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)
Leakage Limit Exceeded Due to Excessive Leakage Past Main Steam Isolation Valves

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
06	07	95	95	-- 015 --	01	05	14	96	None	
									FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9)	N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)							
POWER LEVEL (10)	000	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	(815) 942-2920 Ext. 2526

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	SB	ISV	C665	Yes					

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)

At approximately 0215, on June 7, 1995, with Unit 2 shutdown for Refuel Outage D2R14, the performance of a Dresden Technical Surveillance identified the A and C Main Steam Isolation Valves (MSIVs) leaking 33.1 and 18.8 standard cubic feet per hour (scfh), respectively. On June 8, 1995, the performance of another surveillance identified the inboard A MSIV to be leaking 33.1 scfh and the inboard C MSIV to be leaking 14.85 scfh. These leakage rates exceed the Technical Specification limit of leakage past any MSIV to 11.5 scfh when tested with air at a pressure of 25 psig. The safety significance of the leakage past the inboard A and C MSIVs was considered to be minimal since the additional leakage out of containment, on a minimum pathway basis, was 0 and 3.95 scfh, respectively, from the outboard MSIVs and would not cause the maximum off-site dose rates established in 10 CFR 100 to be exceeded. The valves were inspected, repaired and Local Leak Rate Tested prior to unit startup. This supplement has been submitted to report the reason for valve failure and the corrective actions taken.

EVENT IDENTIFICATION:

Leakage Limit Exceeded Due to Excessive Leakage Past Main Steam Isolation Valves

A. PLANT CONDITIONS PRIOR TO EVENT:

Unit: 2 Event Date: 06/07/95 Event Time: 0215 hrs.

Reactor Mode: N Mode Name: Refuel Power Level: 0%

Reactor Coolant System Pressure: 0 psig

B. DESCRIPTION OF EVENT:

At approximately 0215, on June 7, 1995, with Unit 2 shutdown for Refuel Outage D2R14, the performance of Dresden Technical Surveillance (DTS) 0250-01, Main Steam Isolation Valve Local Leak Rate (Dry) Test, identified the A and C Main Steam Isolation Valves (MSIVs) [SB] leaking 33.1 and 18.8 standard cubic feet per hour (scfh), respectively. DTS 0250-01 is performed by pressurizing between the two MSIVs on each main steam line to 25 psig and thus finding the leakage through both valves.

The Unit Supervisor was notified of the excessive leakage and a Performance Improvement Form (PIF) was initiated. Additional trouble shooting was performed to determine whether an individual MSIV exceeded its Technical Specification leakage limit.

On June 8, 1995, the performance of DTS 0250-03, Main Steam Isolation Valve Local Leak Rate (Wet) Test, identified the outboard A MSIV (2-0203-2A) to be leaking 0 scfh and the outboard C MSIV (2-0203-2C) to be leaking 3.95 scfh. This trouble shooting test is performed by flooding main steam lines up to the inboard MSIV. Since the pressure exerted by the head of water is more than the LLRT test pressure, leakage found during the test is attributed to the outboard MSIV. When the leakage from the outboard MSIV is subtracted from leakage from both valves, the result is the leakage attributed to the inboard MSIV. Thus the inboard A MSIV (2-0203-1A) was leaking 33.1 scfh and the inboard C MSIV (2-0203-1C) was leaking 14.85 scfh. These leakage rates exceed the limit specified in Technical Specification 3.7.A.2.b.2.c, which limits the leakage past any MSIV to 11.5 scfh when tested with air at a pressure of 25 psig.

Since Local Leak Rate Test results determine which MSIVs are to be refurbished, the decision was made to change out the seat ring and lower guide assembly for the inboard A MSIV. Under Work Request 950018493, the four lower guide liner to body bore welds were machined out and the liner removed. After the lower guide liner was removed, dimensional verification discovered that the seat ring center was within the vendor's specification of .011" from the body bore centerline. The seat ring to body seal weld was mechanically removed with a boring bar and the seat ring removed. Since the seat ring and body bore were within vendor's tolerances, there was no valve body removal and subsequent body boring required in order to establish a new valve centerline. The new seat ring and lower guide liner were then welded in and lapped as necessary to obtain a uniform seating surface. The repairs were performed to ASME Section XI criteria. Upon completion of the MSIV assembly, actuator repairs and closing spring replacements, the final as-left LLRT was performed on February 23, 1996 and

yielded a leakage of 0.1 scfh. The only other leakage failure for this valve was in the Fall of 1990 during D2R12.

The decision to change out the seat ring and lower guide assembly for the inboard C MSIV was determined from LLRT results. Under Work Request 9500184591, the four lower guide liner to body bore welds were machined out and the liner removed. After the lower guide liner was removed, dimensional verification discovered that the seat ring center was within the vendor's specification of .011" from the body bore centerline. The seat ring to body seal weld was mechanically removed with a boring bar and the seat ring removed. Since the seat ring and body bore were within vendor's tolerances, there was no valve body removal and subsequent body boring required in order to establish a new valve centerline. The new seat ring and lower guide liner were then welded in by a robotic welding machine and lapped as necessary to obtain a uniform seating surface. The repairs were performed to ASME Section XI criteria. Upon completion of the MSIV assembly, actuator repairs and closing spring replacements, the final as-left LLRT was performed on February 23, 1996 and yielded a leakage of 0.1 scfh. This valve had one previous LLRT failures in 1193 during D2R13.

This LER is being submitted pursuant to 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 pursuant to 10 CFR 50.73(a)(2)(ii) which requires reporting any event or condition that resulted in the condition of the nuclear power plant, including its principal safety barriers, being seriously degraded.

C. CAUSE OF EVENT:

Repeated lapping of the seat ring during maintenance activities as a result of previous LLRT failures combined with impingement of saturated steam on the seat ring has resulted in an eroded non-uniform layer of stellite on the seat ring and thus created a leakage path. Repair/replacement of the valve seat ring and lower guide liner is due to minimal hard faced seating stellite remaining on some areas of the seat ring.

In addition, upon zero line verification, it has been discovered that the lower guide liner, the valve body bore (thus the valve bonnet\backseat) and the seat ring are somewhat misaligned. This misalignment between the valve body, lower guide liner and seat ring causes improper seating of the disk and thus a leakage path.

D. SAFETY ANALYSIS:

The safety significance of the leakage past the inboard A and C MSIVs was considered to be minimal since the additional leakage out of containment, on a minimum pathway basis, was 0 and 3.95 scfh, respectively, from the outboard MSIVs and would not cause the maximum off-site dose rates established in 10 CFR 100 to be exceeded.

E. CORRECTIVE ACTIONS:

Dresden Station has a MSIV performance improvement plan in place which entails refurbishment of a minimum of two MSIVs each refuel outage until all 8 MSIVs have been upgraded. The long term corrective action to prevent valve leakage due to poor seating capabilities by repair/replacement of the valve seat ring and lower guide liner for a minimum of two MSIVs each refuel outage until all 8 MSIVs have been upgraded will continue. This is being performed on both Unit 2 and Unit 3 (2371809302602, 2371809302603, and 2371809302604). Detailed inspections of valve internals and acid etching of the seat ring to determine the scarcity of the stellite seating material were not performed to minimize person-REM and maintenance time.

F. PREVIOUS OCCURRENCES:

LER/Docket Numbers	Title
93-026/0500237	Main Steam Line Isolation Valves 2-203-2A and 2-203-1D As-Found Leakage Rates Exceeded the Technical Specification Limit of 11.5 scfh
93-003/0500237	Outboard Main Steam Line Isolation Valve 2-203-2A As Found Leakage Rate Exceeded the Technical Specification Limit of 11.5 scfh
90-009/0500237	Type B and C Primary Containment Local Leak Rate Test Requirements Exceeded Due to leaking Isolation Valves
88-018/0500237	Leak Rate Limits Exceeded in Drywell Head Seal and MSIV 2-203-1D Tests Due to Misalignment and Seat Wear

G. COMPONENT FAILURE DATA:

Manufacturer	Nomenclature	Model Number	Mfg. Part Number
Crane Co.	Main Steam Isol. Valve 2-0203-1A	DR34289-20" Y Pattern Globe Valve	N/A
Crane Co.	Main Steam Isol. Valve 2-0203-1C	DR34289-20" Y Pattern Globe Valve	N/A

An industry - wide data base search revealed fifteen failures for the Crane Company Y-Pattern Globe Valve utilized in Main Steam Systems. Six failures were attributed to wear of valve internals.