

LICENSEE EVENT REPORT

CONTROL BLOCK: | | | | | | | | | 1

(PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

7 8 9 14 15 25 26 30 57 CAT 58

0	1	M	A	Y	K	R	1	2	0	0	-	0	0	0	0	0	0	-	0	0	3	4	1	1	1	1	4	5
LICENSEE CODE										LICENSE NUMBER										LICENSE TYPE					CAT		58	

7 8 60 61 68 69 74 75 80

0	1	L	6	0	5	0	0	0	0	0	2	9	7	1	1	0	9	7	8	8	1	1	2	2	7	8	9		
REPORT SOURCE										DOCKET NUMBER										EVENT DATE					REPORT DATE				

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)

0 2 | During eddy current testing, while determining base line data, 15 tubes in No. 1 and

0 3 | 12 tubes in No. 4 Steam Generators had >40% wall degradation (with two tubes in No. 1

0 4 | S/G found to be leaking). These defects constitute a degradation of the primary

0 5 | coolant pressure boundary and are reportable by T.S. 6.9.4.a(3). A similar occurrence

0 6 | was reported by LER 77-37. The occurrence did not present any threat to the health

0 7 | and safety of the public. The generators contain 1620 tubes.

7 8 9 11 12 13 18 19 20 21 22 23 24 26 27 28 29 30 31 32 33 34 35 36 37 40 41 42 43 44 47 80

SYSTEM CODE		CAUSE CODE		CAUSE SUBCODE		COMPONENT CODE			COMP. SUBCODE		VALVE SUBCODE							
C	B	E		D		H	T	E	X	C	H	F	Z					
(11)		(12)		(13)		(14)			(15)		(16)							
LER/RO REPORT NUMBER		EVENT YEAR		SEQUENTIAL REPORT NO.		OCCURRENCE CODE			REPORT TYPE		REVISION NO.							
17		78		030		011			T		0							
ACTION TAKEN		EFFECT ON PLANT		SHUTDOWN METHOD		HOURS			ATTACHMENT SUBMITTED		NPRD-4 FORM SUB.		PRIME COMP. SUPPLIER		COMPONENT MANUFACTURER			
X X		Z		Z		0000			Y		N		N		W120			
(18)		(19)		(20)		(21)		(22)			(23)		(24)		(25)		(26)	

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)

1 0 | Degradation of tube J-2 in No. 4 S/G has been attributed to a manufacturing defect

1 1 | but the others are unknown. The S/G is a 13,430 sq. ft. vertical type, manufactured

1 2 | by Westinghouse Corp. The degradation of the tubes was the result of a reduced

1 3 | wall thickness. The tubes were explosively plugged.

7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 80

FACILITY STATUS										% POWER										OTHER STATUS										METHOD OF DISCOVERY										DISCOVERY DESCRIPTION									
H										0000										N/A										B										100% base line eddy current tests									
(28)										(29)										(30)										(31)										(32)									
ACTIVITY CONTENT										RELEASED OF RELEASE										AMOUNT OF ACTIVITY										LOCATION OF RELEASE																			
M										M										~130 curies total										See attached narrative																			
(33)										(34)										(35)										(36)																			
PERSONNEL EXPOSURES										NUMBER										TYPE										DESCRIPTION																			
116										(37)										A										(38)										See attached narrative									
(39)										(40)										(41)										(42)																			
PERSONNEL INJURIES										NUMBER										DESCRIPTION																													
000										(40)										N/A										(41)																			
(42)										(43)										(44)										(45)																			
LOSS OF OR DAMAGE TO FACILITY										TYPE										DESCRIPTION																													
Z										(42)										N/A										(43)																			
(44)										(45)										(46)										(47)																			
PUBICITY ISSUED										DESCRIPTION										NRC USE ONLY																													
N										(44)										N/A										(45)																			
(46)										(47)										(48)										(49)																			

## EVENT DESCRIPTION AND PROBABLE CONSEQUENCES

During eddy current testing, while determining base line data, 15 tubes in No. 1 and 12 tubes in No. 4 steam generator had > 40% wall degradation. With two of the tubes in No. 1 steam generator found to be leaking. All the defects were located between ½" and 4" above the tube sheet, with one exception. Tube J-2 in steam generator No. 4 was found to have a defect 27" above the tube sheet. These defects constitute a degradation of the primary coolant pressure boundary and as such is required to be reported by T.S. 6.9.4.a.(3). As a result of the two leaking tubes in No. 1 steam generator primary coolant was introduced into the secondary side water inventory and then released to the environment. Tube defects were reported under a similar base line testing in LER 77-37 and its supplemental report.

There were previously 26 tubes plugged in No. 1 steam generator and 30 plugged in No. 4 steam generator out of the 1620 tubes per generator. The tube defects were random degradation of steam generator tubes, although the defects seem to be somewhat location dependant. Only two of the total 27 tubes had actually failed, resulting in a primary to secondary leak rate of approximately 125 gallons per day during plant operation just prior to the Core XIV refueling outage. The Technical Specification limit for primary to secondary leakage is 1 gallon per minute (1440 gallons per day). Therefore, this occurrence did not present a threat to health and safety of the public, plant personnel or plant equipment.

## CAUSE DESCRIPTION AND CORRECTIVE ACTIONS

The root cause of this occurrence is unknown at this time and if determined will be reported in a supplemental report. The steam generators are 13,430 sq. ft., design pressure 2500 psia on primary and 1050 psia on secondary sides, vertical type, manufactured by Westinghouse Corporation. The degradation of the tubes was the result of reduced wall thickness. The J2 tube degradation is believed to be a manufacturing defect. The tubes were explosively plugged on November 12 and 13. Three extra tubes, two in No. 1 steam generator and one in No. 4 steam generator were inadvertently plugged with the correction performed on November 13 and 18, 1978.

## ACTIVITY CONTENT

The estimated released activity due to the two leaking tubes in No. 1 steam generator from August 28, 1977 to October 24, 1978 was as follows:

Noble Gases	120 Curies	Primary Vent Stack to Atmosphere
Tritium	10 Curies	S/G Blowdown to River
Iodine-131	1.6E-2 Curie	S/G Blowdown to River
Iodine-133	5E-3 Curie	S/G Blowdown to River
Cesium-134	2E-4 Curie	S/G Blowdown to River
Cesium-137	3E-4 Curie	S/G Blowdown to River
Zirconium-95	5E-6 Curie	S/G Blowdown to River
Chromium-51	4E-6 Curie	S/G Blowdown to River
Cobalt-60	4E-7 Curie	S/G Blowdown to River
Silver-110m	1E-7 Curie	S/G Blowdown to River

## PERSONNEL EXPOSURES

The maximum dose rate to which any one of the workers was exposed, categories of the workers, number of exposed in each category, and estimated total man-rem dose received by each category were as follows:

A. Maximum Dose Rate to Any Person 13 R/HR.

B. Dose by Personnel Category:

<u>CATEGORY</u>	<u>MAINT.</u>	<u>ENG.</u>	<u>H.P.</u>	<u>DECON.</u>
Number of personnel	66	1 <sup>P</sup>	24	8
*Dose (Rem)	19 436	15.758	8.150	4.135

\*The dose included as a result of degraded tubes was tallied from Radiation Work Permits. This dose is measured by pocket ion chambers and may be considered as the best estimate achievable. These doses were tallied for the following jobs:

Dose as a result of degraded tubes. This includes:

- a. Opening and closing #1 S/G manways
- b. Hydro on #1 S/G and inspection
- c. Installation of blast nozzle covers
- d. Cleaning, marking, and verification of tubes
- e. Miscellaneous preparation for blasting and support of blasting and support of blasting. (Not including H.P.)
- f. H.P. coverage of all categories
- g. Explosive weld repair