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Dresden Generating Station
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ComEd

August 29, 1996

JSPLTR #96-0146

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

Enclosed is Licensee Event Report 96-002, Revision 1, Docket 50-249 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 supplemental LER is being submitted to provide additional information regarding the cause of the event and the event safety analysis.

This correspondence does not contain additional regulatory commitments.

Sincerely,

for J. Stephen Perry
Site Vice President
Dresden Station

Enclosure

cc: A. W. Beach, Regional Administrator, Region III
NRC Resident Inspector's Office
Illinois Department of Nuclear Safety

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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 3	05000249	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	DOCKET NUMBER
03	05	96	96	-- 002 --	01	08	29	96	None	
									FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9)	R
POWER LEVEL (10)	100

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)	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)
John Kish, Plant Engineering Ext. 2360	(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 March 5, 1996, at 1606 hours, with Unit 3 in the run mode at 100% 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 3-2323-1"-LX. The line constitutes part of the HPCI system pressure boundary. The hole was located in a 45 degree elbow upstream of valve AOV 3-2301-29, 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 3 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. Inspection of the piping upstream and downstream of the elbow revealed acceptable wall thickness. Corrective actions include replacement of the elbow and additional evaluation of the materiel condition of the drain line. The safety significance of the event was minimal.

PLANT AND SYSTEM IDENTIFICATION

Dresden Unit three is a General Electric - boiling water reactor - 2527 MWt rated core thermal power.

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

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: 3 Event Date: 03-05-96 Event Time: 1606

Reactor Mode: Run Mode Name: N Power Level: 100%

Reactor Coolant System Pressure: 1005 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.

This Supplemental LER (Revision 1) is being submitted to provide additional information regarding the cause of the event and the event safety analysis.

On February 27, 1996, at 2152 (CST) a small through-wall hole was discovered on High Pressure Coolant Injection (HPCI) [BJ] inlet drain pot line 3-2323-1"-LX. The line constitutes part of the HPCI system pressure boundary. The hole was located in a 45 degree elbow upstream of valve AOV 3-2301-29, 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 3 Turbine Building. This constituted a condition prohibited by Technical Specification 3/4.6.F.1 because a through-wall hole developed in an ASME Class II piping system.

At 1606 (CST) on March 5, 1996, with Unit 3 in the run mode at 100% 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 1820 on March 5, 1996, an ENS notification was made pursuant to 10CFR72(b)(2)(iii)(D) to inform the NRC of the event.

On March 6, 1996, the elbow on inlet drain pot line 3-2323-1"-LX was replaced through station work request number 960018945. Inspection of the elbow determined that the hole developed due to flow accelerated corrosion. Inspection of the piping upstream and downstream of the elbow revealed acceptable wall thickness.

At 1430 on March 6, 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. A radiograph of this elbow coupling indicated metal thinning to less than 0.100 inches from the original 0.179 inches for a newly manufactured item. 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, 3-2301-31, which allowed steam to flow through the line to the condenser at higher than recommended velocities. The thinning occurred on the outer radius of the inner pipe surface as a result of the HPCI saturated liquid steam line drains impingement on the elbow's material. This HPCI drain line is a small bore line, therefore was not part of the Flow Assisted Corrosion (FAC) Program. It has subsequently been added to the program and additional inspections are planned.

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 3-2323-1"-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 3-2301-31 valve has wall thinning since it was replaced during the 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 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 3-2323-1"-LX was repaired by station work request number 960018945. Repairs included cutting out the elbow and replacing it.

An inspection plan will be developed to evaluate the materiel 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. Conditions which are determined to be unacceptable will be corrected with a material less susceptible to flow accelerated corrosion. (2491809600201)

An inspection plan will be developed to evaluate the materiel 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. Conditions which are determined to be unacceptable will be corrected with a material less susceptible to flow accelerated corrosion. (2491809600202)

F. PREVIOUS OCCURRENCES:

There have been no failure cases reported by LERs on Class 1, 2, or 3 piping due to flow accelerated corrosion. There have been previous failures on this line due to flow accelerated corrosion.

G. COMPONENT FAILURE DATA:

None