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Dresden Generating Station
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ComEd

May 24, 1996

JSPLTR #96-0081

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, D. C. 20555

Enclosed is Licensee Event Report 96-007, Docket 50-237 which is being submitted pursuant to 10CFR50.73(a)(2)(i)(B), any operation or condition prohibited by the plant's Technical Specifications and 10CFR50.73(a)(2)(v), any event or condition that alone could have prevented the fulfillment of the safety function of structures or systems that are needed to mitigate the consequences of an accident.

This correspondence contains the following commitments:

1. An inspection plan will be developed to evaluate material condition of the drain line downstream from valve 2-2301-54 to valves AOV 2-2301-29 and AOV 2-2301-28 to determine if there are any additional instances of pipe wall thinning. A modification will be evaluated to replace the line with a material that is less susceptible to flow accelerated corrosion. (2371809600701)

2. An inspection plan will be developed to evaluate the material condition of the drain line downstream from valve 3-2301-55 to valves AOV 3-2301-29 and AOV 3-2301-28 to determine if there are any additional instances of pipe wall thinning. A modification will be evaluated to replace the line with a material that is less susceptible to flow accelerated corrosion. (2371809600702)

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3. System Engineering staff will review historical references of failures on this line and if reportable instances are identified a supplemental LER will be provided. (2371809600703)

Sincerely,

J. Stephen Perry
Site Vice President
Dresden Station

Enclosure

cc: H. Miller, Regional Administrator, Region III
NRC Resident Inspector's Office
Illinois Department of Nuclear Safety

NRC FORM 366 (5-92)	U.S. NUCLEAR REGULATORY COMMISSION	APPROVED BY OMB NO. 3150-0104 EXPIRES 5/31/95
LICENSEE EVENT REPORT (LER)		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.

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

TITLE (4)
High Pressure Coolant Injection Inoperable Due To A Through-wall Hole In the Inlet Drain Pot Line To the Condenser Caused By Flow Accelerated Corrosion

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 None	DOCKET NUMBER
04	26	96	96	-- 007 --	00	05	24	96	FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9)	R	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)
POWER LEVEL (10)	100		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)	X	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)		50.73(a)(2)(ii)		50.73(a)(2)(x)		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
Gerald Tietz, Plant Engineering Ext. 2224	(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

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 15 single-spaced typewritten lines) (16)

On April 26, 1996, at 2202 hours, with Unit 2 in the run mode at 24% core thermal power, the High Pressure Coolant Injection (HPCI) System was declared inoperable due to a through-wall hole in the HPCI inlet drain pot line 2-2323-1"-LX. The line constitutes part of the HPCI system pressure boundary. The hole was located in a 90 degree elbow upstream of valve AOV 2-2301-29, the HPCI Turbine Steam Supply Drain Pot to Main Condenser Isolation Valve. This line serves to drain condensate from the HPCI turbine steam inlet supply line to the main condenser. The HPCI system was isolated and taken out of service to effect repairs. Technical Specification 3.5.C.2.a was entered and Unit 2 then entered a seven day unplanned TS Limiting Conditions for Operation. The elbow was replaced. Inspection of the elbow determined that the hole developed due to flow accelerated corrosion. Corrective actions include replacement of the elbow, additional evaluation of the materiel condition of the drain line, and evaluation of modifications to replace the lines with a material more resistant to flow accelerated corrosion.

EVENT IDENTIFICATION:

High Pressure Coolant Injection inoperable due to a through-wall hole in the inlet drain pot line to the condenser caused by flow accelerated corrosion.

A. PLANT CONDITIONS PRIOR TO EVENT:

Unit: 2 Event Date: April 26, 1996 Event Time: 2030

Reactor Mode: Run Mode Name: N Power Level: 24%

Reactor Coolant System Pressure: 975 psig

B. DESCRIPTION OF EVENT:

This report is being submitted in accordance with 10CFR50.73(a)(2)(i)(B), any operation or condition prohibited by the plant's Technical Specifications.

This report is also being submitted in accordance with 10CFR50.73(a)(2)(v), any event or condition that alone could have prevented the fulfillment of the safety function of structures or systems that are needed to mitigate the consequences of an accident.

On April 26, 1996, at 2030 hours (CST) a small through-wall hole was discovered on High Pressure Coolant Injection (HPCI) [BJ] inlet drain pot line 2-2323-1"-LX. The line constitutes part of the HPCI system pressure boundary. The hole was located in a 90 degree elbow upstream of valve AOV 2-2301-29, the HPCI Turbine Steam Supply Drain Pot to Main Condenser Isolation Valve. This line serves to drain condensate from the HPCI turbine steam inlet supply line to the main condenser. The through-wall hole was located inside of the Turbine Building. The hole developed in a location of the HPCI piping which could not be isolated for repairs without isolating the HPCI system. The hole provided a leakage path outside of the HPCI system pressure boundary into the Unit 2 Turbine Building. This constituted a condition prohibited by Technical Specification 3/4.6.F.1 due to the through-wall hole which developed in an ASME Class II piping system.

At 2202 hours (CST) on April 26, 1996, with Unit 2 in the run mode at 24% rated core thermal power, the HPCI System was isolated and taken out of service (OOS) to effect repairs to the inlet drain pot line to the condenser. Per Technical Specification (TS) 3.5.C.2.a the Unit then entered a seven day unplanned TS Limiting Conditions for Operation (LCO).

At 2239 on April 26, 1996, an ENS notification was made pursuant to 10CFR72(b)(2)(iii)(D) to inform the NRC of the event.

On April 27, 1996, the elbow on inlet drain pot line 2-2323-1"-LX was replaced through station work request number 960043310. Inspection of the elbow determined that the hole developed due to flow accelerated corrosion.

At 0230 on April 28, 1996, the HPCI system was declared operable and the unit exited the seven day LCO.

C. CAUSE OF EVENT:

The failure of the piping was due to flow accelerated corrosion as determined by inspection of the elbow. The affected line is a prime candidate for this phenomena due to the piping material (carbon steel). Another contributing factor was the previously undersized steam inlet pot trap bypass valve which allowed steam to flow through the line to the condenser at higher than recommended velocities.

The cause of the event is classified as NRC Cause code B, "Design, Manufacturing, Construction/installation", due to the installed piping material failing to withstand the functional requirements of the system.

D. SAFETY ANALYSIS:

The safety significance of the drain line hole on the performance of the HPCI system was negligible. Prior to the HPCI System being isolated to repair the elbow, it would have performed its safety function. Line 2-2323-1"-LX drains condensate that accumulates in the inlet drain pot to the condenser. The location of the leak in the affected elbow had no affect on the steam supply or exhaust function of the steam line. The condensate removal function was also not affected.

The through-wall hole was located inside of the Turbine Building. The Turbine Building is maintained at a negative pressure by the ventilation system and all discharges occur through the 2/3 chimney. The 2/3 chimney is continually monitored for radioactive releases. Capability therefore existed to monitor any release through the hole to the Turbine Building. No unmonitored radioactive release occurred that would have exceeded regulatory limits. Previous tests have determined that Secondary Containment would still have been maintained considering the size of the leak. The affect on Secondary Containment was therefore negligible.

At this time there is no reason to believe that the pipe upstream of the 2(3)-2301-31 valve has wall thinning since it was replaced during the 2(3)-2301-31 valve replacement in 1994. There would have been no steam continuously flowing through the line after this modification. The line from the inlet drain pot to the main steam line is not subjected to conditions conducive to flow accelerated corrosion, therefore there is no concern with this line.

The deficient 2(3)-2301-31 valve is believed to have been installed since plant construction. The current AOV and maintenance program will ensure the correct valve size.

Based on the above and the fact that all other Emergency Core Cooling Systems required by Technical Specification 3.5.C.2.a were operable throughout this event, the safety significance is minimal.

E. CORRECTIVE ACTIONS:

High Pressure Coolant Injection (HPCI) inlet drain pot line 2-2323-1"-LX was repaired by station work request number 960043310. Repairs included cutting out the elbow and replacing it.

The steam inlet pot bypass valve has been replaced on both units.

An inspection plan will be developed to evaluate material condition of the drain line downstream from valve 2-2301-54 to valves AOV 2-2301-29 and AOV 2-2301-28 to determine if there are any additional instances of pipe wall thinning. A modification will be evaluated to replace the line with a material that is less susceptible to flow accelerated corrosion. (2371809600701)

An inspection plan will be developed to evaluate the material condition of the drain line downstream from valve 3-2301-55 to valves AOV 3-2301-29 and AOV 3-2301-28 to determine if there are any additional instances of pipe wall thinning. A modification will be evaluated to replace the line with a material that is less susceptible to flow accelerated corrosion. (2371809600702)

System Engineering staff will review historical references of failures on this line and if reportable instances are identified a supplemental LER will be provided. (2371809600703)

F. PREVIOUS OCCURRENCES:

There has been a recent failure of the HPCI drain line on Unit 3 in March 1996 as documented in LER 249-96-002. That leak was on a 45 degree elbow. Flow accelerated corrosion was also found to be the cause of that through-wall leak. Repairs were made to the defective line and a schedule for future inspections was established for both units in the next refuel outages. In hindsight, although a plan was generated to address this issue on Unit 2, it appears the plan was not sufficiently timely or aggressive.

There have been non-reportable previous failures on this line due to flow accelerated corrosion. A review of historical work requests revealed ~30 similar repairs on the same line since 1984 and ~20 similar repairs on Unit 3 since 1986. This information was not available during preparation of LER 249-96-002.

G. COMPONENT FAILURE DATA:

None.