

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

April 11, 1994

GFSLTR 94-0118

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

Licensee Event Report 94-009, Docket 50-249 is being submitted as required by Technical Specification 6.6, NUREG 1022 and 10CFR50.73(a)(2)(i).

Sincerely,

Gary F. Spedl Station Manager Dresden Station

JE de

GFS/MMcG:cfq

Enclosure

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

gfs94\0118.94



				_									· · · · · · ·					_	
NRC FORM	1 366					۲	U.S.	NUCLE	AR F	EGULATO	RY CO	MISSION			APPROVED BY EXPI	OMB NO. RES 5/31/	3150 95	0-0104	,
		LIC	EN	SEI	e jer	VENT R	EP	ORT	(L	ER)			ESTIN THIS FORW/ THE (MNBI WASH) REDUC	IAT IN ARD INI 3 7 ING CTI SEM	ED BURDEN PE IFORMATION COL COMMENTS RE FORMATION AND 714), U.S. NU TON, DC 20555 ON PROJECT ENT AND BUDGE	R RESPON LECTION GARDING I RECORDS CLEAR REG -0001, AN (3150-0 I, WASHIN	SE REQU BURDI MAN ULAT ID T( 104) GTON	TO CO IEST: EN ES IAGEME ORY CI O THE , OI	MPLY WITH 50.0 HRS. TIMATE TO NT BRANCH DMMISSION, PAPERWORK FFICE OF 20503.
FACILITY	FACILITY NAME (1) Dresden Nuclear Power Station, Unit 3								DOCK	ET	NUMBER (2) 05000249		PAGE (3) 1 OF 6						
TITLE (4	) Type	B an	d (	C L	eaka	ige Lim	it	Exce	ede	d Due	to	Valve	3-13	01	-3 Not Ful	ly Clo	sed		
EVEN	T DATE (	5)	]		L	ER NUMBER	(6)			REPO	RT DA1	re (7)			OTHER FACIL	ITIES INV	OLVE	D (8)	
MONTH	DAY	YEAR	YEAR			EQUENTIAL NUMBER		REVISION NUMBER		MONTH	DAY	YEAR	FACIL None	FACILITY NAME DOC		OCKET NUMBER			
03	12	94	9	94		009		- 00	)	. 04	11	94	FACIL	FACILITY NAME			DOCKET NUMBER		
OPERAT	TING		][тн	IS F	REPOR	T IS SUBM	ITTE	D PURS	JANT	TO THE	REQUI	REMENTS	OF 10	CF	R§: (Check c	one or mor	re) (	(11)	
NODE	(9)	N		20.	402(	b)				20.405	c)				50.73(a)(2)(i	v)		73.71	(b)
POW	FR I		i	20.	405(	a)(1)(i)	•		50.36(c)(1)					50.73(a)(2)(v)			73.71(c)		
LEVEL	(10)	000		20.	20.405(a)(1)(ii)			50.36(c)(2)					50.73(a)(2)(v	/ii)		OTHER			
			i	20.	405(a)(1)(iii)			X 50.73(a)(2)(i)				50.73(a)(2)(viii)(A)			(Specify in				
				20.	.405(	05(a)(1)(iv)			50.73(a)(2)(ii)				50.73(a)(2)(viii)(B)			Abstract below		below	
				20.	405(	a)(1)(v)		50.73(a)(2)(iii)				50.73(a)(2)(x)			NRC Form 366A)				
								LICENS	FF (	ONTACT	FOR TH	IS LER	(12)		······	·			300//
NAME							<u> </u>						TELEPHONE NUMBER (Include Area Code)						
	M. McGivern, Local Leak Rate Test Coordinator Ext.2526 (815) 942-2920																		
	· · · ·			CO	<b>IPLET</b>	E ONE LIN	E FO	R EACH	CO	PONENT	FAILUE	RE DESCR	IBED I	I T	HIS REPORT (1	3)			,
CAUSE	SYSTEM	i _ C	OMPC	DNEN	T I	ANUFACTUR	ER	REPOR	TABL	.E 5		CAUSE	SYSTI	EM	COMPONENT	MANUFAC	TURE	RR	EPORTABLE TO NPRDS
		ŀ																	-
	<u>.</u>		SUP	PLEM	ENTAI	. REPORT E	XPE	TED (1	4)					F		MONTH	T	DAY	YEAR
X YES (If )	/es, com	olete	EXPI	ECTE	D SUE	MISSION D	ATE)				ŅO			SUI DA	BMISSION TE (15)	07		31	.94

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

At approximately 1800, on March 12, 1994 with Unit 3 in Refuel Outage D3R13, the performance of Dresden Technical Surveillance DTS 1600-01, Local Leak Rate Testing Of Primary Containment Isolation Valves, identified the Isolation Condenser System [BL] Condensate Return Throttling Valve 3-1301-3 to be leaking an undetermined amount. This value when added to the existing maximum pathway leakage rate exceeded the maximum pathway leakage rate limit for Type B and C primary containment leakage, 488.452 scfh (0.6L), as listed in Technical Specification 3.7.A.2.b.(2)(a). Trouble-shooting determined that the Motor Operated Valve (MOV) had not closed completely when stroked earlier for draining the system. MOV testing was performed with diagnotic test equipment and no anomalies were determined. After the valve was closed using primary containment isolation logic another LLRT was performed and leakage was determined to be 5.3 scfh. The safety significance of not fully closing the 3-1301-3 valve for the LLRT is considered minimal since when the valve was fully closed with primary containment isolation logic an acceptable LLRT was obtained. A supplement will be submitted to report the cause and corrective actions for other valve failures which occur during the course of the Unit 3 Refuel Outage.

NRC FORM 366A (5-92)	U.S. NUCLEAR R	APPROVED BY ONB NO. 3150-0104 EXPIRES 5/31/95					
· · ·	LICENSEE EVENT REPORT (L TEXT CONTINUATION	ER)	ESTIMATED BURDEN PER RESPONSE TO CO THIS INFORMATION COLLECTION REQUEST: FORWARD COMMENTS REGARDING BURDEN ES THE INFORMATION AND RECORDS MANAGEME (MNBB 7714), U.S. NUCLEAR REGULATORY CO WASHINGTON, DC 20555-0001, AND TO THE REDUCTION PROJECT (3150-0104), OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20			TO COMPLY WITH JEST: 50.0 HRS. EN ESTIMATE TO NAGEMENT BRANCH ORY COMMISSION, O THE PAPERWORK O THE PAPERWORK O FFICE OF J. DC 20503.	
	FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6) PAG				
Deeper		05000240	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2.07.0	
Dres	den Nuclear Power Station 05000249			009	00	2 UF 6	

TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

#### EVENT IDENTIFICATION:

Type B and C Leakage Limit Exceeded Due to Valve 3-1301-3 Not Fully Closed

### A. <u>PLANT CONDITIONS PRIOR TO EVENT</u>:

Unit: 3 Event Date: 03/12/94 Event Time: 1800 hrs

Reactor Mode: N Mode Name: Refuel Power Level:

Reactor Coolant System Pressure: 0 psig

### B. <u>DESCRIPTION OF EVENT</u>:

At approximately 1800, on March 12, 1994 with Unit 3 in Refuel Outage D3R13, the performance of Dresden Technical Surveillance DTS 1600-01, Local Leak Rate Testing Of Primary Containment Isolation Valves, identified the Isolation Condenser System [BL] Condensate Return Throttling Valve 3-1301-3 to be leaking an undetermined amount. This value when added to the existing maximum pathway leakage rate exceeded the maximum pathway leakage rate limit for Type B and C primary containment leakage, 488.452 scfh (0.6L), as listed in Technical Specification 3.7.A.2.b.(2)(a). The Shift Control Room Engineer (SCRE) was notified of the event.

0%

In order to quantify minimum pathway leakage (leakage through the 3-1301-4), the throttling valve's motor was disengaged and the valve was closed manually. Approximately 8 turns with the handwheel were needed in order to shut the valve. Leakage promptly dropped to 18.81 scfh.

Due to the configuration of the system piping, the 3-1301-3 throttling valve had been opened to facilitate draining of the system prior to performing the Local Leak Rate Test (LLRT). The 3-1301-3 was then closed from the Control Room by its control switch (normal means).

To determine why the valve did not fully close, a Motor Operated Valve (MOV) diagnostic test was performed in order to verify that the torque switch setting had not changed since April 1993 when the valve had been last tested. Thrust values were essentially the same. Upon completion of the diagnostic testing, the valve was closed using the Primary Containment Group V [JM] logic circuitry. The valve was then given another LLRT which resulted in the volume leaking 5.3 scfh.

A Problem Identification Form (PIF) was initiated per Dresden Administrative Procedure (DAP) 02-27, Integrated Reporting Process.

# C. <u>CAUSE OF EVENT</u>:

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

The closing logic for throttling valve 3-1301-3 is designed such that the control switch could be released (spring return to normal) any time during valve

NRC FORM 366A (5-92)	U.S. NUCLEA	APPROVED BY OMB NO. 3150-0104 EXPIRES 5/31/95					
	LICENSEE EVENT REPORT TEXT CONTINUATION	LER)	ESTIMATED BURDEN PER RESPONSE TO COMPLY W THIS INFORMATION COLLECTION REQUEST: 50.0 F FORWARD COMMENTS REGARDING BURDEN ESTIMATE THE INFORMATION AND RECORDS MANAGEMENT BR/ (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSI WASHINGTON, DC 20555-0001, AND TO THE PAPERN REDUCTION PROJECT (3150-0104), OFFICE MANAGEMENT AND BUDGET. WASHINGTON DC 20503				
	FACILITY NAME (1)	DOCKET NUMBER (2)		PAGE (3)			
		05000040	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
Dres	den Nuclear Power Station	05000249	94	009	00	3 OF 6	

travel, prior to reaching closed torque switch trip, and the valve would stop in the open position. The operator also has the option of using a Pull-to-Lock feature of the control switch which would maintain the control switch closed signal and the valve would stop on achieving closed torque switch trip. Also, a Primary Containment Group V isolation signal would provide a close signal, regardless of control switch position, and the valve would stop on achieving closed torque switch trip. See attached Figure 1, MOV 3-1301-3 Simplified Schematic.

The logic for MOV 3-1301-3, includes an interlock (MO/NC) between the open and close contactors that prevents energizing the close contactor (MC) if the open contactor (MO) is energized. When a close signal is received from either the control switch or the Group V isolation logic and the valve is in the full open position (LS/O) or the intermediate open position (LS/IO), the throttling valve will start to go closed, as the close contactor (MC) is energized. Upon energization of the closing contactor (MC), auxiliary contact (MC/NO) will close bringing the close torque switch into the circuit. The close torque switch contacts (CTS) are normally closed and open upon the close torque switch setting being reached (valve full closure).

Operators normal action to full close this valve is to move the control switch to the CLOSE position (closing contact CS/CLOSE) and to hold it there until 5 seconds after full close indication is received. The operator can stop the valve anywhere in its closing cycle by releasing the control switch and allowing it to spring return to the AUTO position (opening contact CS/CLOSE). The valve can be given a close signal again through either the control switch or the Group V isolation logic and the valve would close as long as the valve was in the intermediate position (limit switch contact LS/IO is closed).

The closing logic is designed with close contactor auxiliary contact (MC/NO) in series with the close torque switch (CTS) since this valve has non-locking actuator gears. Once the actuator stops, the gear engagement relaxes slightly, allowing relaxation of the spring pack, thus resulting in reclosure of the close torque switch contact (CTS). The close contactor auxiliary contact (MC/NO) prevents anti-hammering of the valve by opening on initial deenergization of the close torque switch (CTS) and eliminating circuit continuity through the close torque switch (CTS) despite its reclosure.

As with any MOV, when the close signal is removed, the valve momentarily continues to move in the close direction due to close contactor drop out time and MOV inertia. For this valve, this creates a condition in which the control switch could be released while the valve is in the intermediate position (LS/IO closed) and the valve could coast into the closed indication region (LS/IO open) but not be fully seated (achieve close torque switch trip). In order to fully seat the valve, the valve would first have to be opened to at least the intermediate position and then reclosed. This condition has been recognized and is explained to the operators in step F.9 of Dresden Operating Surveillance DOS 1300-3, Manual Operation of the Isolation Condenser:

<u>IF</u> MO 2(3)-1301-3, RX INLET ISOL valve is determined to be <u>NOT</u> full closed, <u>AND</u> only the CLOSE indication is lit, <u>THEN</u> the valve must be reopened to obtain a dual <u>OR</u> OPEN indication before an attempt to close the valve can be made.

NRC FORM 366A (5-92)	U.S. NUCLEAR R	APPROVED BY ONB NO. 3150-0104					
	LICENSEE EVENT REPORT (LI TEXT CONTINUATION	ER)	ESTIMA THIS I FORWARI THE IN (MNBB WASHIN REDUCT MANAGEI	TED BURDEN PER NFORMATION COLLI COMMENTS REGA FORMATION AND I 7714), U.S. NUCLI GTON, DC 20555-0 ION PROJECT MENT AND BUDGET,	RESPONSE ECTION REQU RDING BURD RECORDS MA EAR REGULAT 0001, AND T (3150-0104) WASHINGTON	TO COMPLY WITH JEST: 50.0 HRS. YEN ESTIMATE TO NAGEMENT BRANCH TORY COMMISSION, 0 THE PAPERWORK 0, 0FFICE OF 1, DC 20503.	
	FACILITY NAME (1)	DOCKET NUMBER (2)		LER NUMBER (6	)	PAGE (3)	
Drog	den Nueleer Dever Station	05000240	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	4.07.6	
Dres	den Nuclear Power Station	05000249	94	009	00	4 OF 6	

TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

The operators are also instructed to hold the control switch in the closed position beyond full close indication to ensure valve full closure in DOS 1300-3, step F.8:

When closing the MO 2(3)-1301-3, RX INLET ISOL valve the control switch should be held in the CLOSE position for a minimum of five (5) seconds to ensure full closure.

MOV 3-1301-3 is a 14 inch gate valve that is set for a total stroke of approximately 1-3/4 inches. The stroke time of the valve is about six seconds. The LLRT volume for the Isolation Condenser condensate return line includes the outboard isolation MOV, 3-1301-3, and the inboard isolation MOV, 3-1301-4. The 3-1301-4 is located at an elevation lower than the 3-1301-3, and a drain valve is located adjacent to the 3-1301-4 to support volume draining. In order to perform the LLRT the 3-1301-3 was cycled several times to support draining of the system. The Operator was instructed to close the 3-1301-3 valve for the LLRT and he proceeded to hold the control switch in the closed position and continued that for at least 5 seconds after receipt of full closed indication. The exact root cause for this event is unknown but it is speculated that the control switch was engaged for valve closure but then was unknowingly relaxed prior to reaching full closure (torque switch trip), but the value travelled far enough to achieve closed indication. Due to the control logic for the valve, as previously explained, the operators action of continuing to hold the control switch would not continue to close the valve. This appears to be the cause as the MOV diagnostic test did not indicate any differences from the previous test (April, 1993) and when the valve was closed with the primary containment isolation logic a successfull LLRT was obtained.

A supplement will be submitted to report the cause of other valve failures which occur during the course of the Unit 3 Refuel Outage.

## D. <u>SAFETY ANALYSIS</u>:

The safety significance of not fully closing the 3-1301-3 valve for the LLRT is considered minimal since when the valve was fully closed with primary containment isolation logic an acceptable LLRT was obtained.

In addition, it is known that valve 3-1301-3 was fully closed during operation, since the Isolation Condenser did not heat up and cause steaming of the Isolation Condenser cooling water.

### E. <u>CORRECTIVE ACTIONS</u>:

During a feedwater transient in 1987, the reactor operators observed that small changes in 3-1301-3 valve position were difficult to perform due to the rapid speed of valve movement. A modification request form was submitted to consider providing a slower speed gearing ratio for the 3-1301-3 valve in order to facilitate fine adjustment of 3-1301-3 valve position. This will be accomplished through installation of modification M12-3-92-001 which will increase the gear ratio for the 3-1301-3 valve to support commitments to NRC Generic Letter 89-10. In addition, the closing limit switches will also be repositioned closer to valve seat contact. These changes will improve the

NRC FORM 366A U.S. NUCL (5-92)	6A U.S. NUCLEAR REGULATORY COMMISSION					
LICENSEE EVENT REPORT TEXT CONTINUATION	(LER) N	ESTIMA THIS I FORWAR THE IN (MNBB WASHIN REDUCT MANAGE	TED BURDEN PER INFORMATION COLL D COMMENTS REGA NFORMATION AND 7714), U.S. NUCL IGTON, DC 20555-( ION PROJECT MENT AND BUDGET,	RESPONSE ECTION REQU ARDING BURD RECORDS MA EAR REGULAT 2001, AND T (3150-0104) WASHINGTON	TO COMPLY WITH UEST: 50.0 HRS. DEN ESTIMATE TO NAGEMENT BRANCH TORY COMMISSION, O THE PAPERWORK D, OFFICE OF N, DC 20503.	
FACILITY NAME (1)	DOCKET NUMBER (2)		LER NUMBER (6		PAGE (3)	
	05000040	YEAR	SEQUENTIAL	REVISION NUMBER		
Diesden Nuclear Power Station	05000249	94	009	00	5 UF 6	

thrust capability and valve controllability. This modification will be completed during Refuel Outage D3R13.

Title

This LER will be incorporated into the required reading list for Reactor Operators. (NTS 249-180-94-00901)

A supplement will be submitted to report the corrective actions for other valve failures which occur during the course of the Unit 3 Refuel Outage.

### PREVIOUS OCCURRENCES:

LER/Docket Number

91-007/0500249

F.

G.

Type B and C Containment Local Leak Rate Testing Limit Exceeded Due to HPCI Turbine Exhaust Check Valve Leakage

93-002/0500237

Type B and C Primary Containment Local Leak Rate Testing Limit Exceeded Due to Leakage Past Head Cooling Inlet Isolation Valve 2-205-2-4

### COMPONENT FAILURE DATA:

No component failure.

NRC FORM 366A (5-92)	U.S. NUCLE	APPROVED BY ONB NO. 3150-0104 EXPIRES 5/31/95					
	LICENSEE EVENT REPORT TEXT CONTINUATION	(LER)	ESTIMATED BURDEN PER RESPONSE TO COMPLY WI THIS INFORMATION COLLECTION REQUEST: 50.0 HR FORWARD COMMENTS REGARDING BURDEN ESTIMATE THE INFORMATION AND RECORDS MANAGEMENT BRAM (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSIC WASHINGTON, DC 20555-0001; AND TO THE PAPERWC REDUCTION PROJECT (3150-0104), OFFICE MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.				
	FACILITY NAME (1)	DOCKET NUMBER (2)		LER NUMBER (6)	)	PAGE (3)	
Drog	don Nuclear Dever Station	05000249	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
Dies	den Nuclear Fower Station	03000249	94	009	00		

FIGURE 1 MOV 3-1301-3 Simplified Schematic



ß