

NRC DISTRIBUTION FOR PART 50 DOCKET MATERIAL

TO: J.G. KEPPLER

FROM: COMMONWEALTH EDISON N
MORRIS, ILLINOIS
B.B. STEPHENSON

DATE OF DOCUMENT
6/28/77

DATE RECEIVED
7/5/77

LETTER
 ORIGINAL
 COPY

NOTORIZED
 UNCLASSIFIED

PROP

INPUT FORM

NUMBER OF COPIES RECEIVED

100

DESCRIPTION

ENCLOSURE

LICENSEE EVENT REPORT FOR R.O.# 77-20, ON 5/29/77 CONCERNING 2A CONTAINMENT COOLING SVC WATER (CCSW) PUMP) WAS STARTED TO PROVIDE TORUS COOLING THROUGH THE 2A LPCI HEAT EXCHANGER IN ORDER TO PERFORM A MONTHLY HPCI SURVEILLANCE DOS 2300-1.

(1P & 4P)

PLANT NAME: DRESDEN # 2

sab

ACKNOWLEDGED

DO NOT REMOVE

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

FOR ACTION/INFORMATION

BRANCH CHIEF:	<i>Davis</i>
W/3 CYS FOR ACTION	
LIC. ASST.:	<i>Diggs</i>
W/1 CYS	
ACRS /6 CYS HOLDING/SENT	<i>As CAT B</i>

INTERNAL DISTRIBUTION

<input checked="" type="checkbox"/> REG FILE				
<input type="checkbox"/> NRC PDR				
<input type="checkbox"/> I & E (2)				
<input type="checkbox"/> MIPC				
<input type="checkbox"/> SCHROEDER/IPPOLITO				
<input type="checkbox"/> HOUSTON				
<input type="checkbox"/> NOVAK/CHECK				
<input type="checkbox"/> GRIMES				
<input type="checkbox"/> BUTLER				
<input type="checkbox"/> HANAUER				
<input type="checkbox"/> TEDESCO/MACCARY				
<input type="checkbox"/> EISENHUT				
<input type="checkbox"/> BAER				
<input type="checkbox"/> SHAO				
<input type="checkbox"/> VOLLMER/BUNGH				
<input type="checkbox"/> KREGER/J. COLLINS				

EXTERNAL DISTRIBUTION

CONTROL NUMBER

LPDR: <i>Marvis, J. 11</i>	
TIC:	
NSIC:	

AO 4
771870021 *B*



10

11

12

13



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

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

File Cys

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.

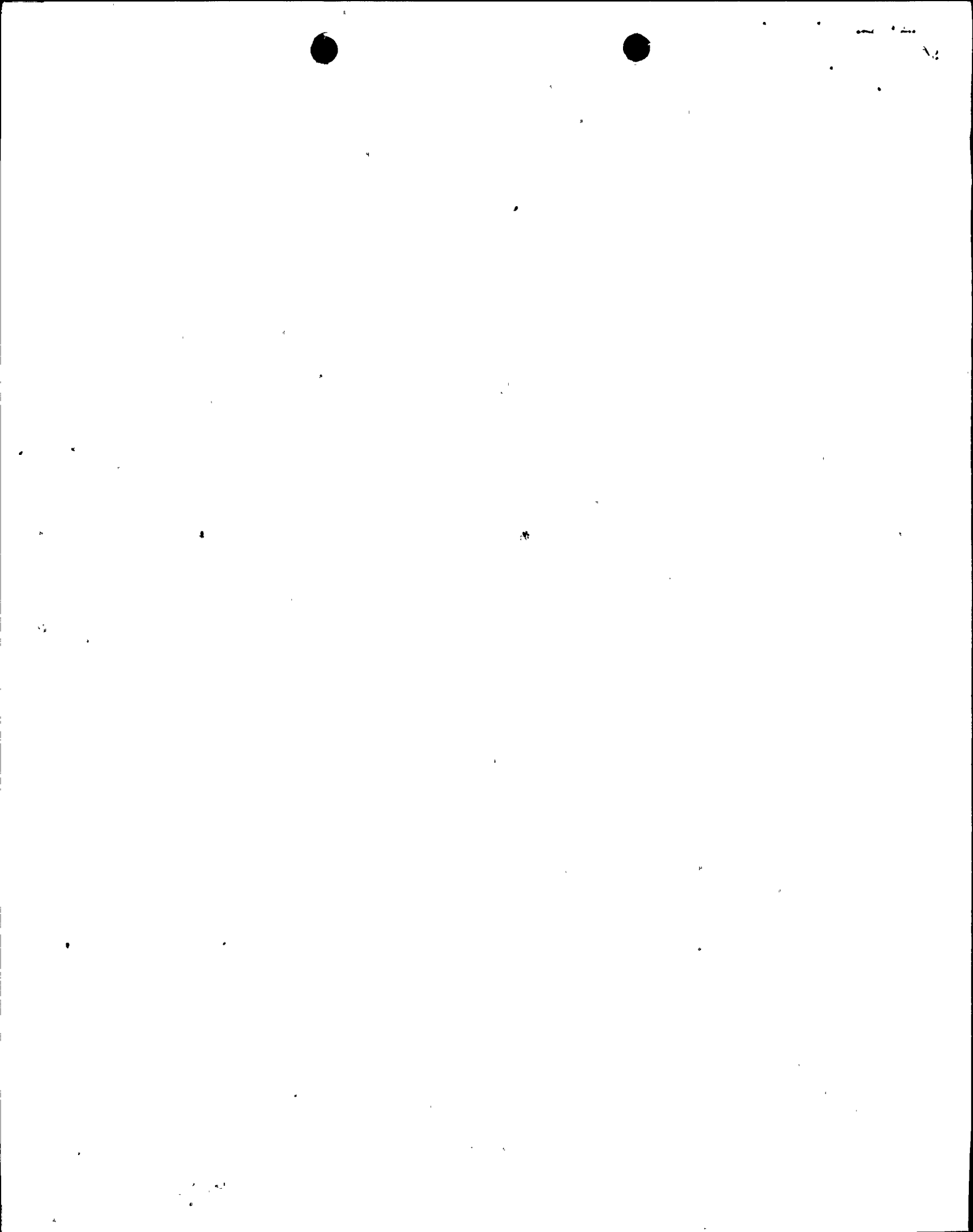
for *Arthur M Roberts*
B. B. Stephenson
Station Superintendent
Dresden Nuclear Power Station

BBS:sm

Enclosure

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

771870021



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 0	4 1 1 1 1	0 3
7 8 9	14	15	25 26 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	
07	S F	E	H T E X C H	N	P 1 6 0	N	(continued)
7 8 9 10	11	12	17	43	44 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	
11	E	0 8 0	NA	B	: DISCOVERY DESCRIPTION (continued)
7 8 9	10	12 13	44	45 46	80

	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 80

PERSONNEL EXPOSURES

	NUMBER	TYPE	DESCRIPTION
13	0 0 0	Z	NA
7 8 9 11	12	13	80

PERSONNEL INJURIES

	NUMBER	DESCRIPTION
14	0 0 0	NA
7 8 9 11	12	80

OFFSITE CONSEQUENCES

15 | NA

LOSS OR DAMAGE TO FACILITY

	TYPE	DESCRIPTION
16	Z	NA
7 8 9 10		80

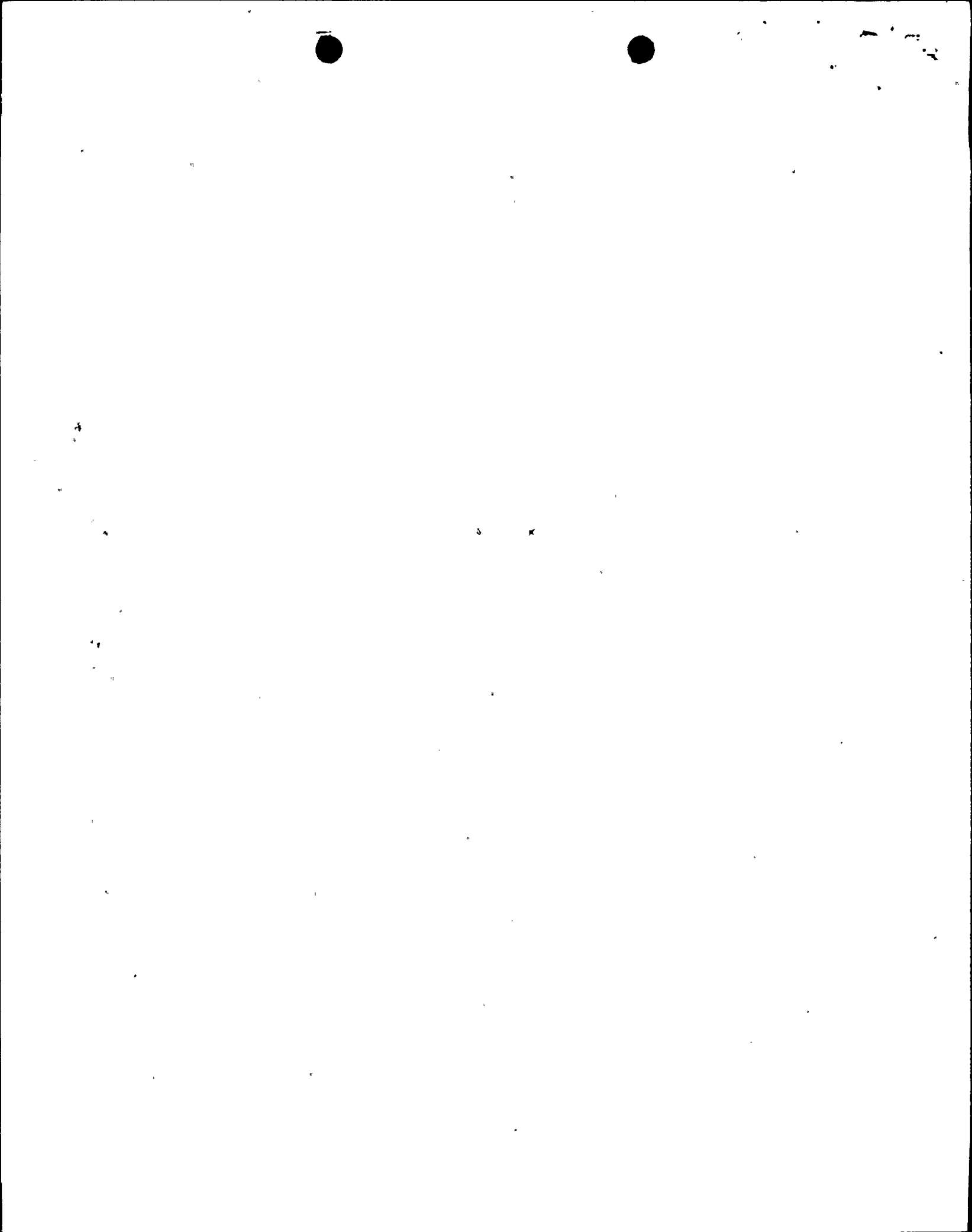
PUBLICITY

17 | NA

ADDITIONAL FACTORS

18 | NA

19 |



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.

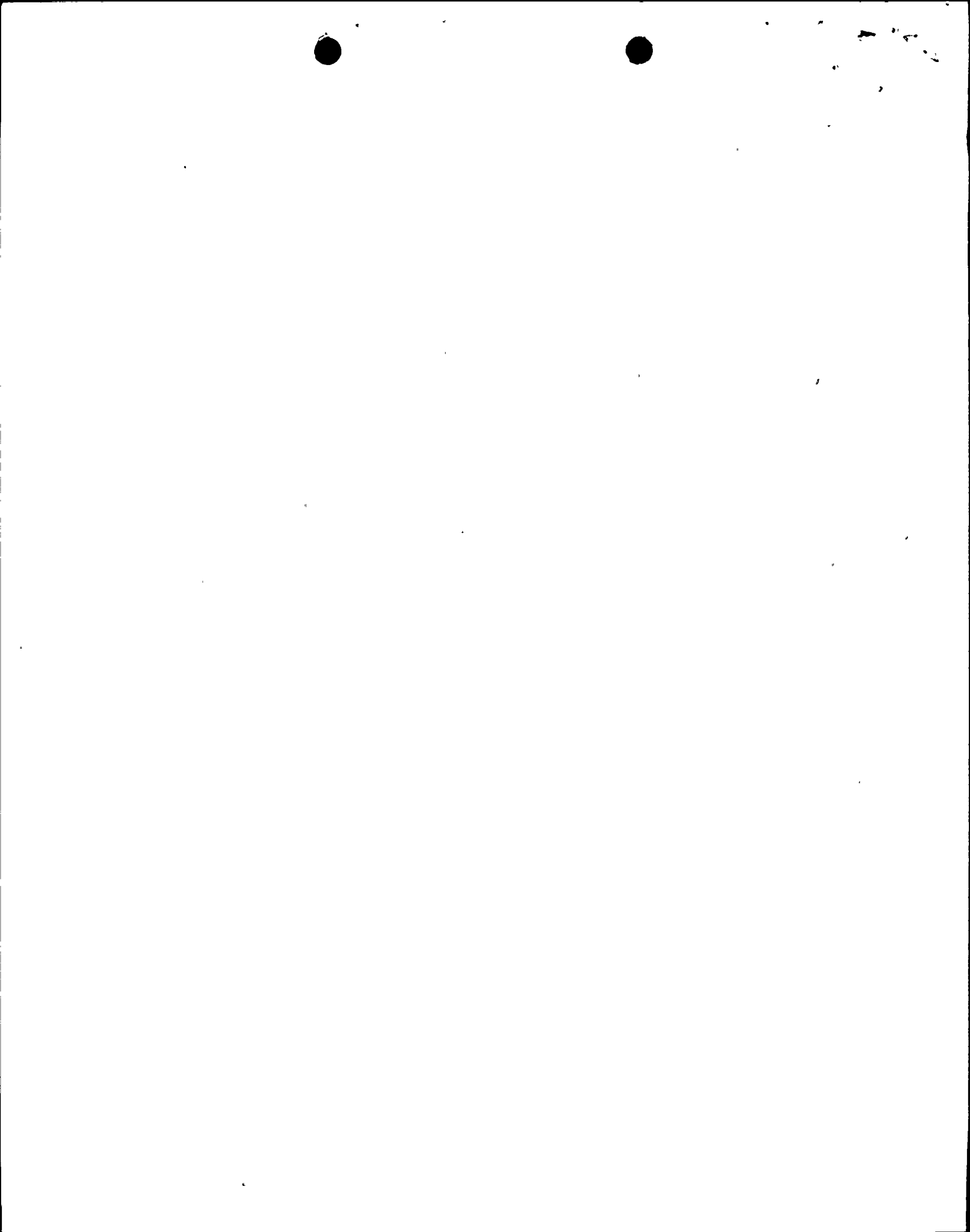
The activity of the water on the service water side was conservatively assumed to be the same as the activity of the torus water. A gamma isotopic analysis of the D2 torus water revealed the concentrations of the following nuclides.

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.





Commonwealth Edison

DEVIATION REPORT

DVR NO.	STA	UNIT	YEAR	NO.
D-12	2	-	77	- 44

PART 1 TITLE OF DEVIATION: U-2A Containment Cooling Heat Exchanger Tube Leak
 OCCURRED DATE: 5/29/77 TIME: 2015

SYSTEM AFFECTED: Containment Cooling Service Water System
 PLANT CONDITIONS: MODE Run, PWR(MWT) 2042, LOAD(MWE) 643
 TESTING: YES NO

DESCRIPTION OF EVENT: During HPCI monthly surveillance, 2A CCSW pump was started. Directly after pump start, received service water discharge monitor alarm.

DESCRIPTION OF CAUSE: Torus water (Shell Side) leaking into the service water side (Tube Side) of the heat exchanger.

OTHER APPLICABLE INFORMATION: Took tube side water samples of both A & B exchangers and submitted work request and placed heat exchanger out of service.

EQUIPMENT FAILURE: YES NO
 DR NO.: NA
 WR NO.: 5336
 RESPONSIBLE SUPERVISOR: Randall M. Black
 DATE: 5/29/77

PART 2 OPERATING ENGINEERS COMMENTS: Heat exchanger isolated upon determination of leak. Leakage determined to be approximately 4 gpm. Water samples were as follows: Torus - 6.8×10^{-3} uCi/ml, 2A heat exchanger - 4.1×10^{-3} uCi/ml heat exchanger tubes will be repaired. Surveillances completed for (over

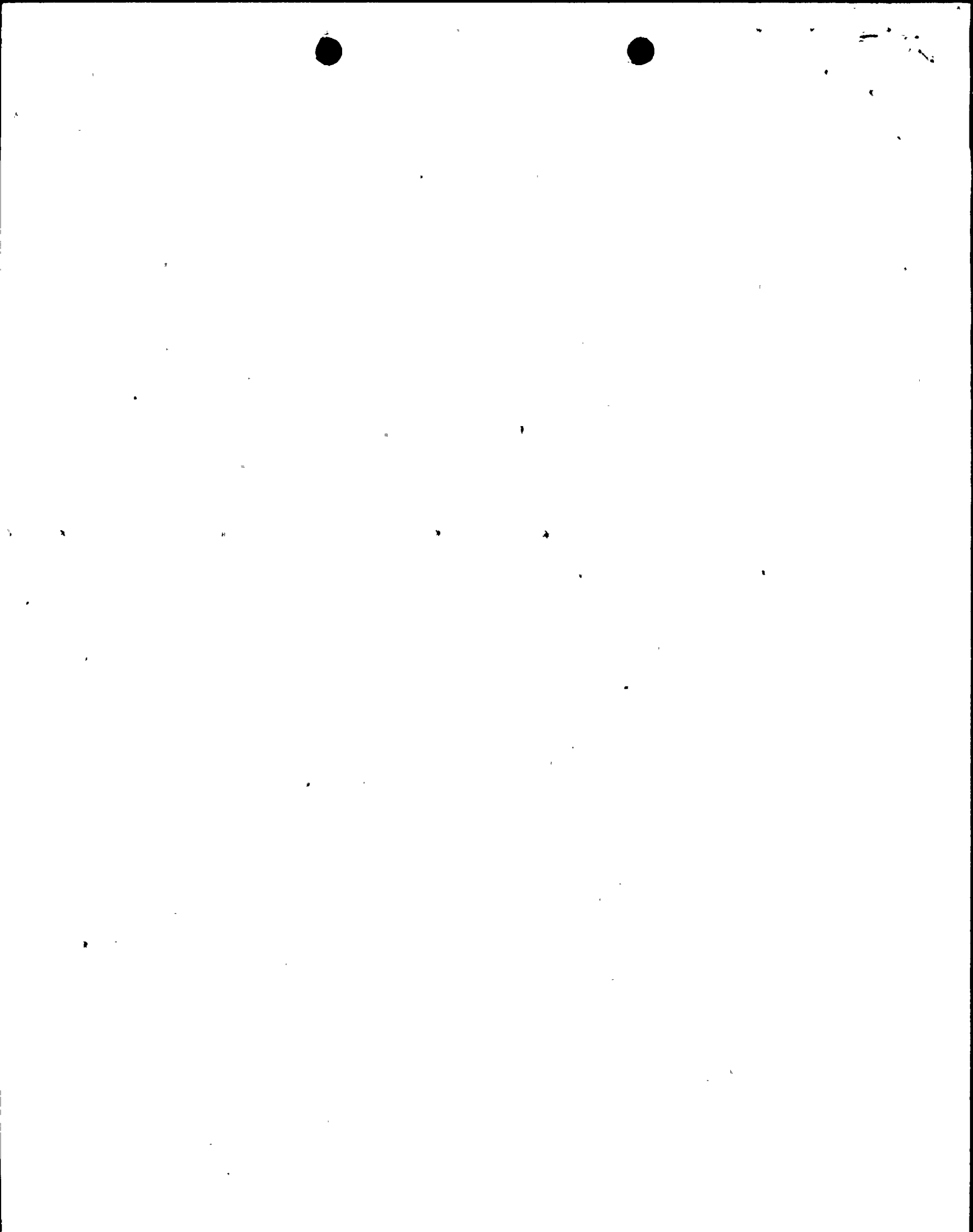
TYPE OF DEVIATION REPORTABLE OCCURRENCE	EVENT OF POTENTIAL PUBLIC INTEREST	TECH SPEC VIOLATION	NON-REPORTABLE OCCURRENCE	ANNUAL REPORTING	SAFETY-RELATED WR ISSUED
14 DAY <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	
30 DAY <input checked="" type="checkbox"/>					

REPORTABLE OCCURRENCE NUMBER: 50- 237 77 - 20	ACTION ITEM NO.: 12-77-157	PROMPT ON-SITE NOTIFICATION: A. Roberts-Asst.Supt. 5/31/77 1400 TITLE NA TITLE NA
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24-HOUR NRC NOTIFICATION: <input type="checkbox"/> TPH NA <input type="checkbox"/> TGM NA	PROMPT OFF-SITE NOTIFICATION: F. Palmer 5/31/77 2:43 TITLE NA J. R. Gilliom 5/31/77 2:43 TITLE NA
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REVIEW AND COMPLETED: J. S. Kolanowski OPERATING ENGINEER 5/31/77 DATE

ACCEPTANCE BY STATION REVIEW AS REQUIRED: [Signature] 6/29/77
 DATE: 6/29/77
 RESOLUTION APPROVED AND AUTHORIZED FOR DISTRIBUTION: [Signature] 6/29/77
 STATION SUPERINTENDENT DATE



OPERATING ENGINEER'S COMMENTS (continued)

isolation heat exchanger.

SEP 21 5 00

RECEIVED DOCUMENT
PROCESSING UNIT

1977 JUL 5 PM 2 46