Commonwealth Edison
Dresden Nuclear Power Station
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October 1, 1993

GFSLTR 93-0081

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

Licensee Event Report 93-006-1, Docket # 050249 is being submitted as required by Technical Specification 6.6, NUREG 1022 and 10 CFR 50.73(a)(2)(i)(b). This revised report provides an update on final local leakage rate testing results and corrective actions performed during the D3F15 maintenance outage to reduce leakage from primary containment.

for 10-1-93
Gary F. Spedl
Station Manager
Dresden Station

GFS/slb

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

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DAP FORM 02-08C
SUPPLEMENTAL REPORT TO LER

DVR NO.					SYSTEM AFFECTED
	STA	UNIT	YEAR	NO.	
D -	12 -	3 -	93 -	006	1600

PART 1 TITLE OF EVENT

Type B and C Primary Containment Local Leak Rate Testing Limit of 0.6 L_a Exceeded Due to Leakage Past Inboard Feedwater Check Valve 3-220-58A

OCCURRED

DATE	TIME
3/13/93	0900

REASON FOR SUPPLEMENTAL REPORT

To outline the cause of the event, maintenance history, corrective actions, retest results and component failure data for this valve and the TIP purge check valve which also failed it LLRT during maintenance outage D3F15.

PART 2

ACCEPTANCE BY STATION REVIEW	John O'Neil	[signature]	
DATE	10/1/93	10/1/93	

SUPPLEMENTAL REPORT APPROVED AND AUTHORIZED FOR DISTRIBUTION

STATION MANAGER	DATE
[signature] for	10-1-93

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LICENSEE EVENT REPORT (LER)

Form Rev 2.0

Facility Name (1)	Docket Number (2)	Page (3)
Dresden Nuclear Power Station, Unit 3	0 5 0 0 0 2 4 9	1 of 0 3

Title (4)

Type B and C Primary Containment Local Leak Rate Testing Limit of $0.6L_a$ Exceeded Due to Leakage Past Inboard Feedwater Check Valve 3-220-58A

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 3	1 3	9 3	9 3	—	0 0 6	—	0 1	0 4	1 2	9 3	N/A	
											N/A	

OPERATING MODE (9)	N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIRMENTS 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)(x)		

LICENSE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER	
	AREA CODE	
M. McGivern, Local Leak Rate Coordinator Ext. 2526	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	S J	I S V	C 6 8 4	Yes					
X	I G	I S V	P 0 7 0	No					

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)

With Unit 3 in a forced maintenance outage, the performance of Dresden Technical Surveillance (DTS) 1600-01, Local Leak Rate Testing Of Primary Containment Isolation Valves, identified the Inboard "A" Feedwater Line Check Valve 3-220-58A and the Traversing Incore Probe (TIP) Purge Check Valve 3-4799-514 to be leaking 196.67 scfh and 45 scfh respectively. These values when added to the existing maximum pathway leakage rate exceeded the maximum pathway leakage rate for Type B and C primary containment leakage, 488.452 scfh ($0.6L_a$), as listed in Technical Specification 3.7.A.2.b.(2)(a). The Inboard "A" Feedwater Line Check Valve 3-220-58A was disassembled and an inspection of the valve internals revealed a worn hinge pin/bushing, which caused improper seating between the disk and the seat opposite the worn bushing. The seat, disk and hinge pin/bushing were replaced under Work Request (WR) 16938. The TIP Purge Check Valve 3-4799-514 was not inspected but the most likely cause for failure was debris on the seat. This check valve was replaced under WR 17211. The safety significance of the leakage has been considered to be minimal, since the additional leakage out of containment, on a minimum pathway basis, was 48.65 scfh and would not cause the maximum off site dose rates established in 10 CFR 100 to be exceeded. Final as-left local leak rate tests (3-220-58A = 0.1 scfh, 3-4799-514 = 1.8 scfh) were performed in accordance with DTS 1600-01 to verify the valves' seating integrity prior to placing them back into service.

PLANT AND SYSTEM IDENTIFICATION:

General Electric-Boiling Water Reactor-2527 MWt rated core thermal power.

Nuclear Tracking System (NTS) tracking code numbers are identified in the text as (XXX-XXX-XX-XXXXX).

EVENT IDENTIFICATION:

Type B and C Primary Containment Local Leak Rate Testing Limit of $0.6L_a$ Exceeded Due to Leakage Past Inboard Feedwater Check Valve 3-220-58A.

A. CONDITIONS PRIOR TO EVENT:

Unit: 3 Event Date: March 13, 1993 Event Time: 1500 hrs

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

Reactor Coolant System (RCS) Pressure: 0 psig

B. DESCRIPTION OF EVENT:

On March 13, 1993 with Unit 3 in a forced maintenance outage, the performance of Dresden Technical Surveillance (DTS) 1600-01, Local Leak Rate Testing Of Primary Containment Isolation Valves, identified the Inboard "A" Feedwater Line Check Valve 3-220-58A to be leaking 196.67 scfh. This value, when added to the existing maximum pathway leakage rate exceeded the maximum pathway leakage rate for Type B and C primary containment leakage, 488.452 scfh ($0.6L_a$), as listed in Technical Specification 3.7.A.2.b.(2)(a).

Upon identification of the failure, the leakage rate was recorded and the Shift Engineer was notified that the leakage past the Inboard "A" Feedwater Line Check Valve 3-220-58A caused the total measured Type B and C primary containment leakage rate to exceed $0.6L_a$ (488.452 scfh). A Problem Identification Form (PIF) was initiated per Dresden Administrative Procedure (DAP) 02-27, Integrated Reporting Process. Work Request (WR) 16938 was written to investigate and repair the valve in order to reduce leakage.

On March 22, 1993 while performing Local Leak Rate Testing of the Traversing Incore Probe (TIP) Purge Check Valve 3-4799-514, the leakage rate was determined to be 45 scfh. This leakage rate was in excess of the 10 scfh Station guideline for this valve. WR 17211 was written to replace the valve in order to reduce leakage.

C. APPARENT CAUSE OF EVENT:

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 cause of the unsatisfactory leakage past the Inboard "A" Feedwater Line Check Valve 3-220-58A was attributed to inadequate disk-to-seat contact in the area between 240° and 270° (top of the disk is 0°). The right hinge pin/bushing was worn an excessive amount, which caused the disk and seat to misalign. This misalignment created a .003" gap between the valve seat and disk. Maintenance history has shown that the seat-disk assembly, which includes the hinge pins and bushings, had been last replaced on May 11, 1988.

Therefore, the wear seen is normal. LLRT records dating back to 1980 indicate six other failures of this valve. Only one of these failures was due to worn hinge pins/bushings.

The cause of the unsatisfactory leakage past the TIP Purge Check Valve 3-4799-514 is unknown since the original check valve was lost after replacement. The most probable cause for the leakage was debris on the seat. This is a common cause for leakage past check valves in air/gas systems. Maintenance records indicate no previous repairs had been performed on this check valve. LLRT records dating back to 1980 indicate no failures.

D. SAFETY ANALYSIS OF EVENT:

The safety significance of the leakage past the Inboard "A" Feedwater Line Check Valve 3-220-58A and the TIP Purge Check Valve 3-4799-514 has been considered to be minimal since the total minimum pathway leakage past these two pathways were only 48.65 scfh. If the minimum pathway leakage rates for these two pathways was added to the as-left Type A Test leakage results (0.6706 wt%/day), the total minimum pathway leakage would only be 0.7674 wt%/day. This total is less than the Technical Specification limit of .75L_a (1.2 wt%/day). Since the leakage is less than the Technical Specification limit, the maximum off-site dose rates established in 10 CFR 100 were not exceeded.

E. CORRECTIVE ACTIONS:

Inboard "A" Feedwater Line Check Valve 3-220-58A was inspected and repaired under WR 16938. Based on the results of the inspection, the seat-disc assembly was replaced. After the check valve was reassembled, the final as-left leakage rate was .10 scfh. In order to preclude these events from recurring, an interval for inspection of Feedwater Line Check Valves internals will be developed by the Station's Check Valve Coordinator (249-200-93-00601).

The TIP Purge Check Valve 3-4799-514 was replaced with a new check valve under WR 17211. The final as-left LLRT yielded a leakage rate of 1.80 scfh.

F. PREVIOUS OCCURRENCES:

LER/Docket Numbers	Title
90-009/0500237	Type B and C Primary Containment Local Leak Rate Test Requirements Exceeded Due to Leaking Isolation Valves
89-009/0500249	Local Leak Rate Testing "As Found" Limit Exceeded Due to Leakage From Primary Containment Valves

G. COMPONENT FAILURE DATA:

Manufacturer	Nomenclature	Model Number	Mfg. Part Number
Crane	Feedwater Check Valve 3-220-58A	973	N/A

An industry - wide data base search was performed. The majority of failures occurred at Commonwealth Edison's Dresden and Quad Cities plants. Of the 58 Feedwater Check Valve failures, 9 were attributed to worn hinge pins/bushings.