

50-237

NRC DISTRIBUTION FOR PART 50 DOCKET MATERIAL

FILE NUMBER

INCIDENT REPORT

DATE OF DOCUMENT

6/28/77

DATE RECEIVED

7/13/77

TO:

Mr. James G. Keppler

FROM:

Commonwealth Edison Company
Morris, Illinois
B. B. Stephenson☒ LETTER☐ NOTORIZED

PROP

INPUT FORM

NUMBER OF COPIES RECEIVED

☒ ORIGINAL
☐ COPY☒ UNCLASSIFIED

15/6/77

DESCRIPTION

ENCLOSURE

ACKNOWLEDGED

Licensee Event Report (RO 50-237/1977-20) on
5/29/77 concerning an alarm being received on
the service water radiation monitor.....

PLANT NAME:

Dresden Unit No. 2

(1-P)

(2-P)

RJL 7/13/77

DO NOT REMOVE

NOTE: IF PERSONNEL EXPOSURE IS INVOLVED
SEND DIRECTLY TO KREGER/J. COLLINS

FOR ACTION/INFORMATION

BRANCH CHIEF:

W/ 3 CYS FOR ACTION

LIC ASST.:

DAVIS (4)

INTERNAL DISTRIBUTION

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NRC PDR

I & E (2)

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SCHROEDER/IPPOLITO

HOUSTON

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KNIGHT

BUTLER

HANAUER

TEDESCO

EISENHUT

BAER

SHAO

VOLLMER/BUNCH

KREGER/J. COLLINS

ROSA

EXTERNAL DISTRIBUTION

LPDR: Morris, J.

TIC:

NSIC:

ACRS (16) SENT AS CAT. B

CONTROL NUMBER

771940232

[illegible]



Commonwealth Edison
Dresden Nuclear Power Station
R.R. #1
Morris, Illinois 60450
Telephone 815/942-2920

Lankham

BBS Ltr. # 77-572

June 28, 1977

Mr. James G. Keppler, Regional Director
Directorate of Regulatory Operations - Region III
U. S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Regulatory Docket File

Enclosed please find Reportable Occurrence report number 50-237/1977-20.
This report is being submitted to your office in accordance with the Dresden
Nuclear Power Station Technical Specifications, Section 6.6.B.

Arthur M Roberts
for B. B. Stephenson
Station Superintendent
Dresden Nuclear Power Station

BBS:sm

Enclosure

cc: Director of Inspection & Enforcement
Director of Management Information & Program Control
File/NRC



JUL 1 1977

771940232

LICENSEE EVENT REPORT

CONTROL BLOCK:

(PLEASE PRINT ALL REQUIRED INFORMATION)

LICENSEE NAME		LICENSE NUMBER										LICENSE TYPE					EVENT TYPE						
01	I	L	D	R	S	2	0	0	-	0	0	0	0	-	0	0	4	1	1	1	1	0	3
7	8	9	14			15	25					26	27	28	29	30	31	32					

CATEGORY		REPORT TYPE		REPORT SOURCE		DOCKET NUMBER					EVENT DATE					REPORT DATE									
01	CONT			L	L	0	5	0	-	0	2	3	7	0	5	2	9	7	7	0	6	2	8	7	7
7	8	57	58	59	60	61	68					69	74					75	80						

EVENT DESCRIPTION

02	During normal plant operation, 2A Containment Cooling Service Water(CCSW) pump was																						
03	started to provide Torus cooling through the 2A LPCI heat exchanger in order to																						
04	perform a monthly HPCI surveillance DOS 2300-1. Immediately after the 2A CCSW pump																						
05	was started, an alarm was received on the service water radiation monitor. The 2A																						
06	CCSW pump was shutdown and the heat exchanger loop containing the pump (the 2A-1503																						

SYSTEM CODE		CAUSE CODE		COMPONENT CODE					PRIME COMPONENT SUPPLIER		COMPONENT MANUFACTURER				VIOLATION		(continued)						
07	S	F	E	H	T	E	X	C	H	N	P	1	6	0	N								
7	8	9	10	11	17					43	47				48								

CAUSE DESCRIPTION

08	An increase from 350 cps to 3000 cps on the service water radiation monitor was an																						
09	indication of a tube leak in the 2A-1503 LPCI containment cooling heat exchanger. An																						
10	investigation revealed the fact that 14 of the 2510 tubes in the heat exchanger were																						

FACILITY STATUS		% POWER		OTHER STATUS					METHOD OF DISCOVERY		DISCOVERY DESCRIPTION (continued)										
11	E	0	8	0	NA					B	NA										
7	8	9	10	11	13					44	45	48									

FORM OF ACTIVITY RELEASED		CONTENT OF RELEASE		AMOUNT OF ACTIVITY					LOCATION OF RELEASE										
12	L	M	1.12 x 10 ⁻¹ Ci					Reactor building to service water											
7	8	9	10	11	44					45									

PERSONNEL EXPOSURES

NUMBER		TYPE		DESCRIPTION										
13	0	0	0	Z	NA									
7	8	9	11	12	13									

PERSONNEL INJURIES

NUMBER		DESCRIPTION											
14	0	0	0	NA									
7	8	9	11	12									

OFFSITE CONSEQUENCES

15	NA																						
7	8	9																					

LOSS OR DAMAGE TO FACILITY

TYPE		DESCRIPTION																					
16	Z	NA																					
7	8	9	10																				

PUBLICITY

17	NA																						
7	8	9																					

ADDITIONAL FACTORS

18	NA																						
7	8	9																					

19																							
7	8	9																					

NAME: Desi Santanna

PHONE: Ext. 265

EVENT DESCRIPTION (continued)

heat exchanger loop) was isolated. 2D CCSW pump was started and the other containment cooling heat exchanger loop tested to verify that it was operable. This event is not a repetitive occurrence though a subsequent investigation has indicated that small leaks may have occurred undetected in the past. Because a redundant containment cooling heat exchanger loop was operable safe plant operation was not impaired. (50-237/77-20)

CAUSE DESCRIPTION (continued)

leaking. Calculations to estimate the amount of radioactive material released were performed using the following parameters. The service water volume of the containment cooling water heat exchanger is 4,340 gallons. The length of the release was conservatively estimated at 1.24 minutes. The circulating water flow at the time of the incident was 885,000 gpm.

The activity of the water on the service water side was conservatively assumed to be the same as the activity of the torus water. A gamma isotopic analysis of the D2 torus water revealed the concentrations of the following nuclides.

Cs 134	9.6×10^{-4}	uCi/ml
Cs 137	1.2×10^{-3}	uCi/ml
Co 58	1.8×10^{-4}	uCi/ml
Co 60	1.1×10^{-3}	uCi/ml
Mn 54	2.9×10^{-4}	uCi/ml

Using the above data, calculations revealed that the sum of the ratios of these concentrations to the maximum permissible concentrations was 0.77. This indicates that the concentration in the circulating water canal to Dresden Cooling Lake was 77% of the applicable 10CFR 20 limits. This radioactivity was further diluted by the 1275 acres of water in the cooling lake.

A sample of the torus water has also been sent to a contractor for Strontium analysis.

The faulty tubes were plugged on both the top and bottom with 3/4" stainless steel tapered plugs. To verify that the plugs would be capable of withstanding operating pressure the tubes were exposed to operating conditions (LPCI pump flow) which corresponds to a minimum of approximately 125 psig. This test was conducted for a period of 5 minutes with no anomalies observed. The heat exchanger is a type 6B-3222 heat exchanger manufactured by Berlin Chapman, a Division of Perfex Corporation and was built to ASME 111, Class "C" and the Tubular Exchanger Manufacturer's Association Class "R" Standards. The fact that there were leaking tubes in the LPCI containment cooling heat exchanger prompted an investigation into past service water radiation monitor records. The investigation revealed three instances when radionuclide releases went undetected. These previous releases occurred on 4-5-77, 4-24-77, and 5-10-77 and were of the same magnitude of the 5-29-77 release. Procedures relevant to this type of occurrence shall be reviewed and necessary changes made to prevent any recurrence of this event.

11-11-11



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