

LICENSEE EVENT REPORT (LER)

Form Rev 2.0

Facility Name (1) Dresden Nuclear Power Station, Unit 2				Docket Number (2) 0 5 0 0 0 2 3 7				Page (3) 1 of 0 4			
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Title (4)  
Outboard Main Steam Line Isolation Valve 2-203-2A As Found Leakage Rate Exceeded the Technical Specification Limit of 11.5 scfh

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 Names	Docket Number(s)			
0	1	1993	93	003	01	0	2	1893	N/A				
										N/A			

OPERATING MODE (9) N THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)

POWER LEVEL (10) 0 0 0	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
	20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
	20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	Other (Specify in Abstract below and in Text)
	20.405(a)(1)(iii)	X 50.73(a)(2)(i)	50.73(a)(2)(viii) (A)	
	20.405(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii) (B)	
20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(ix)		

LICENSE CONTACT FOR THIS LER (12)

NAME M. Andjelic, LLRT Coordinator	TELEPHONE NUMBER			
	AREA CODE 8 1 5	9 4 2 - 2 9 2 0		

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	X	B I S V C	C 6 6 5	Y					

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 fifteen single-space typewritten lines) (16)

On January 19, 1993 with Unit 2 in a refuel Outage, the performance of Dresden Technical Surveillance (DTS) 250-03, Main Steam Isolation Valve Local Leak Rate (Wet) Test, identified that the "A" Main Steam Line Outboard Isolation Valve (SB), 2-203-2A, was leaking 14.96 scfh. This leakage rate exceeds the limit specified in Technical Specification 3.7.A.2.b.2.c, which limits the leakage past any main steam isolation valve (MSIV) to 11.5 scfh when tested with air at a pressure of 25 psig. The Shift Engineer was notified that the leakage rate for the 2-203-2A MSIV had exceeded the Technical Specification limit of 11.5 scfh and a Problem Identification Form (PIF) was initiated per Dresden Administrative Procedure (DAP) 02-27, Integrated Reporting Process. Work Request (WR) 15596 was written to inspect and repair the valve to reduce leakage. The safety significance of the leakage past outboard MSIV 2-203-2A has been considered to be minimal since the redundant inboard MSIV 2-203-1A had a leakage rate of 2.39 scfh; therefore, the total through leakage out of the penetration, on a minimum pathway basis, was 2.39 scfh and would not cause the maximum off site dose rates established in 10 CFR 100 to be exceeded. MSIV 2-203-2A was inspected and repaired to identify and correct the cause of the unsatisfactory leakage. In addition, inboard MSIVs 2-203-1C and 2-203-1D were also inspected and repaired, since the as-found leakage past these valves indicated an upward trend.

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

Although the As Found leakage rates past the Inboard Main Steam Line Isolation valves 2-203-1C and 2-203-1D were within the Technical Specification limits, a comparison of the previous refuel outage As Left LLRT results indicated an upward trend in leakage. Therefore, the valves were disassembled and inspected in accordance with DMP 200-15 revision 11.

"C" Main Steam Line Inboard Isolation Valve 2-203-1C was inspected and repaired under Work Request 10044. A visual inspection and dimensional verification of the valve internals indicated the pilot valve disc to have small concentric grooves and the pilot disc to guide clearance to exceed the 0.030 to 0.036 inch limit specified in DMP 200-15. The main disc guide tab to upper guide liner clearances were also found to exceed the 0.030 to 0.070 inch limit specified in the Maintenance procedure. Several low spots were also identified on the main valve seat.

"D" Main Steam Line Inboard Isolation Valve 2-203-1D was inspected and repaired under Work Request 07221. A visual inspection and dimensional verification of the valve internals indicated the pilot valve disc to have small concentric grooves. The main disc guide tab to upper guide liner clearances were also found to exceed the 0.030 to 0.070 inch limit specified in DMP 200-15. Low spots on the main valve seat were also identified.

**D. SAFETY ANALYSIS OF EVENT:**

The safety significance of the leakage past outboard MSIV 2-203-2A has been considered to be minimal, since the redundant inboard MSIV 2-203-1A had a leakage rate of 2.39 scfh; therefore, the total through leakage out of the penetration, on a minimum pathway basis, was 2.39 scfh and would not cause the maximum off site dose rates established in 10 CFR 100 to be exceeded.

**E. CORRECTIVE ACTIONS:**

In order to reduce leakage and restore the "A" Main Steam Line Outboard Isolation Valve 2-203-2A to within the limits specified in DMP 200-15, the main disc assembly, valve stem, and pilot disc were replaced. The cracks in the lower liner to body bore retaining welds were evaluated by Dresden Site Engineering, System Materials Analysis Department, and General Electric. The cracks in the retaining welds were excavated and three 1/4" by 4" wide fillet welds were applied. The main valve disc and seat were lapped to obtain an acceptable blue check. Maintenance work was completed April 26, 1993 and a final Post Maintenance LLRT was performed on May 3, 1993. This leak rate test yielded a leakage rate of 4.41 scfh when testing between the inboard and outboard valves. The cause of the pilot valve wear and excessive main disc guide tabs to upper guide liner clearances have been attributed to normal wear. Acceptance criteria for main disc guide tab to upper guide liner clearance has never been specified in previous revisions of DMP 200-15. The cracks in the lower liner to body bore retaining welds have been attributed to fatigue caused by thermal cycling and/or flow induced vibrations. LLRT history dating back to 1983 indicates no previous failures for this valve.

In order to reduce leakage and restore the "C" Main Steam Line Inboard Isolation Valve 2-203-1C to within the limits specified in DMP 200-15, the main disc assembly, valve stem, upper guide liner, and pilot disc were replaced. The main disc and seat were also lapped to obtain an acceptable blue check. A final LLRT was performed on May 4, 1993 and yielded a leakage rate of 5.29 scfh when testing between the inboard and outboard valves. The cause of the degradation of valve condition has been attributed to normal wear. Acceptance criteria for main disc guide tab to upper guide liner

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

clearance has never been specified in previous revisions of DMP 200-15. LLRT history dating back to 1983 indicates no previous failures for this valve.

In order to reduce leakage and restore the "D" Main Steam Line Inboard Isolation Valve 2-203-1D to within the limits specified in DMP 200-15, the main disc assembly, valve stem, upper guide liner, and pilot seat/disc were replaced. The main disc and seat were also lapped to obtain an acceptable blue check. A final LLRT was performed on May 9, 1993 and yielded a leakage rate of 8.74 scfh when testing between the inboard and outboard valves. A previously performed "wet test", performed on May 8, 1993 in accordance with DTS 250-03, indicted a leakage rate of 2.68 scfh from the Outboard "D" Main Steam Line Isolation Valve 2-203-2D. Therefore, the leakage past valve 2-203-1D is calculated to be 6.06 scfh. The cause of the degradation for this valve has also been attributed to normal wear. Acceptance criteria for main disc guide tab to upper guide liner clearance has never been specified in previous revisions of DMP 200-15. Previous LLRT history dating back to 1983 indicates one failure since 1983. The cause for that failure has been attributed to a 1/16" groove across the pilot valve disc.

Recent efforts / corrective actions have been employed to reduce general wear of the MSIVs by prohibiting the "dry" cycling of the valves when the main steam lines have been drained for extended periods of time.

F. PREVIOUS OCCURRENCES:

<u>LER/Docket Numbers</u>	<u>Title</u>
90-009/0500237	Type B and C Primary Containment Local Leak Rate Test Requirements Exceeded Due To Leaking Isolation Valves

G. COMPONENT FAILURE DATA:

<u>Manufacturer</u>	<u>Nomenclature</u>	<u>Model Number</u>	<u>Mfg. Part Number</u>
Crane Co.	2-203-2A	DR34289-20" Y Pattern Globe Valve	N/A

An industry wide data base search has been performed and eight valve failures were identified through LLRTs. Of those failures reported, five failures were attributed to worn or damaged pilot valves. One failure was attributed to worn packing. One failure was attributed to a combination of worn pilot valve and main valve seating surfaces. One failure was attributed to normal wear.