NRC FORM 366 (7-77)

79-013/01T-0

LICENSEE EVENT REPORT

U. S. NUCLEAR REGULATORY COMMISSION

(CAR 1228)

CONTROL BLOCK: (1) (PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

Line	Field	Value
01	LICENSEE CODE (2)	N Y R E G 1
	LICENSE NUMBER (3)	0 0 - 0 0 0 0 0 - 0 0
	LICENSE TYPE (4)	4 1 1 1 1
	CAT (5)	
01 CON'T	REPORT SOURCE (6)	L
	DOCKET NUMBER (7)	0 5 0 0 0 2 4 4
	EVENT DATE (8)	0 7 0 7 7 9
	REPORT DATE (9)	0 7 2 3 7 9

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)

02 During ultrasonic and radiographic examination of SG feedwater nozzle-to-elbow welds
03 required by and performed in accordance with IE Bulletin 79-13 small linear indications
04 in elbows were found (T.S. 6.9.2.a.(9)). Pipe examination was expanded to 18 other
05 welds in Containment, including penetration welds. No further problems were found.

Line	Field	Value
09	SYSTEM CODE (11)	H H
	CAUSE CODE (12)	X
	CAUSE SUBCODE (13)	Z
	COMPONENT CODE (14)	P I P E X X
	COMP. SUBCODE (15)	E
	VALVE SUBCODE (16)	Z
(17) LER/RO REPORT NUMBER	EVENT YEAR	7 9
		—
	SEQUENTIAL REPORT NO.	0 1 3
		/
	OCCURRENCE CODE	0 1
	REPORT TYPE	T
		—
	REVISION NO.	0
	ACTION TAKEN (18)	A
	FUTURE ACTION (19)	X
	EFFECT ON PLANT (20)	A
	SHUTDOWN METHOD (21)	A
	HOURS (22)	0 6 0 0
	ATTACHMENT SUBMITTED (23)	Y
	NPRD-4 FORM SUB. (24)	Y
	PRIME COMP. SUPPLIER (25)	N
	COMPONENT MANUFACTURER (26)	L 0 2 5

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)

10 Cause not identified; owners group will investigate with Westinghouse. To repair,
11 nozzle end preps were built up to sch 80; the Ladish Co. 18" sch 100 carbon steel P1
12 900 lb. elbows with sch 60 prep. nozzle end, were replaced with sch 80 chrome-moly
13 P4 elbows using qualified repair procedures and very precise preheat, intermediate and
14 post weld heat treatment.

Line	Field	Value
15	FACILITY STATUS (28)	G
	% POWER (29)	0 0 0
	OTHER STATUS (30)	NA
	METHOD OF DISCOVERY (31)	C
	DISCOVERY DESCRIPTION (32)	Radiography and ultrasonics
16	ACTIVITY RELEASED (33)	Z
	CONTENT OF RELEASE (34)	Z
	AMOUNT OF ACTIVITY (35)	NA
	LOCATION OF RELEASE (36)	NA
17	PERSONNEL EXPOSURES NUMBER (37)	0 0 0
	TYPE (38)	Z
	DESCRIPTION (39)	NA
18	PERSONNEL INJURIES NUMBER (40)	0 0 0
	DESCRIPTION (41)	NA
19	LOSS OF OR DAMAGE TO FACILITY (43) TYPE (42)	Z
	DESCRIPTION	NA
20	PUBLICITY ISSUED (44)	Y
	DESCRIPTION (45)	newspaper and radio announcements
	NRC USE ONLY	

7907260596

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GPO 917-926

Event Description and Probable Consequences

In accordance with the requirements of IE Bulletin 79-13, Rochester Gas and Electric has examined the feedwater nozzle-to-elbow welds of Ginna Station's two steam generators on July 9 and 10, 1979. These examinations consisted of both radiographic and ultrasonic examinations. Both the ultrasonic and radiographic examination data revealed small linear inside diameter indications in the elbows consistent with those reported in Bulletin 79-13 for the plants listed. After confirming the feedwater nozzle cracking problem the examination scope was expanded to include other feedwater piping welds inside containment upstream from the nozzle-to-elbow welds. These examinations consisted of both visual and radiographic inspection of 18 additional welds. This included the welds between the steam generator nozzles and one weld past the first rigid support. Included also was the containment feedwater penetration piping welds, which represents the other terminal ends inside containment. These examinations did not reveal any linear indications and confirmed the continued structural integrity of these additional 18 welds.

The cracks were determined to be adjacent to the feedwater nozzle-to-elbow welds, in the elbow base material counter bore-taper intersection approximately 3/4 of an inch from the center line of the weld. Interpretations of the UT and RT data were made as follows:

A Steam Generator - maximum depth of approximately 1/16 inch wall penetration, 300° around the circumference of the elbow.

B Steam Generator - maximum depth of approximately 3/32 inch of wall penetration, 360° around the circumference of the elbow.

The preliminary metallurgical analysis has confirmed that these cracks are a result of a corrosion fatigue mechanism with maximum depth in the areas investigated to date as follows:

A Steam Generator - two cracks noted of 0.065 and 0.043 of an inch in depth.

B Steam Generator - one crack noted of 0.100 of an inch in depth.

This corresponds very well with the ultrasonic examination flaw sizing data.

Due to the appearance of the cracks with the blunt crack tip ends, and the fact that they are completely filled with corrosion products, it is postulated that these cracks are old and have not grown recently.

Cause Description and Corrective Actions

The cause of these base material cracks is not known at this time. It can only be postulated whether the cause is from original heat treatment procedural problems, a thermal fatigue phenomenon, or the synergistic effects of these two coupled with normal operating stress. In order to determine the factors involved RG&E has joined a pipe cracking owners group to study and analyze the cause. This group is pursuing this investigation with Westinghouse. Recommendations for permanent corrective actions shall be considered if the repair procedures and strict heat treatment procedures implemented to date are not adequate for the final corrective action.

The corrective actions taken at Ginna have been to build up the nozzle end preps to schedule 80 and replace the carbon steel P1 elbows with schedule 80 chrome-moly (P4) elbows utilizing qualified repair procedures and very precise preheat and post weld heat treatment procedures. All corrosion pitting, cracks and surface checking inside the nozzle bore were removed by mechanical means. Any areas where minimum wall was encroached were repaired by repair welding in accordance with qualified procedures.

To gather operational data to aid in further examination of the problem, thermocouples were installed inside and outside each nozzle.