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Dresden Nuclear Power Station
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Morris, Illinois 60450
Telephone 815/942-2920

June 13, 1994

GFSLTR 94-0187

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

Licensee Event Report 94-015, Docket 50-²⁴⁹~~237~~ is being submitted as required by Technical Specification 6.6, NUREG 1022 and 10CFR50.73(a)(2)(vii).

Sincerely,

[Handwritten signature]
6-15-94
Gary P. Spedl
Station Manager
Dresden Station

GFS/NPD:maf

Enclosure

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

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LICENSEE EVENT REPORT (LER)

Form Rev 2.0

Facility Name (1) Dresden Nuclear Power Station, Unit	Docket Number (2) 0 5 0 0 0 2 4 9	Page (3) 1 of 4
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Title (4)
CCSW VAULT WATERTIGHT DOOR AND PENETRATION SEALS FAILED LEAK TEST

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 5	1 6	94	9 4	0 1 5	0 0	0 6	1 5	9 4	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)	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)			X 50.73(a)(2)(vii)			Other (Specify in Abstract below and in Text)		
	20.405(a)(1)(iii)			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	TELEPHONE NUMBER
NICOS P. DIGRINDAKIS	3584
	Ext. 8 1 6 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	B O	X X D R	X X X X	N					

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)

While Unit 3 was shutdown for the D3R13 Refueling Outage, Dresden Technical Surveillance (DTS) 1500-01, Containment Cooling Service Water (CCSW) [BO] Pump Vault Watertight Door Leak Test, was performed on May 23, 1994 at 1545 hours. When the test was performed, 1.1 gallons of water was collected in one hour, which is greater than the 1 gallon per hour Technical Specification limit. The source of the leakage was observed to emanate from the primary latching mechanism on the door. This leakage was due to premature degradation of the primary packing caused by procedural inadequacy. Also, Dresden Technical Surveillance (DTS) 0030-1, CCSW Pump Vault Penetration Surveillance Testing, was performed on May 16, 1994 at 1655 hours. All penetrations, less one, showed some initial leakage. This penetration leakage was quickly eliminated by tightening the seal and re-testing. Penetration MK-852 would not meet the acceptance criteria of the test and was replaced using sealant. Seal MK-852 had leakage which was due to a non-smooth surface in the sleeve where it was installed. Due to the quantity of leakage and the ample warning which would be received in the control room during a flooding event, the safety significance of this event is minimal.

FACILITY NAME (1) Dresden Nuclear Power Station	DOCKET NUMBER (2) 0 5 0 0 0 2 4 9	LER NUMBER (6)						Page (3)					
		Year		Sequential Number		Revision Number							
		9	4	-	0	1	5	-	0	0	0	2	OF

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

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 [XXXX-XXXX-XX-XXXXXX]

EVENT IDENTIFICATION:

CCSW VAULT WATERTIGHT DOOR AND PENETRATION SEALS FAILED LEAK TEST

A. CONDITIONS PRIOR TO EVENT:

Unit: 3 Event Date: May 16, 1994 Event Time: 1655 Hours

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

Reactor Coolant System Pressure: 0.0 psig

B. DESCRIPTION OF EVENT:

While Unit 3 was shutdown for the D3R13 Refueling Outage, Dresden Technical Surveillance (DTS) 1500-1, Containment Cooling Service Water (CCSW) [BO] Pump Vault Watertight Door Leak Test, was performed on May 23, 1994 at 1545 hours in accordance with Technical Specification 4.5.M.1.a. The test is performed by: 1) filling the volume between the watertight door and a test door installed by the Mechanical Maintenance Department; and 2) maintaining a water pressure of 15 psig, plus or minus 2 psig. Leakage from the door is collected for a period of one hour, or until one gallon is collected. The quantified leakage rate is compared to the Technical Specification limit of 1 gallon per hour. During this test, 1.1 gallons of water was collected in one hour. The leakage was observed emanating from the primary latching mechanism on the door. The shift engineer was notified by the initiation of a Problem Identification Form (PIF), and repairs commenced per work request D08766 to repair the door.

Also, while Unit 3 was shutdown for the D3R13 Refueling Outage, Dresden Technical Surveillance (DTS) 0030-1, CCSW Pump Vault Penetration Surveillance Testing, was performed on May 16, 1994 at 1655 hours in accordance with Technical Specification 4.5.M.1.a. The test is performed by pressurizing the volume between a double penetration seal with air and maintaining a pressure of 15 psig, plus or minus 2 psig. The seals are then inspected using a soap bubble solution to identify leaks. Any penetration which has at least one seal free of leakage is considered acceptable. Any penetration which has both of its seals leaking is considered unacceptable. All penetrations, less one, showed some initial leakage. This leakage was quickly eliminated by tightening each seal and re-testing. Penetration MK-852 would not meet the acceptance criteria of Dresden Technical Surveillance DTS 1130-1, CCSW Pump Vault Penetration Surveillance Testing and a Problem Identification Form (PIF) was initiated. Work to replace penetration MK-852 was initiated per work request D21626.

C. APPARENT CAUSE OF EVENT:

This report is being submitted in accordance with 10 CFR 50.73(a)(2)(vii), which requires the reporting of any event where a single cause or condition caused at least one independent train or channel to become inoperable in multiple systems or two independent trains or channels to become inoperable in a single system designed to remove residual heat.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)						Page (3)							
		Year		Sequential Number		Revision Number									
Dresden Nuclear Power Station	0 5 0 0 0 2 4 9	9	4	-	0	1	5	--	0	0	0	3	OF	0	4

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

The design of the CCSW pump vault watertight door consists of two latching mechanisms and a seal around the perimeter of the door that prevents leakage. The main latching mechanism is a manual handwheel which is turned to actuate four metal dogs to compress the sealing gasket of the door to the door frame. The secondary latching mechanism is a spring loaded rotating bar. The secondary latch is not designed for sealing the door, but it serves as a safety catch to prevent the door from swinging open after the main latching mechanism is released under pressure.

Each of these latching mechanisms has components which penetrate the watertight door. In order to prevent leakage through these penetrations, packing is utilized. In this event, the primary latch mechanism was the source of all the leakage. This leakage was due to premature degradation of the primary packing due to procedural inadequacy. The existing maintenance procedure lacked the necessary steps to ensure that the packing for the primary latching mechanism was being compressed around the shaft of the primary latching mechanism.

The design of the CCSW vault watertight penetrations consist of double seal assemblies. Each penetration has two seals to allow for testing by pressurizing between the two seals. The penetration seal assemblies consist of interlocking rubber links which are connected by a set of bolts and nuts. This assembly forms a belt which is connected around the pipe and its corresponding sleeve. Tightening of the bolts will then compress the rubber links forming a continuous air-tight seal. Of the nine penetrations tested, one had zero initial leakage, seven had initial leakage which was eliminated by tightening of the seals. One seal was replaced and subsequently tested satisfactorily. The primary cause of this seal leakage was due to the seals being out of adjustment. Seal MK-852 (The seal which was replaced) had leakage which was due to a non-smooth surface in the sleeve where it was installed.

D. SAFETY ANALYSIS OF EVENT:

The Unit 3 CCSW pump vault, which houses the 3B and 3C CCSW pumps, is designed to insure that at least two CCSW pumps are protected from water damage during postulated flooding of the CCSW pump area (Elev. 495 ft.). Although a relatively small leakage of water could have occurred through the vault watertight door (1.1 gallons per hour) and penetration seals (minor leakage observed using soap bubble solution) during a flood condition, several precursors would have warned control room personnel of flooding conditions prior to the water level ever reaching the 495 foot elevation. Initially, flooding of the Condensate [sd] Pump Room would be indicated in the control room by the Turbine Building Floor Drain Sump [wk] and Equipment Drain Sump [wk] High Level alarms. If flooding continued, Condensate Pump Room flooding alarms would be received at 2 inches, and at 5 feet above the Condensate Pump Room Floor (elev. 469 ft. 8 in.). These alarms would provide the control room operators ample time to investigate the cause of flooding and perform appropriate corrective actions prior to the water rising approximately 25 feet to the CCSW pump level.

The actual pressures the vault watertight door and penetration seals would see during a design basis flood would be less than 6 psig. Leakage through the watertight door during actual flood conditions would be considerably less than 1.1 gallons per hour.

Leakage through the penetration seals was observed while performing an air test which is conservative when compared to actual water leakage through the seal. During an actual flood condition, due to the conservative testing method and the low pressures, leakage through the penetration seals would also be considerably lower.

FACILITY NAME (1) Dresden Nuclear Power Station	DOCKET NUMBER (2) 0 5 0 0 0 2 4 9	LER NUMBER (6)						Page (3)					
		Year		Sequential Number		Revision Number							
		9	4	--	0	1	5	--	0	0	0	4	OF

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

Due to the small quantity of leakage and the ample warning which would be received in the control room during a flooding event, the safety significance of this event is minimal.

E. CORRECTIVE ACTIONS:

Repairs to the primary latching mechanism were made per work request D08766. The Mechanical Maintenance Department replaced the primary latching mechanism packing, the packing on the secondary latch mechanism, and the seal around the perimeter of the door. All the door seals were repaired satisfactorily and passed a final performance of DTS 1500-01 on June 5, 1994. The as left leakage was 0.375 gallons per hour.

Also, DMS 1500-01 "CCSW Vault Door Bi-refueling Outage Surveillance And Maintenance" will be revised to provide more guidance on the replacement/adjustment of the primary latching mechanism packing. (NTS# 2491809401501)

Seven penetration seals were showing a very low amount of leakage during testing. These seven penetrations were repaired immediately by tightening the link seal. MK-852 was replaced and reinstalled using RTV sealant to help seal around the non-smooth surface in the sleeve where it was installed.

F. PREVIOUS OCCURRENCES:

<u>LER/Docket Numbers</u>	<u>Title</u>
12-3-92-41	Containment Cooling Service Water Pump Vault Door Leakage Due To Worn Latch Packing
Root Cause:	Worn latch packing due to component aging.
Corrective Action:	Periodic replacement of packings and door seal

G. COMPONENT FAILURE DATA:

As this event is not reportable to the NPRDS data base, and industry-wide search was not performed.

<u>Manufacturer</u>	<u>Nomenclature</u>	<u>Model Number</u>	<u>Mfg. Part Number</u>
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EVENT SUMMARY AND CAUSE CODES

LER NUMBER

12-3-94-015

<input type="checkbox"/>	Lost generation
<input type="checkbox"/>	Cost > \$25,000
<input type="checkbox"/>	Hazard or Spill
<input type="checkbox"/>	Personnel injury

<input type="checkbox"/>	Reactor trip
<input type="checkbox"/>	ESF actuation
<input type="checkbox"/>	NRC reportable
<input checked="" type="checkbox"/>	LER
<input type="checkbox"/>	PSE

<input type="checkbox"/>	NRC violation, level	_____
<input type="checkbox"/>	GSEP event, class	_____
<input type="checkbox"/>	Tech Spec LCO	_____
<input type="checkbox"/>	Potential or future loss	_____
<input type="checkbox"/>	SALP functional area	_____

Component Type				Failure mode							
X											
X											
X											

Licensed? L or blank				Type				Detail Code			
Level				Department							
A											
A											
A											

Type				Detail Code				Department			
B											
B											
B											

Type				Detail Code			
C							

Type of Deficiency						Detail Code						Procedure Type					
D	I	2	M	M		VAULT DOOR PROC. INADAQUACY											
D																	
D																	

Type				Detail Code				Department			
E											
E											
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