection (HPCI) System [BJ] Turbine Exhaust to Suppression Pool Check Valve 2-2301-45 and Stop Check Valve 2-2301-74 to be leaking 234.7 scfh. This value when added to the existing maximum pathway leakage rate resulted in the maximum pathway leakage rate for Type B and C primary containment leakage, 488.452 scfh ($0.6L_a$), as listed in Technical Specification 3.7.A.2.b.(2)(a) being exceeded. The safety significance of the leakage past the 2-2301-45 was considered to be minimal since the additional leakage out of containment, on a minimum pathway basis, was 87.6 scfh from the outboard isolation Check Valve 2-2301-45 and would not cause the maximum off-site dose rates established in 10 CFR 100 to be exceeded. The cause of the excessive leakage was due to a worn seating surface which allowed leakage between the valve seat and the plate-type disks. This valve will be replaced and tested prior to unit startup. A supplement will be submitted to report the corrective actions taken for this check valve failure as well as the results of an NPRDS search.

EVENT IDENTIFICATION:

Type B and C Leakage Limit Exceeded due to Worn Seating Surface of HPCI Check Valve

A. PLANT CONDITIONS PRIOR TO EVENT:

Unit: 2 Event Date: 08/08/94 Event Time: 0600 hrs

Reactor Mode: N Mode Name: Refuel Power Level: 99%

Reactor Coolant System Pressure: 1000 psig

B. DESCRIPTION OF EVENT:

At approximately 1935, on August 7, 1994 with Unit 3 operating at 99% power, high and increasing HPCI (High Pressure Coolant Injection) [BJ] Turbine Exhaust pressure was observed during Dresden Operating Surveillance (DOS) 2300-03, High Pressure Coolant Injection (HPCI) Operability Verification. Upon stopping the surveillance, the HPCI Turbine Exhaust to Suppression Pool Valves (2-2301-45 and 2-2301-74) were declared inoperable. Technical Specification 3.7.D.1. states:

> During reactor power operation conditions, all primary containment isolation valves and all instrument line flow check valves shall be operable except as specified in 3.7.D.2.

Technical Specification 3.7.D.2. states:

> In the event any primary containment isolation valve becomes inoperable, reactor power may continue provided at least one valve in each line having an inoperable valve is in the mode corresponding to the isolated condition.

Therefore, the HPCI Turbine Exhaust Stop Check Valve 2-2301-74 was locked closed. This stopped the clock for the Limiting Condition for Operation described in Technical Specification 3.7.D.3. which states:

> If specification 3.7.D.1 and 3.7.D.2 cannot be met, an orderly shutdown shall be initiated and the reactor shall be in the cold shutdown condition within 24 hours...

At approximately 0600, on August 8, 1994 with Unit 2 operating at 99% power, the performance of Dresden Technical Surveillance DTS 1600-01, Local Leak Rate Testing Of Primary Containment Isolation Valves, identified the HPCI Turbine Exhaust to Suppression Pool Check Valve 2-2301-45 and Stop Check Valve 2-2301-74 to be leaking 234.7 scfh. This value when added to the existing maximum pathway leakage rate resulted in the maximum pathway leakage rate for Type B and C primary containment leakage, 488.452 scfh ($0.6L_a$), as listed in Technical Specification 3.7.A.2.b.(2)(a) being exceeded.

This Local Leak Rate Test is performed by first shutting the HPCI Turbine Exhaust Stop Check Valve 2-2302-74 and then pressurizing the volume between the Check Valve 2-2301-45 and the 2-2301-74. Since the Stop Check Valve is closed,

this allows pressure to build up for testing the integrity of the dual-disk HPCI Turbine Exhaust Check Valve 2-2301-45. All of the leakage is conservatively attributed to the Check Valve 2-2301-45. This volume was considered a single valve pathway since the HPCI Turbine Exhaust Stop Check Valve could not be tested in the proper accident configuration.

The Shift Control Room Engineer (SCRE) was notified of the event, and an ENS phone notification was then made at 0730 Eastern Standard Time on Monday August 8, 1994 to report a condition that was outside of the design basis of the plant.

Since there had been no history of failure of the Stop Check Valve and occasional failures of the dual-disk Check Valve, a test was needed to determine the leakage solely for one of the two valves. Trouble-shooting was performed by slipping a pancake flange between the 2-2301-45 and the 2-2301-74. This test, which pressurized only the Stop Check Valve 2-2301-74, found the 2-2301-74 to be leaking 147.1 scfh. Therefore, the leakage attributed to the Check Valve 2-2301-45 was 87.6 scfh

Since the HPCI Turbine Exhaust to Suppression Pool valves could not be repaired on-line, the Dresden Unit 2 reactor was shut down. An ENS phone notification was made at 0848 Eastern Standard Time on Monday August 8, 1994 to report the initiation of a Technical Specification reactor shutdown.

C. CAUSE OF EVENT:

This LER is submitted in accordance with 10 CFR 50.73(a)(2)(i) which requires the reporting of any operation or condition prohibited by the plant's Technical Specifications.

This LER is also submitted to report any event or condition that resulted in the condition of the nuclear power plant, including its principal safety barriers, being seriously degraded or that resulted in the nuclear power plant being in a condition that was outside the design basis of the plant.

The dual-disk HPCI Turbine Exhaust Check Valve 2-2301-45 was removed from the system under Work Request D26915 and found to have a worn seating surface which allowed a path for leakage between the valve seat and the plate-type disks. The Check Valve was last replaced in 1989, thus, this valve was in operation for approximately 3 full cycles. This is the only known failure of this valve. The rubber valve seat was worn in some areas as much as .006". It is believed that the worn seat is due to normal wear experienced during HPCI system operability verification surveillances.

The lift-type HPCI Turbine Exhaust Stop Check Valve 2-2301-74 was disassembled and inspected under Work Request D26919. The valve disk was found not attached to the valve guide piston. Further inspection revealed that the four tack welds, which prevent the assembly from rotating and coming apart, had broken due to fatigue. For detailed information concerning the failure of the Stop Check Valve 2-2301-74, see LER\Docket 94-021\0500237.

D. SAFETY ANALYSIS:

The safety significance of the leakage past the 2-2301-45 was considered to be minimal since the additional leakage out of containment, on a minimum pathway basis, was 87.6 scfh from the outboard isolation Check Valve 2-2301-45 and would not cause the maximum off-site dose rates established in 10 CFR 100 to be exceeded.

E. CORRECTIVE ACTIONS:

The HPCI Turbine Exhaust Check Valve 2-2301-45 will be replaced with a dual-disk type check valve made by C & S Valve Company. The long-term corrective action is to replace the valve after two operating cycles. No inspections were performed on the Dresden Unit 3 Check Valve 3-2301-45 since it was replaced during the 1994 Refuel Outage D3R13.

The HPCI Turbine Exhaust Stop Check Valve 2-2301-74 internals were cleaned and the seat was lapped. A new valve disk and guide piston assembly was installed. An as-left LLRT was performed in the proper accident configuration and the leakage was 1.21 scfh. In response to the problem found on Unit 2, the Dresden Unit 3 Stop Check Valve 3-2301-74 was disassembled, inspected and reassembled with no problems found.

The HPCI Turbine Exhaust Check Valve has been in the Dresden Station Check Valve Program since its inception, however, the Stop Check Valve was recently added and had not yet been initially inspected.

An LER supplement will be submitted which contains the results of the remaining LLRTs.

F. PREVIOUS OCCURRENCES:

LER/Docket Numbers	Title
91-007/0500249	Type B and C Containment Local Leak Rate Testing Limit Exceeded Due to HPCI Turbine Exhaust Check Valve Leakage
89-009/0500249	Local Leak Rate Testing "As Found" limit Exceeded Due to leakage From Primary Containment Valves

G. COMPONENT FAILURE DATA:

An LER supplement will be submitted with the results of an industry wide Nuclear Plant Reliability Data System (NPRDS) data base search of similar valve failures.