

LICENSEE EVENT REPORT

CONTROL BLOCK:

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(PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

0	1	P	A	P	B	S	2	2	0	0	-	0	0	0	0	-	0	0	3	4	1	1	1	1	4			5	
7	8	LICENSEE CODE						34	LICENSE NUMBER										25	LICENSE TYPE						30	57 CAT 58		

CON'T

7 8

REPORT SOURCE 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

DOCKET NUMBER EVENT DATE REPORT DATE

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)

02 During a forced outage on Unit 2, while performing a special inspection,
03 an indication was found in the heat affected zone of a 20" RHR shutdown
04 cooling suction line weld. Indications were found in both the pipe and
05 elbow side of the weld. Indications were circumferential in pipe and
06 elbow. A similar event is referenced in Ler 3-83-12/1T.
07

08 |-----| 80

09		SYSTEM CODE C F 11		CAUSE CODE X 12		CAUSE SUBCODE Z 13		COMPONENT CODE P I P E X X 14						COMP. SUBCODE E 15		VALVE SUBCODE Z 16	
7 8		9 10		11 12		13 14		15 16 17 18						19 20			
(17) LER/RO REPORT NUMBER		EVENT YEAR 8 3 21 22		SEQUENTIAL REPORT NO. — 23		OCCURRENCE CODE 0 1 1 24 25 26		REPORT TYPE T 27		REVISION NO. 0 28 29							
ACTION TAKEN X 33		FUTURE ACTION X 34		EFFECT ON PLANT C 35		SHUTDOWN METHOD Z 36		HOURS 0 0 3 6 37 38 39 40		ATTACHMENT SUBMITTED Y 41		NPRD-4 FORM SUB. Y 42		PRIME COMP. SUPPLIER N 43		COMPONENT MANUFACTURER K 0 5 5 44 45 46 47	
18 19		20 21		22 23		24 25		26 27		28 29		30 31		32 33		34 35	

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)

10 The indications show pattern typical of intergranular stress corrosion
11 cracking. A fracture mechanics analysis performed by the NSS Vendor
12 showed that crack growth from now to fall 83 refueling outage is
13 negligible and continued operation is justified for up to 6 months
14 without repair. EPRI approved water sensitive tape applied to 10 welds

FACILITY STATUS (28) G (1 5) 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
 % POWER 0 0 29
 OTHER STATUS NA
 METHOD OF DISCOVERY (31) C 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60
 DISCOVERY DESCRIPTION (32) During special inspection
 ACTIVITY CONTENT RELEASED OF RELEASE (33) Z (1 6) 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
 AMOUNT OF ACTIVITY (35) NA
 LOCATION OF RELEASE (36) NA

PERSONNEL EXPOSURES									
NUMBER			TYPE	DESCRIPTION					
1	7	031	(37) E	(38) 12.5 Man-Rem to maintenance personnel					

PERSONNEL INJURIES				80	
NUMBER		DESCRIPTION		(41)	
1	8	0	0	0	40
NA					

7 8 9 11 12
LOSS OF OR DAMAGE TO FACILITY (43)
TYPE DESCRIPTION

1	9	Z	(42)	NA	PDR
7	8	9	10		20

10
PUBLICITY
ISSUED DESCRIPTION (45) NA
7 8 9 10 68 69 70
2 0 N 44
NRC USE ONLY

NAME OF PREPARER

M. J. Cooney

PHONE: (215) 841-5020

NRC USE ONLY

IELL

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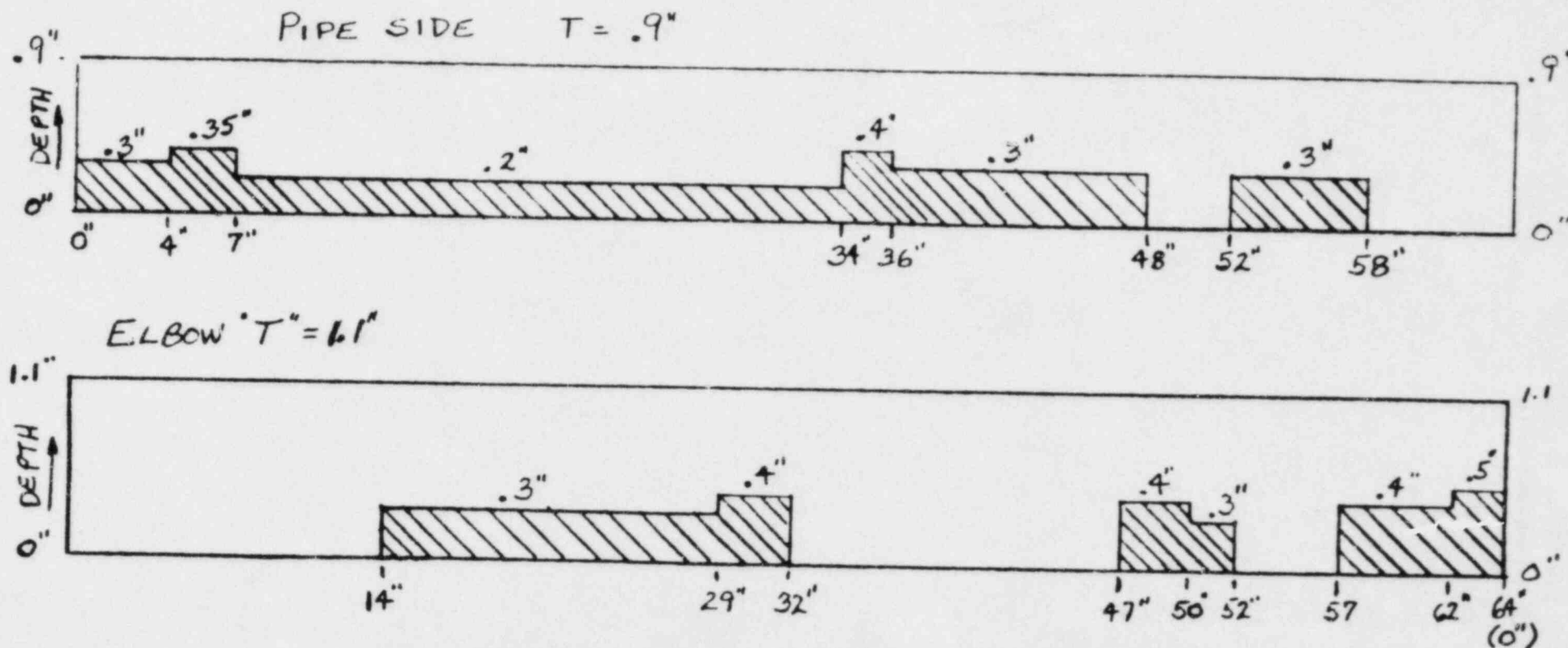
GPO 917-926

May 20, 1983

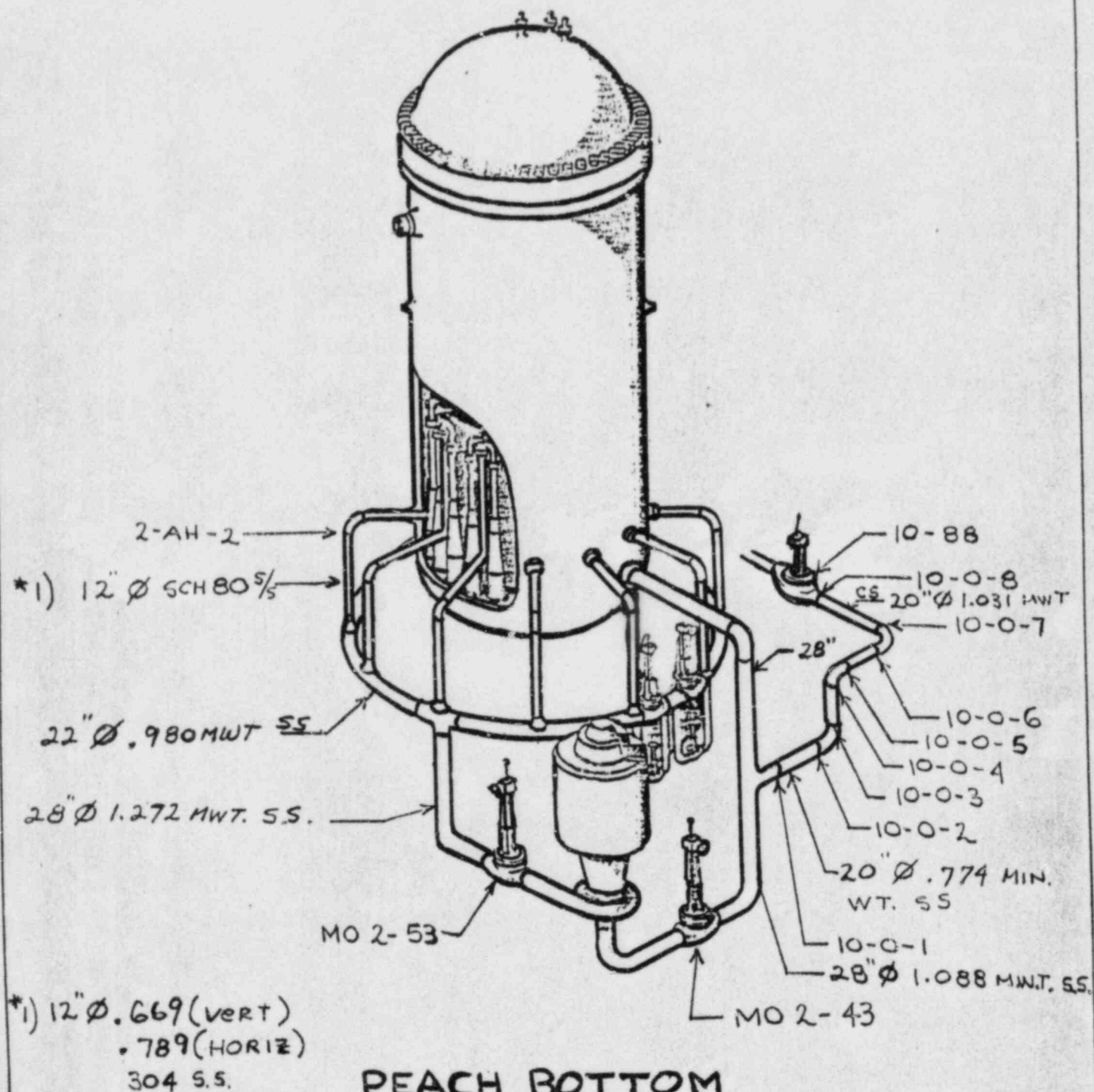
Peach Bottom Unit #2
RHR Suction; Pipe to Elbow Weld: 10-0-6
20" diameter Assume 64" circumference

Graphic Plot of the location and thru-wall depth of all ultrasonic indications, assumed to be cracks.

Reviewed & Accepted
Robert H. Gong, Level III
PCCo 5/8/83



E. O. Zeng
Level III 5/7/83



PEACH BOTTOM
 RECIRCULATION CONFIGURATION

PHILADELPHIA ELECTRIC COMPANY

2301 MARKET STREET

P.O. BOX 8699

PHILADELPHIA, PA. 19101

(215) 841-4000

May 20, 1983

Docket No. 50-277

Mr. J. M. Allan, Acting Administrator
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, PA 19046

Subject: License Event Report Narrative Description

Dear Mr. Allan:

The following occurrence was reported to Mr. A. R. Blough of Region I, U.S. Nuclear Regulatory Commission, on May 6, 1983.

Reference:	Docket No. 50-277
Report Number:	2-83-11/IT-0
Report Date:	May 20, 1983
Event Date:	May 6, 1983
Facility:	Peach Bottom Atomic Power Station RD 1, Delta, PA 17314

Technical Specification Reference:

Technical Specification 3.6.G, Structural Integrity, states that, "The structural integrity of the primary system boundary shall be maintained at the level required by the original acceptance standards throughout the life of the station. The reactor shall be maintained in a Cold Shutdown condition until each indication of a defect has been investigated and evaluated."

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Description of the Event:

Analysis of ultrasonic testing data confirms the presence of cracks in the 20" RHR shutdown cooling suction line. These cracks are located in the heat affected zone of the pipe and elbow at weld 10-0-6. Attachment I of this letter shows the location of this weld in the RHR shutdown cooling suction line. Attachment II of this letter is a graphic plot of the location and depth of all ultrasonic indications in weld 10-0-6. The pipe side of the weld is 0.9" thick and the elbow side of the weld is 1.1" thick. The cracks are all circumferential in nature. In the pipe side the longest single crack length is approximately 48" long and the maximum thru-wall depth is 0.4". In the elbow side of the weld the longest single crack is 18" long and the maximum thru-wall depth is 0.5".

Conditions Prior to Occurrence:

During the current Unit 3 refueling outage, while performing non-destructive examinations following Induction Heating Stress Improvement Treatment of Reactor Recirculation and RHR Suction Lines, as of May 6, 1983, indications had been found in the heat affected zone of 12 welds of the treated piping. Three of the welds were in the 20" non-isolatable section of the RHR suction line. These welds are identified 10-0-5, 10-0-6 and 10-0-7. Of these three welds, the 10-0-6 weld had the most severe indications and also had the highest stress rule index number (SRI-2.095). The remaining 9 welds that had been identified with indications on Unit 3 were 9 of the ten 12" vertical riser to elbow welds in the recirculation risers. (For further reference information on Unit 3 indications, see LER 3-83-12/IT-0.)

On May 3, 1983, Unit 2 had been shutdown for maintenance initiated by a valve packing leak in the drywell. During this outage, in light of the indication findings in Unit 3, the decision was made to examine certain welds in Unit 2. The selection of the welds to be inspected was made by considering SRI numbers and by choosing a representative sample of welds in Unit 2 that were typical of the welds found with indications in Unit 3. Three welds were chosen to be inspected. On the recirculation system piping, the vertical riser to elbow weld with the highest SRI number in each of the A and B loops was chosen to be inspected. In the RHR shutdown cooling suction line, weld 10-0-6 was chosen; as mentioned above, weld 10-0-6 in Unit 3 had the most severe indications and the highest SRI number

of the three welds found with indications in this line. This program was discussed with the NRC staff in Region I.

Cause of the Event:

The analysis of the data shows a pattern typical of intergranular stress corrosion cracking.

Analysis of Occurrence:

On Unit 2, weld 10-0-6 was the only weld of the three welds inspected that was found with indications. These indications were confirmed as cracks. A fracture mechanics analysis was performed by the NSS vendor. The crack growth evaluation was performed using the initial average crack depths of 0.3" on the pipe side of the weld and 0.4" on the elbow side of the weld. For the analysis, conservatively, the crack was assumed to be a 360 degree circumferential crack. Analyses were performed with and without considering the beneficial effects of the weld residual stresses. The analyses also used a conservative applied stress value of 13KSi. The analyses showed that with the maximum crack growth rate for weld sensitized material, the stress in the pipe would not exceed code allowable if operation continued up to six months.

Augmented Surveillance Steps Taken:

Unit 2 is presently scheduled to begin a refueling outage on October 14, 1993; this represents a period of operation of less than 5 months. Additional measures have been taken to increase the surveillance on the piping in Unit 2.

By License Amendment Application dated May 3, 1983, Philadelphia Electric Company requested changes to the Technical Specifications for Peach Bottom Units 2 and 3 to meet the coolant leakage criteria identified in NUREG 0313, Revision I, "Technical Report on Material Selection and Processing Guidelines for BWR Coolant Pressure Boundary Piping".

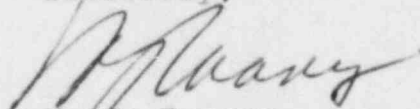
On May 8, 1993, EPRI approved "Water Sensitive Tape" was installed on 10 selected welds in Unit 2 to improve on early warning detection. Three riser to elbow welds in each recirculation loop, and four welds on the RHR shutdown cooling suction line were selected for tape installation. This tape is calibrated to alarm on a very low amount of water leakage

(approximately 2 drops of water) and has been utilized in other Nuclear facilities for this purpose.

The results of the fracture mechanics analysis were sent to the NRC staff in Bethesda. On May 9, 1983, Unit 2 returned to service after consultation with NRC staff. The Philadelphia Electric Company Operation and Safety Review (O&SR) Committee has reviewed the entire event and has concluded that continued operation until refueling outage in October, 1983, is safe.

Philadelphia Electric Company's response to I.E. Bulletin 83-02, to be submitted before resuming power operations after refueling outage, will provide all additional information on this subject.

Sincerely,



M. J. Cooney
Superintendent
Nuclear Generation Division

Attachment

cc: Document Control Desk
A. R. Blough/Site Inspector