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The Northeast Utilities System

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Millstone Nuclear Power Station, Unit No. 3
Steam Generator Tube Inservice Inspection Report

This special report is being submitted within 12 months following the completion of the fifth Inservice Eddy Current Inspection (ECT) of the Millstone Unit No. 3 Steam Generator (S/G) tubes pursuant to Technical Specification 4.4.5.5.b.

The end of cycle 5 steam generator tube inspection began on April 27, 1995 and was completed on May 5, 1995. The examination was performed by Westinghouse Nuclear Service Division. A total of 8473 tubes or 38 percent of the total tubes in all generators were examined by full length bobbin coil inspection. The examination significantly exceeded that required by Technical Specification 4.4.5.2.

A brief synopsis of the results of the steam generator tube inspection is provided in the enclosed Table 3, "Millstone 3 1995 ECT Summary." Additional information on the details of the inspection plan and ECT results are provided in attached tables and figures.

The inspections were performed on Steam Generators 'B' and 'D'. The initial inspection plan consisted of 4220 tubes in S/G 'B' and 4220 tubes in S/G 'D'. Table 1 is a summary of the locations where the initial samples were taken. Table 2 shows a summary of all tests performed. The evaluation of these results placed both S/G 'B' and S/G 'D' into Category C-2, as defined by the Plant Technical Specifications. The C-2 category resulted from the identification of "one or more tubes, but not more than 1% of the total tubes inspected" as defective. The required action was to inspect an additional '2S' sample (i.e. 12%) in Steam Generators 'B' and 'D'. However, since an initial 75 percent sample was used which included 100 percent of the Antivibration Bar Wear (AVB) region, rows ≥ 25 , and all defects were identified as AVB, no additional sample expansions were required.

Tube Row 52, Column 89 which required plugging in the 'D' Steam Generator was not required to be counted in the inspection classification. A review of the previous ECT data for that tube, which was inspected in 1991 during Refueling Outage 3 (RFO3), confirmed that none of the three defects had progressed more than 10 percent through-wall after two complete cycles of operation. Therefore, these defects were not included in the determination of the inspection category.

The 1995 Eddy Current Testing identified flaws greater than or equal to the plugging limit in ten tubes (one in S/G 'B' and nine in S/G 'D'). The plugging limit is defined in Technical Specifications

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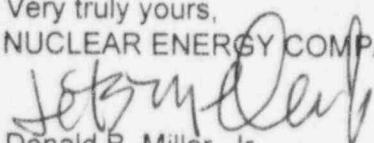
as an imperfection depth of 40 percent nominal tube wall thickness. All ten tubes exhibited degradation attributed to AVB wear. These tubes in addition to tube location Row 52, Column 89, are identified in Table 4, "Location of Tubes Plugged During RFO5", and were removed from service utilizing Westinghouse Alloy 690 Tapered Mechanical Plugs. Table 5 provides a historical listing of all tubes plugged on Millstone 3.

During RFO5, six Westinghouse Inconel 600 mechanical plugs, determined to be susceptible to cracking, were repaired. The repair included the removal (by drilling) and replacement of the mechanical plugs from the 'B' and 'D' hot leg and cold leg plenums. The actual locations are identified in Table 6, "Plug Repairs." All plugs were replaced with Inconel 690 mechanical plugs. Similar repairs are scheduled for the eight remaining cold leg Alloy 600 plugs in the 'A' and 'C' Steam Generators during RFO6.

In response to the Callaway findings, the scope of the Millstone 3 steam generator tube inspection program was expanded to include a sample of tubes in the region where Callaway had identified tube cracking. Five hundred tubes from S/G 'B' and S/G 'D' were inspected, from 12 inches above the top of the hot leg tubesheet to the tube end, using the Cecco-5 probe. The location of the tubes selected for Cecco-5 probe testing corresponded to both the Millstone 3 high sludge region and the region where all of Callaway's circumferential cracks had been located. Figures 2 and 8 show the inspection maps for S/G 'B' and S/G 'D' respectively. The results of the inspection program confirmed that tube cracking had not occurred at Millstone 3 in the region where Callaway had observed circumferential cracking. Unlike Callaway, all tubes in the Millstone 3 steam generators are thermally treated. The inspection results from the Millstone 3 steam generators are consistent with industry experience which has shown that no cracking of thermally treated Inconel 600 tubing has ever occurred in a domestic steam generator.

Prior to the inspection, 50 tube locations were selected for examination with a Rotating Pancake Coil (RPC) probe. The tubes were selected based on previous inspection results which showed excessive tube geometry variations caused by the hydraulic tubesheet expansion process. Since these geometry changes result in increasing tube stress, they are considered more susceptible than other locations for developing Primary Water Stress Corrosion Cracking (PWSCC). Since the Cecco-5 probe was qualified to detect PWSCC and it was being employed for detection of Callaway cracking, the original sample of 50 tubes scheduled for RPC exams was done with the Cecco-5 probe. A total of 7 RPC exams were performed at locations selected based on possible tube flaws identified by the Cecco probe. Figures 3 and 9 show the RPC inspection maps for S/G 'B' and S/G 'D' respectively.

The licensee contact for this report is Larry Loomis, who may be reached at (203) 447-1791, Extension 5468.

Very truly yours,
NORTHEAST NUCLEAR ENERGY COMPANY

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Enclosures

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MP3 STEAM GENERATOR EXAMINATION - RFO 5

TABLE 1
INITIAL TUBE SAMPLE SELECTION
(FULL LENGTH BOBBIN COIL EXAMINATION)

CRITERIA	NUMBER OF TESTS	
	SG B	SG D
100% of Tubes in Rows >=25*	2796	2792
100% of Tubes in Row 1	122	121
100% of Perimeter Tubes in Rows 2-24	46	46
Random, Rows 2-24 Not Examined Since RFO3	1256	1261
	4220	4220

* - Includes previous flaws >=20% TW (RFO 3)

(RPC EXAMINATION)

CRITERIA	NUMBER OF TESTS	
	SG B	SG D
Tubes Susceptible to PWSCC Due to Geometry Variations	33	17

TABLE 2
SUMMARY OF TESTS PERFORMED

TEST METHOD	AREA EXAMINED	SG B		SG D		TOTAL
		HOT	COLD	HOT	COLD	
Bobbin	Full Length*	4237	122	4236	121	8473
Cocco	12" Above Tubesheet to Tube End	534	0	524	0	1058
RPC	Expansion Transition	4	0	3	0	7

* - Tubes in Row 1 were examined partial length from both hot and cold leg.

TABLE 3
MILLSTONE 3 1995 ECT SUMMARY

DESCRIPTION	S/G B	S/G D	TOTAL*
Number of Tubes	5626	5626	22504
Number of Tubes Inspected	4237	4236	8473
Tubes with Maximum Flaw > 40%	1	10	11
Tubes with Flaws > 20% but < 40%	11	29	40
Tubes Plugged as a Result of this Inspection	1	10	11

TABLE 4
LOCATION OF TUBES PLUGGED DURING RF05

ROW	COLUMN	S/G	ROW	COLUMN	S/G
58	76	B	55	63	D
			42	100	D
36	45	D	51	81	D
51	45	D	52	89	D
51	46	D	52	90	D
41	51	D	48	95	D

TABLE 5
TOTAL TUBES PLUGGED TO DATE

	SG#	Row	Col	% Throughwall	Location
Fabrication	A	12	100		
	B	14	21		
	B	40	17		
	C	36	94		
	C	56	73		
Preservice June 1985	A	25	61	73%	02C + 1.1"
	A	29	60	78%	02C + 32.2
	B	32	71	Bulge	TSH
	C	1	1	69%	CL Tangent
	D	1	122	78%	CL Tangent
Nov. 1987 - RF01	A	50	94	34%	AV5
	D	48	98	32%	AV4
May 1989 - RF02	A	1	122	36%	HL Tangent
	A	48	97	51%	AV5
	A	50	28	43	AV3
	A	50	95	45	AV5
Feb. 1991 - RF03	D	43	42	41%	AV5
	D	43	103	41%, 42%	AV4, AV3
	D	53	86	53%, 43%, 48%	AV3, AV4, AV5
	D	53	88	41%	AV5
	D	53	90	47%, 40%	AV4, AV5
Aug. 1993 - RF04	A	40	63	61%	AV2
	A	42	79	46%	AV4
	A	48	98	53%, 44%	AV3, AV5
	A	50	59	44%	AV4
	A	53	90	54%, 40%, 41%	AV2, AV4, AV5
	A	54	52	50%, 56%, 43%	AV2, AV3, AV6
	C	50	92	44%, 45%	AV3, AV4
April 1995 - RF05	B	58	76	49%, 48%	AV4, AV5
	D	36	45	40%, 44%	AV4, AV5
	D	41	51	52%	AV4
	D	42	100	59%	AV5
	D	48	95	55%, 40%	AV3, AV5
	D	51	45	40%, 42%, 51%, 49%	AV3, AV4, AV5, AV6
	D	51	46	42%	AV4
	D	51	81	41%, 42%	AV4, AV5
	D	52	89	41%	AV4
	D	52	90	58%, 47%	AV2, AV4
	D	55	63	43%, 45%, 56%, 48%	AV3, AV4, AV5, AV6

TABLE 6

PLUG REPAIRS

S/G	Row	Column
B	32	71
D	48	98
D	1	122

Table 7
(Page 1 of 2)

SG - B AVB PERCENT THRU WALL INDICATIONS

Millstone Unit 3 - RFO 5
INSPECTION: April-95

NEU -B/F
6-May-95 16:30

ROW	COL	CEB	CEE	PROBE	IND	LOC	INCH1	INCH2	CHAN	VOLTS	DEG	TAPE
30	12	TEC	TEH	560-EB	19	AV5	.00	.00	M2	.66	7	
33	12	TEC	TEH	560-EB	17	AV2	.00	.00	M2	.54	7	
33	12	TEC	TEH	560-EB	18	AV5	.00	.00	M2	.61	7	
42	21	TEC	TEH	560-EB	17	AV2	.00	.00	M2	.58	13	
42	21	TEC	TEH	560-EB	10	AV3	.00	.00	M2	.30	13	
42	21	TEC	TEH	560-EB	19	AV4	.00	.00	M2	.71	13	
42	21	TEC	TEH	560-EB	24	AV5	.00	.00	M2	.99	13	
42	21	TEC	TEH	560-EB	17	AV6	.00	.00	M2	.61	13	
45	22	TEC	TEH	560-EB	13	AV6	.00	.00	M2	.52	15	
40	24	TEC	TEH	560-EB	21	AV3	.00	.00	M2	.65	19	
40	24	TEC	TEH	560-EB	22	AV4	.00	.00	M2	.70	19	
40	24	TEC	TEH	560-EB	18	AV5	.00	.00	M2	.65	19	
48	25	TEC	TEH	560-EB	16	AV6	.00	.00	M2	.43	19	
41	34	TEC	TEH	560-EB	31	AV4	.00	.00	M2	1.49	23	
41	34	TEC	TEH	560-EB	29	AV5	.09	.00	M2	1.30	23	
54	36	TEC	TEH	560-EB	28	AV5	.09	.00	M2	1.24	25	
54	36	TEC	TEH	560-EB	15	AV6	.11	.00	M2	.46	25	
36	39	TEC	TEH	560-EB	13	AV2	.14	.00	M2	.37	27	
36	39	TEC	TEH	560-EB	16	AV3	.16	.00	M2	.50	27	
36	39	TEC	TEH	560-EB	18	AV5	.09	.00	M2	.61	27	
36	39	TEC	TEH	560-EB	14	AV6	.12	.00	M2	.43	27	
42	40	TEC	TEH	560-EB	14	AV2	.06	.00	M2	.43	29	
42	40	TEC	TEH	560-EB	29	AV4	.17	.00	M2	1.35	29	
56	42	TEC	TEH	560-EB	15	AV6	.00	.00	M2	.47	31	
59	65	TEC	TEH	560-EB	17	AV2	.00	.00	M2	.58	49	
41	69	TEC	TEH	560-EB	22	AV5	.00	.00	M2	.91	55	
57	70	TEC	TEH	560-EB	14	AV2	.00	.00	M2	.45	55	
58	76	TEC	TEH	560-EB	28	AV3	.10	.00	M2	1.24	65	
58	76	TEC	TEH	560-EB	49	AV4	.00	.00	M2	4.18	65	
58	76	TEC	TEH	560-EB	48	AV5	.00	.00	M2	3.93	65	
41	77	TEC	TEH	560-EB	19	AV3	.00	.00	M2	.60	65	
41	77	TEC	TEH	560-EB	18	AV5	.00	.00	M2	.59	65	

ROW	COL	CEB	CEE	PROBE	IND	LOC	INCH1	INCH2	CHAN	VOLTS	DEG	TAPE
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Table 7
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SG - B AVB PERCENT THRU WALL INDICATIONS

Millstone Unit 3 - RFO 5
 INSPECTION: April-95

NEU -B/F
 6-May-95 16:30

ROW	COL	CEB	CEE	PROBE	IND	LOC	INCH1	INCH2	CHAN	VOLTS	DEG	TAPE
39	96	TEC	TEH	560-EB	19	AV3	.00	.00	M2	.70	85	
42	96	TEC	TEH	560-EB	16	AV2	.08	.00	M2	.56	85	
42	98	TEC	TEH	560-EB	21	AV2	.07	.00	M2	.87	85	
42	98	TEC	TEH	560-EB	24	AV3	.07	.00	M2	1.05	85	
43	100	TEC	TEH	560-EB	26	AV3	.00	.00	M2	1.18	87	
43	100	TEC	TEH	560-EB	28	AV4	.00	.00	M2	1.36	87	
43	100	TEC	TEH	560-EB	20	AV6	.00	.00	M2	.81	87	
37	104	TEC	TEH	560-EB	16	AV3	.00	.00	M2	.47	91	
38	104	TEC	TEH	560-EB	18	AV3	.00	.00	M2	.58	91	
38	104	TEC	TEH	560-EB	24	AV4	.00	.00	M2	.94	91	
35	106	TEC	TEH	560-EB	19	AV4	.00	.00	M2	.64	91	
33	109	TEC	TEH	560-EB	19	AV2	.00	.00	M2	.67	93	
33	109	TEC	TEH	560-EB	20	AV3	.00	.00	M2	.70	93	
34	109	TEC	TEH	560-EB	24	AV3	.00	.00	M2	.95	93	
34	109	TEC	TEH	560-EB	19	AV5	.00	.00	M2	.64	93	

ROW	COL	CEB	CEE	PROBE	IND	LOC	INCH1	INCH2	CHAN	VOLTS	DEG	TAPE

PAGE 2

TOTAL TUBES 25

Table 8

HISTORICAL ECT RESULTS FOR AVB FLAWS \geq 20% TW IN 1995
 (BASED ON 1995 RE-ANALYSIS OF DATA)

STEAM GENERATOR B

ROW	COL	AVB LOCATION	EXAMINATION DATE		
			NOV '87	FEB '91	MAY '95
42	21	AV5	NT	NDD	24%
40	24	AV3	NT	NDD	21%
		AV4	NT	18%	22%
41	34	AV4	NT	22%	31%
		AV5	NT	NDD	29%
54	36	AV5	NT	NDD	28%
42	40	AV4	NT	20%	29%
41	69	AV5	NT	19%	22%
58	76	AV3	26%	23%	28%
		AV4	29%	34%	49%
		AV5	29%	26%	48%
42	98	AV2	NT	NDD	21%
		AV3	NT	NDD	24%
43	100	AV3	18%	17%	26%
38	104	AV4	NT	18%	24%
33	109	AV3	NT	19%	20%
34	109	AV3	NT	17%	24%

NT: No Test

NDD: No Detectable Degradation

Table 9

SG - B HOT LEG PERCENT THRU WALL INDICATIONS

Millstone Unit 3 - RFO 5
INSPECTION: April-95

NEU - B/F
6-May-95 16:30

Table 10

SG - B COLD LEG PERCENT THRU WALL INDICATIONS

Millstone Unit 3 - RFO 5
INSPECTION: April-95

NEU - B/F
6-May-95 16:31

Table 11
(Page 1 of 6)

SG - D AVB PERCENT THRU WALL INDICATIONS

Millstone Unit 3 - RFO 5
INSPECTION: April-95

NEU -D/F
9-May-95 14:33

ROW	COL	CEB	CEE	PROBE	IND	LOC	INCH1	INCH2	CHAN	VOLTS	DEG	TAPE
26	8	TEC	TEH	560-EB	13	AV6	.00	.00	M2	.55	53	
28	8	TEC	TEH	560-EB	12	AV6	.00	.00	M2	.49	53	
38	21	TEC	TEH	560-EB	11	AV5	.00	.00	M2	.40	59	
44	21	TEC	TEH	560-EB	14	AV1	.00	.00	M2	.55	59	
44	21	TEC	TEH	560-EB	15	AV6	.00	.00	M2	.60	59	
43	23	TEC	TEH	560-EB	23	AV3	.00	.00	M2	1.16	61	
43	23	TEC	TEH	560-EB	31	AV5	.00	.00	M2	1.79	61	
41	26	TEC	TEH	560-EB	16	AV2	.00	.00	M2	.63	63	
41	26	TEC	TEH	560-EB	28	AV5	.00	.00	M2	1.43	63	
41	26	TEC	TEH	560-EB	29	AV6	.00	.00	M2	1.59	63	
53	35	TEC	TEH	560-EB	14	AV4	.00	.00	M2	.51	71	
53	35	TEC	TEH	560-EB	16	AV5	.00	.00	M2	.61	71	
53	35	TEC	TEH	560-EB	16	AV6	.09	.00	M2	.61	71	
54	37	TEC	TEH	560-EB	14	AV5	.00	.00	M2	.50	73	
32	38	TEC	TEH	560-EB	19	AV2	.00	.00	M2	.77	73	
32	38	TEC	TEH	560-EB	29	AV5	.00	.00	M2	1.50	73	
32	38	TEC	TEH	560-EB	17	AV6	.00	.00	M2	.63	73	
41	39	TEC	TEH	560-EB	17	AV2	.00	.00	M2	.66	73	
41	39	TEC	TEH	560-EB	18	AV3	.00	.00	M2	.71	73	
41	39	TEC	TEH	560-EB	16	AV4	.00	.00	M2	.61	73	
41	39	TEC	TEH	560-EB	23	AV5	.00	.00	M2	1.01	73	
55	40	TEC	TEH	560-EB	18	AV6	.00	.00	M2	.73	75	
55	41	TEC	TEH	560-EB	14	AV5	.00	.00	M2	.50	75	
56	43	TEC	TEH	560-EB	18	AV1	.00	.00	M2	.67	77	
36	45	TEC	TEH	560-EB	19	AV1	.00	.00	M2	.73	77	
36	45	TEC	TEH	560-EB	31	AV2	.00	.00	M2	1.67	77	
36	45	TEC	TEH	560-EB	39	AV3	.00	.00	M2	2.58	77	
36	45	TEC	TEH	560-EB	40	AV4	.00	.00	M2	2.68	77	
36	45	TEC	TEH	560-EB	44	AV5	.00	.00	M2	3.40	77	
36	45	TEC	TEH	560-EB	21	AV6	.00	.00	M2	.87	77	
51	45	TEC	TEH	560-EB	28	AV1	.00	.00	M2	1.36	77	
51	45	TEC	TEH	560-EB	27	AV2	.00	.00	M2	1.31	77	
51	45	TEC	TEH	560-EB	40	AV3	.00	.00	M2	2.67	77	

TUBES 15

Table 11

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SG - D AVB PERCENT THRU WALL INDICATIONS

Millstone Unit 3 - RFO 5
INSPECTION: April-95NEU -D/F
9-May-95 14:03

ROW	COL	CEB	CEE	PROBE	IND	LOC	INCH1	INCH2	CHAN	VOLTS	DEG	TAPE
51	45	TEC	TEH	560-EB	42	AV4	.00	.00	M2	3.03	77	
51	45	TEC	TEH	560-EB	51	AV5	.00	.00	M2	4.66	77	
51	45	TEC	TEH	560-EB	49	AV6	.00	.00	M2	4.38	56	77
51	46	TEC	TEH	560-EB	13	AV1	.00	.00	M2	.44	79	
51	46	TEC	TEH	560-EB	28	AV2	.00	.00	M2	1.45	79	
51	46	TEC	TEH	560-EB	33	AV3	.00	.00	M2	1.84	79	
51	46	TEC	TEH	560-EB	42	AV4	.00	.00	M2	3.03	79	
51	46	TEC	TEH	560-EB	23	AV5	.00	.00	M2	.99	79	
51	46	TEC	TEH	560-EB	39	AV6	.00	.00	M2	2.62	79	
54	46	TEC	TEH	560-EB	15	AV2	.00	.00	M2	.57	79	
54	46	TEC	TEH	560-EB	26	AV3	.00	.00	M2	1.23	79	
54	46	TEC	TEH	560-EB	21	AV4	.00	.00	M2	.91	79	
54	46	TEC	TEH	560-EB	20	AV5	-.03	.00	M2	.85	79	
54	49	TEC	TEH	560-EB	19	AV3	.00	.00	M2	.72	81	
41	51	TEC	TEH	560-EB	27	AV2	.00	.00	M2	1.35	83	
41	51	TEC	TEH	560-EB	38	AV3	.00	.00	M2	2.53	83	
41	51	TEC	TEH	560-EB	52	AV4	.00	.00	M1	7.66	98	83
41	51	TEC	TEH	560-EB	35	AV5	.00	.00	M2	2.18	83	
41	51	TEC	TEH	560-EB	33	AV6	.00	.00	M2	2.00	83	
41	57	TEC	TEH	560-EB	12	AV1	.00	.00	M2	.44	87	
41	57	TEC	TEH	560-EB	25	AV2	.00	.00	M2	1.21	87	
41	57	TEC	TEH	560-EB	37	AV3	.00	.00	M2	2.39	87	
41	57	TEC	TEH	560-EB	28	AV4	.00	.00	M2	1.46	87	
41	57	TEC	TEH	560-EB	37	AV5	.00	.00	M2	2.39	87	
41	57	TEC	TEH	560-EB	18	AV6	.00	.00	M2	.72	87	
43	58	TEC	TEH	560-EB	26	AV4	.00	.00	M2	1.27	87	
43	58	TEC	TEH	560-EB	17	AV6	.00	.00	M2	.66	87	
49	62	TEC	TEH	560-EB	16	AV1	.00	.00	M2	.69	49	
49	62	TEC	TEH	560-EB	16	AV2	.00	.00	M2	.68	49	
49	62	TEC	TEH	560-EB	20	AV3	.00	.00	M2	.93	49	
49	62	TEC	TEH	560-EB	17	AV4	.00	.00	M2	.74	49	
55	63	TEC	TEH	560-EB	24	AV2	.00	.00	M2	1.08	3	
55	63	TEC	TEH	560-EB	43	AV3	.00	.00	M2	3.22	3	
55	63	TEC	TEH	560-EB	45	AV4	.00	.00	M1	5.90	103	3
55	63	TEC	TEH	560-EB	56	AV5	.00	.00	M1	8.35	94	3
55	63	TEC	TEH	560-EB	48	AV6	.00	.00	M2	4.08	3	
49	66	TEC	TEH	560-EB	26	AV2	.00	.00	M2	1.25	47	
49	66	TEC	TEH	560-EB	13	AV3	.00	.00	M2	.50	47	

ROW	COL	CEB	CEE	PROBE	IND	LOC	INCH1	INCH2	CHAN	VOLTS	DEG	TAPE

TUBES 25

Table 11
(Page 3 of 6)

SG - D AVB PERCENT THRU WALL INDICATIONS

Millstone Unit 3 - RFO 5
INSPECTION: April-95

NEU -D/F
9-May-95 14:33

ROW	COL	CEB	CEE	PROBE	IND	LOC	INCH1	INCH2	CHAN	VOLTS	DEG	TAPE
49	67	TEC	TEH	560-EB	19	AV2	.00	.00	M2	.83	45	
49	67	TEC	TEH	560-EB	15	AV3	.00	.00	M2	.61	45	
51	68	TEC	TEH	560-EB	15	AV1	.00	.00	M2	.60	45	
51	68	TEC	TEH	560-EB	26	AV2	.00	.00	M2	1.35	45	
51	69	TEC	TEH	560-EB	19	AV3	.00	.00	M2	.87	45	
51	68	TEC	TEH	560-EB	35	AV4	.00	.00	M2	2.27	45	
51	68	TEC	TEH	560-EB	33	AV5	.00	.00	M2	1.95	45	
51	68	TEC	TEH	560-EB	28	AV6	.00	.00	M2	1.53	45	
43	69	TEC	TEH	560-EB	16	AV2	.00	.00	M2	.65	45	
43	69	TEC	TEH	560-EB	34	AV3	.00	.00	M2	2.08	45	
43	69	TEC	TEH	560-EB	28	AV4	.00	.00	M2	1.53	45	
43	69	TEC	TEH	560-EB	22	AV5	.00	.00	M2	1.07	45	
49	69	TEC	TEH	560-EB	12	AV2	.00	.00	M2	.45	43	
52	70	TEC	TEH	560-EB	22	AV2	.09	.00	M2	.97	3	
52	70	TEC	TEH	560-EB	30	AV3	.00	.00	M2	1.56	3	
52	70	TEC	TEH	560-EB	30	AV4	.00	.00	M2	1.61	3	
52	70	TEC	TEH	560-EB	21	AV5	.16	.00	M2	.92	3	
52	70	TEC	TEH	560-EB	16	AV6	.06	.00	M2	.58	3	
52	70	TEC	TEH	560-EB	21	AV2	.00	.00	M2	.98	43	
52	70	TEC	TEH	560-EB	30	AV3	.00	.00	M2	1.70	43	
52	70	TEC	TEH	560-EB	30	AV4	.00	.00	M2	1.64	43	
52	70	TEC	TEH	560-EB	21	AV5	.00	.00	M2	.98	43	
52	70	TEC	TEH	560-EB	16	AV6	.00	.00	M2	.65	43	
55	70	TEC	TEH	560-EB	17	AV3	.00	.00	M2	.69	43	
55	70	TEC	TEH	560-EB	21	AV4	.00	.00	M2	.92	43	
55	70	TEC	TEH	560-EB	31	AV5	.00	.00	M2	1.76	43	
55	70	TEC	TEH	560-EB	23	AV6	.00	.00	M2	1.08	43	
43	75	TEC	TEH	560-EB	15	AV2	.00	.00	M2	.59	39	
43	75	TEC	TEH	560-EB	15	AV3	.00	.00	M2	.59	39	
43	75	TEC	TEH	560-EB	21	AV4	.00	.00	M2	.97	39	
43	75	TEC	TEH	560-EB	22	AV5	.00	.00	M2	.99	39	
41	78	TEC	TEH	560-EB	16	AV3	.00	.00	M2	.65	37	
41	78	TEC	TEH	560-EB	15	AV4	.00	.00	M2	.62	37	
41	78	TEC	TEH	560-EB	14	AV5	.00	.00	M2	.57	37	
57	78	TEC	TEH	560-EB	37	AV2	.00	.00	M2	2.49	37	
57	78	TEC	TEH	560-EB	33	AV3	.00	.00	M2	1.99	65	37
57	78	TEC	TEH	560-EB	24	AV4	.00	.00	M2	1.23	37	
57	78	TEC	TEH	560-EB	36	AV5	.18	.00	M2	2.36	37	
51	81	TEC	TEH	560-EB	18	AV3	.00	.00	M2	.71	33	

TUBES 34

Table 11
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SG - D AVB PERCENT THRU WALL INDICATIONS

Millstone Unit 3 - RFO 5
INSPECTION: April-95

NEU D/F
9-May-95 14:33

ROW	COL	CEB	CEE	PROBE	IND	LOC	INCH1	INCH2	CHAN	VOLTS	DEG	TAPE
51	81	TEC	TEH	560-EB	41	AV4	.00	.00	M2	3.00	33	
51	81	TEC	TEH	560-EB	42	AV5	.00	.00	M2	3.04	33	
51	81	TEC	TEH	560-EB	25	AV6	.00	.00	M2	1.18	33	
55	84	TEC	TEH	560-EB	22	AV5	.00	.00	M2	.99	31	
52	87	TEC	TEH	560-EB	17	AV5	.00	.00	M2	.68	29	
52	88	TEC	TEH	560-EB	14	AV4	.11	.00	M2	.58	27	
54	88	TEC	TEH	560-EB	19	AV4	.03	.00	M2	.80	3	
54	88	TEC	TEH	560-EB	26	AV5	.00	.00	M2	1.26	3	
54	88	TEC	TEH	560-EB	36	AV6	.00	.00	M2	2.29	3	
52	89	TEC	TEH	560-EB	30	AV2	.09	.00	M2	1.64	27	
52	89	TEC	TEH	560-EB	39	AV3	.17	.00	M2	2.69	27	
52	89	TEC	TEH	560-EB	41	AV4	.00	.00	M2	2.89	27	
41	90	TEC	TEH	560-EB	12	AV1	.00	.00	M2	.48	25	
52	90	TEC	TEH	560-EB	18	AV1	.00	.00	M2	.70	3	
52	90	TEC	TEH	560-EB	58	AV2	.00	.00	M1	8.50	92	3
52	90	TEC	TEH	560-EB	36	AV3	.00	.00	M2	2.15	3	
52	90	TEC	TEH	560-EB	47	AV4	.00	.00	M2	3.95	3	
52	90	TEC	TEH	560-EB	29	AV5	.00	.00	M2	1.48	3	
43	91	TEC	TEH	560-EB	39	AV2	.08	.00	M2	2.67	25	
43	91	TEC	TEH	560-EB	24	AV3	.00	.00	M2	1.10	25	
43	91	TEC	TEH	560-EB	29	AV4	.06	.00	M2	1.54	25	
43	91	TEC	TEH	560-EB	17	AV5	.00	.00	M2	.68	25	
37	93	TEC	TEH	560-EB	16	AV3	.00	.00	M2	.73	23	
37	93	TEC	TEH	560-EB	13	AV4	.00	.00	M2	.46	23	
50	93	TEC	TEH	560-EB	14	AV6	.00	.00	M2	.60	23	
43	95	TEC	TEH	560-EB	17	AV5	.00	.00	M2	.67	23	
48	95	TEC	TEH	560-EB	55	AV3	.00	.00	M1	6.09	91	23
48	95	TEC	TEH	560-EB	27	AV4	.00	.00	M2	1.48	23	
48	95	TEC	TEH	560-EB	40	AV5	.00	.00	M2	2.84	23	
48	95	TEC	TEH	560-EB	21	AV6	.00	.00	M2	.90	23	
49	95	TEC	TEH	560-EB	15	AV2	.00	.00	M2	.57	23	
49	95	TEC	TEH	560-EB	18	AV3	.00	.00	M2	.83	23	
49	95	TEC	TEH	560-EB	13	AV4	.00	.00	M2	.54	23	
42	96	TEC	TEH	560-EB	12	AV2	.00	.00	M2	.39	19	

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Table 11
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SG - D AVB PERCENT THRU WALL INDICATIONS

Millstone Unit 3 - RFO 5
 INSPECTION: April-95

NEU -D/F
 9-May-95 14:33

ROW	COL	CEB	CEE	PROBE	IND	LOC	INCH1	INCH2	CHAN	VOLTS	DEG	TAPE
42	96	TEC	TEH	560-EB	36	AV5	.00	.00	M2	2.28	239	19
48	96	TEC	TEH	560-EB	18	AV5	.00	.00	M2	.70		19
36	97	TEC	TEH	560-EB	13	AV2	.00	.00	M2	.44		19
38	98	TEC	TEH	560-EB	18	AV4	.00	.00	M2	.69		19
48	98	TSC	TEH	560-EB	25	AV1	.00	.00	M2	1.28		109
48	98	TSC	TEH	560-EB	40	AV2	.00	.00	M2	2.82		109
48	98	TSC	TEH	560-EB	36	AV3	.00	.00	M2	2.37		109
48	98	TSC	TEH	560-EB	73	AV4	.00	.00	M1	21.42	76	109
48	98	TSC	TEH	560-EB	71	AV5	.00	.00	M1	11.42	78	109
48	98	TSC	TEH	560-EB	37	AV6	.00	.00	M2	2.47		109
40	99	TEC	TEH	560-EB	24	AV4	.00	.00	M2	1.10		19
40	99	TEC	TEH	560-EB	30	AV5	.00	.00	M2	1.62		19
47	99	TEC	TEH	560-EB	22	AV4	.00	.00	M2	.93		19
47	99	TEC	TEH	560-EB	29	AV5	.12	.00	M2	1.52		19
47	99	TEC	TEH	560-EB	30	AV6	.00	.00	M2	1.58		19
40	100	TEC	TEH	560-EB	14	AV4	.00	.00	M2	.61		17
40	100	TEC	TEH	560-EB	14	AV5	.00	.00	M2	.58		17
40	100	TEC	TEH	560-EB	14	AV6	.00	.00	M2	.60		17
42	100	TEC	TEH	560-EB	17	AV1	.10	.00	M2	.68		3
42	100	TEC	TEH	560-EB	15	AV2	.03	.00	M2	.54		3
42	100	TEC	TEH	560-EB	30	AV3	.00	.00	M2	1.58		3
42	100	TEC	TEH	560-EB	24	AV4	.10	.00	M2	1.07		3
42	100	TEC	TEH	560-EB	59	AV5	.00	.00	M1	6.88	91	3
42	100	TEC	TEH	560-EB	22	AV6	.00	.00	M2	.90		3
43	100	TEC	TEH	560-EB	19	AV4	.00	.00	M2	.90		17
37	101	TEC	TEH	560-EB	18	AV2	.00	.00	M2	.82		17
37	101	TEC	TEH	560-EB	16	AV3	.00	.00	M2	.70		17
37	101	TEC	TEH	560-EB	14	AV4	.00	.00	M2	.58		17
42	101	TEC	TEH	560-EB	37	AV2	.00	.00	M2	2.55		17
42	101	TEC	TEH	560-EB	22	AV4	.00	.00	M2	1.11		17
42	101	TEC	TEH	560-EB	36	AV5	.00	.00	M2	2.44		17
45	101	TEC	TEH	560-EB	33	AV4	.00	.00	M2	2.05		17
45	101	TEC	TEH	560-EB	15	AV6	.00	.00	M2	.63		17
40	102	TEC	TEH	560-EB	19	AV4	.00	.00	M2	.82		15
40	102	TEC	TEH	560-EB	15	AV5	.00	.00	M2	.63		15

ROW	COL	CEB	CEE	PROBE	IND	LOC	INCH1	INCH2	CHAN	VOLTS	DEG	TAPE
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Table 11
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SG - D AVB PERCENT THRU WALL INDICATIONS

Millstone Unit 3 - RFO 5
 INSPECTION: April 95

NEU -D/F
 9-May-95 14:33

ROW	COL	CEB	CEE	PROBE	IND	LOC	INCH1	INCH2	CHAN	VOLTS	DEG	TAPE
42	102	TEC	TEH	560-EB	21	AV2	.00	.00	M2	.98	15	
42	102	TEC	TEH	560-EB	20	AV3	.00	.00	M2	.92	15	
42	102	TEC	TEH	560-EB	35	AV4	.00	.00	M2	2.18	15	
42	102	TEC	TEH	560-EB	26	AV5	.00	.00	M2	1.38	15	
42	102	TEC	TEH	560-EB	20	AV6	.00	.00	M2	.92	15	
43	102	TEC	TEH	560-EB	14	AV6	.00	.00	M2	.54	15	
35	103	TEC	TEH	560-EB	17	AV5	.00	.00	M2	.72	15	
37	103	TEC	TEH	560-EB	16	AV5	-.14	.00	M2	.65	15	
40	103	TEC	TEH	560-EB	12	AV1	.00	.00	M2	.47	15	
40	103	TEC	TEH	560-EB	22	AV2	.00	.00	M2	1.05	15	
40	103	TEC	TEH	560-EB	24	AV3	.00	.00	M2	1.18	15	
40	103	TEC	TEH	560-EB	29	AV4	.00	.00	M2	1.56	15	
40	103	TEC	TEH	560-EB	27	AV5	.00	.00	M2	1.46	15	
40	103	TEC	TEH	560-EB	17	AV6	.00	.00	M2	.70	15	
37	106	TEC	TEH	560-EB	17	AV3	.00	.00	M2	.74	13	
37	106	TEC	TEH	560-EB	26	AV4	.00	.00	M2	1.35	13	
37	106	TEC	TEH	560-EB	21	AV5	.00	.00	M2	.96	13	
35	108	TEC	TEH	560-EB	16	AV3	.00	.00	M2	.62	11	
35	109	TEC	TEH	560-EB	15	AV4	.00	.00	M2	.58	11	
29	113	TEC	TEH	560-EB	11	AV2	-.06	.00	M2	.38	7	
29	113	TEC	TEH	560-EB	13	AV5	-.10	.00	M2	.47	7	
28	114	TEC	TEH	560-EB	29	AV2	.00	.00	M2	1.52	7	
28	114	TEC	TEH	560-EB	14	AV5	.00	.00	M2	.52	7	
30	114	TEC	TEH	560-EB	19	AV6	.13	.00	M2	.78	7	
26	115	TEC	TEH	560-EB	15	AV1	.00	.00	M2	.57	7	
27	115	TEC	TEH	560-EB	14	AV6	.00	.00	M2	.49	7	
28	115	TEC	TEH	560-EB	33	AV1	.03	.00	M2	1.88	7	
24	117	TEC	TEH	560-EB	16	AV1	.00	.00	M2	.58	5	

TOTAL TUBES 76

Table 12

(Page 1 of 3)

HISTORICAL ECT RESULTS FOR AVB FLAWS \geq 20% TW IN 1995
 (BASED ON 1995 RE-ANALYSIS OF DATA)

STEAM GENERATOR D

ROW	COL	AVB LOCATION	EXAMINATION DATE		
			NOV '87	FEB '91	MAY '95
43	23	AV3	NDD	22%	23%
		AV5	24%	25%	31%
41	26	AV5	NT	25%	28%
		AV6	NT	18%	29%
32	38	AV5	NT	21%	29%
41	39	AV5	NT	22%	23%
36	45	AV2	NT	16%	31%
		AV3	NT	14%	39%
		AV4	NT	14%	40%
		AV5	NT	24%	44%
		AV6	NT	13%	21%
51	45	AV1	NT	13%	28%
		AV2	NT	11%	27%
		AV3	NT	25%	40%
		AV4	NT	28%	42%
		AV5	NT	27%	51%
		AV6	NT	33%	49%
51	46	AV2	NT	25%	28%
		AV3	NT	21%	33%
		AV4	NT	28%	42%
		AV5	NT	23%	23%
		AV6	NT	22%	39%
54	46	AV3	NT	18%	26%
		AV4	NT	14%	21%
		AV5	NT	14%	20%
41	51	AV2	NT	23%	27%
		AV3	NT	25%	38%
		AV4	NT	33%	52%
		AV5	NT	24%	35%
		AV6	NT	20%	33%
41	57	AV2	NT	22%	25%
		AV3	NT	27%	37%
		AV4	NT	19%	28%
		AV5	NT	24%	37%
43	58	AV4	NT	24%	26%
49	62	AV3	NT	18%	20%
55	63	AV2	NT	22%	24%

Table 12
(Page 2 of 3)

ROW	COL	AVB LOCATION	EXAMINATION DATE		
			NOV '87	FEB '91	MAY '95
49	66	AV3	NT	31%	43%
		AV4	NT	31%	45%
		AV5	NT	32%	56%
		AV6	NT	36%	48%
49	66	AV2	NT	20%	25%
51	68	AV2	NT	NDD	26%
		AV4	NT	25%	35%
		AV5	NT	22%	33%
		AV6	NT	24%	28%
43	69	AV3	NT	26%	34%
		AV4	NT	25%	28%
		AV5	NT	24%	22%
52	70	AV2	NT	25%	22%
		AV3	NT	31%	30%
		AV4	NT	28%	30%
		AV5	NT	22%	21%
55	70	AV4	17%	22%	21%
		AV5	20%	26%	31%
		AV6	NDD	21%	23%
43	75	AV4	NT	22%	21%
		AV5	NT	23%	22%
57	78	AV2	NDD	25%	37%
		AV3	NDD	25%	33%
		AV4	NDD	24%	24%
		AV5	NDD	19%	36%
51	81	AV4	NT	30%	41%
		AV5	NT	30%	42%
		AV6	NT	22%	25%
55	84	AV5	NDD	19%	22%
54	88	AV5	NDD	23%	26%
		AV6	28%	36%	36%
52	89	AV2	NT	21%	30%
		AV3	NT	27%	39%
		AV4	NT	33%	41%
52	90	AV2	NT	35%	58%
		AV3	NT	17%	36%
		AV4	NT	33%	47%
		AV5	NT	27%	29%
43	91	AV2	NT	29%	39%
		AV3	NT	NDD	24%
		AV4	NT	18%	29%
48	95	AV3	NT	29%	55%
		AV4	NT	19%	27%
		AV5	NT	32%	40%
		AV6	NT	21%	21%

Table 12
(Page 3 of 3)

ROW	COL	AVB LOCATION	EXAMINATION DATE		
			NOV '87	FEB '91	MAY '95
42	96	AV5	NT	24%	36%
40	99	AV4	NT	NDD	24%
		AV5	NT	26%	30%
47	99	AV4	17%	19%	22%
		AV5	16%	21%	29%
		AV6	22%	28%	30%
42	100	AV3	NT	27%	30%
		AV4	NT	23%	24%
		AV5	NT	29%	59%
		AV6	NT	NDD	22%
42	101	AV2	NT	24%	37%
		AV4	NT	18%	22%
		AV5	NT	21%	36%
45	101	AV4	22%	24%	33%
42	102	AV2	NT	18%	21%
		AV3	NT	19%	20%
		AV4	NT	23%	35%
		AV5	NT	28%	26%
		AV6	NT	17%	20%
40	103	AV2	NT	26%	22%
		AV3	NT	23%	24%
		AV4	NT	21%	29%
		AV5	NT	20%	27%
37	106	AV4	NT	24%	26%
		AV5	NT	22%	21%
28	114	AV2	16%	28%	29%
28	115	AV1	20%	29%	33%

NT: No Test

NDD: No Detectable Degradation

Table 13

SG - D HOT LEG PERCENT THRU WALL INDICATIONS

Millstone Unit 3 - RFO 5
INSPECTION: April-95

NEU - D/F
9-May-95 14:33

Table 14

SG - D COLD LEG PERCENT THRU WALL INDICATIONS

Millstone Unit 3 - RFO 5
INSPECTION: April-95

NEU -D/F
9-May-95 14:34

Figure 1 - S/G 'B' - Bobbin Inspection Map

E : 4099 TUBE TESTED TEC-TEH
 8 : 122 TUBE TESTED 08H-TEH
 08H-TEC
 Δ : 16 TUBE TESTED TEC-TEH
 UNSCHEDULED

\square : 3 PLUGGED TUBE

HOT LEG
 Millstone 3 – RFO 5
 NEU-B SERIES F
 SUPERTUBIN
 05-07-1995 02:06 HRS.

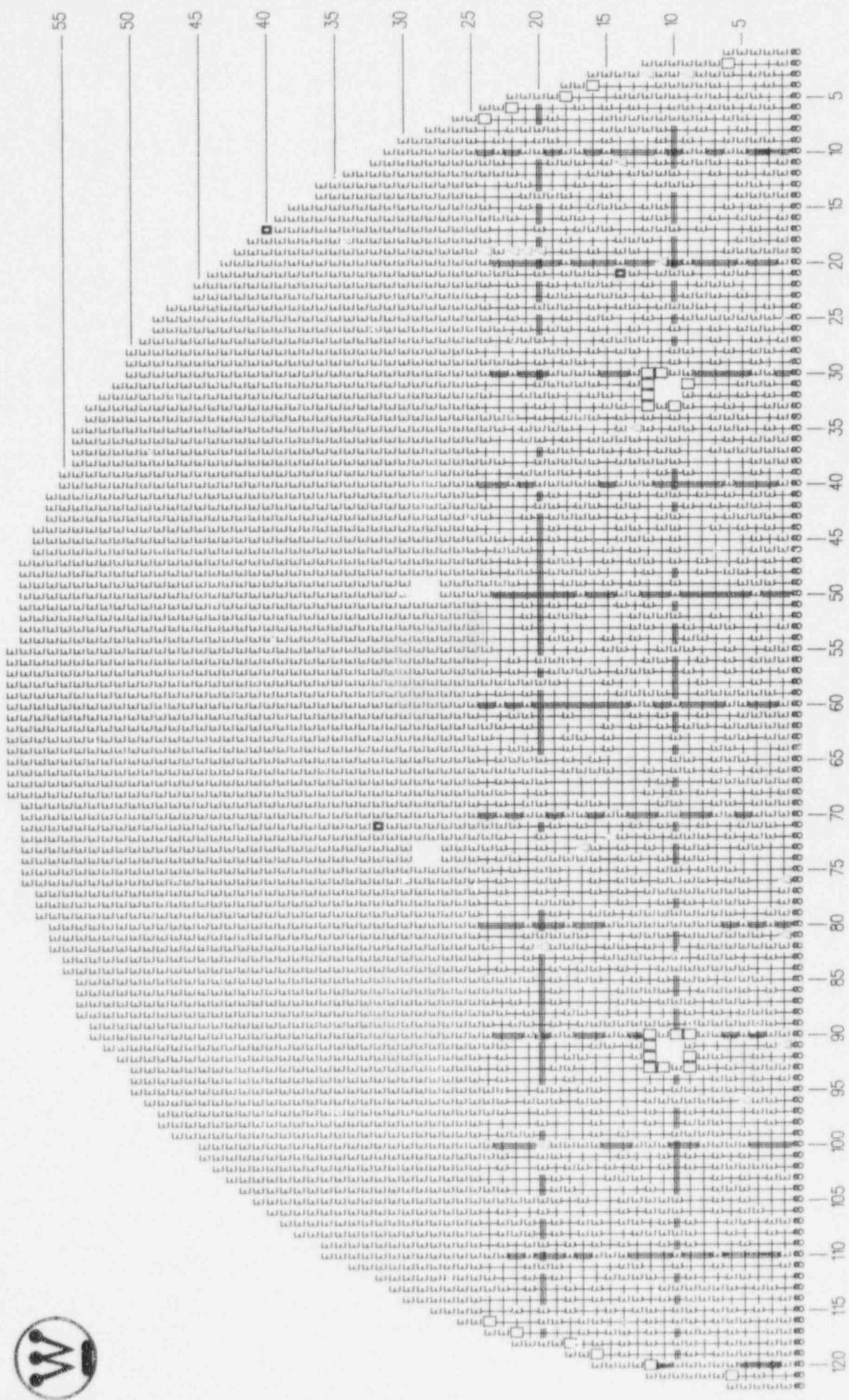


Figure 2 - S/G 'B' - Cecco Inspection Map

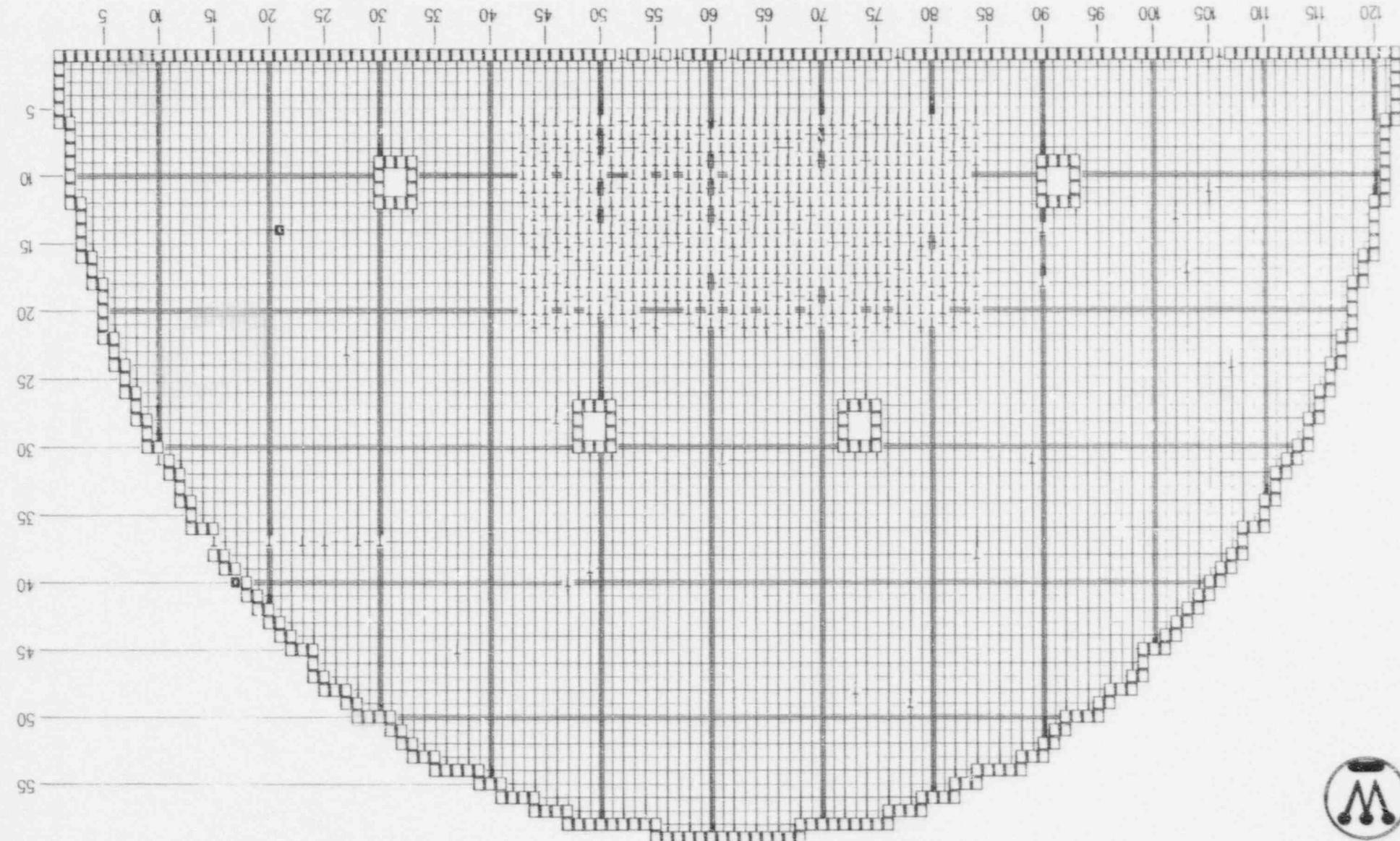


Figure 3 - S/G 'B' - RPC Inspection Map

HOT LEG

Millstone 3 - RFO 5

NEU-B SERIES F

05-06-1995

11:26 HRS.

SUPERTUBIN

T : 3 TEST TOP OF TUBESHEET +/- 3"

□ : 2 PLUGGED TUBE

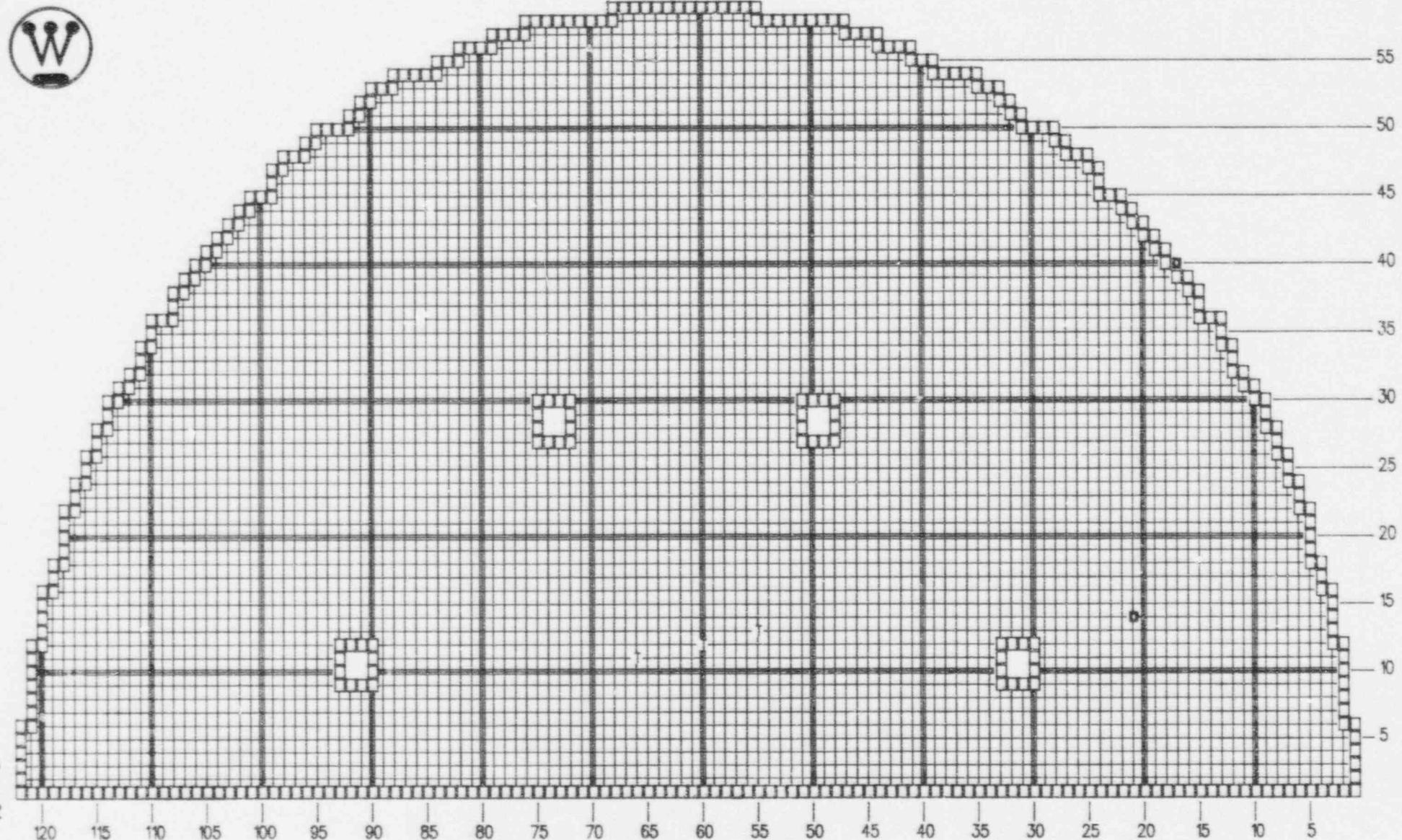


Figure 4 - S/C 'B' - Tube Repair History Map (Includes RFO5)

POST RFO 5

Millstone 3 - RFO 5

NEU-B SERIES F

05-08-1995

10:31 HRS.

SUPERTUBIN

A : 2 02/84; MP (FABRICATION)

B : 1 05/95; MP HL & CL NX7252HK
INITIAL PLUG PRESERVICE - 6/85

C : 1 05/95; MP NX7252HK

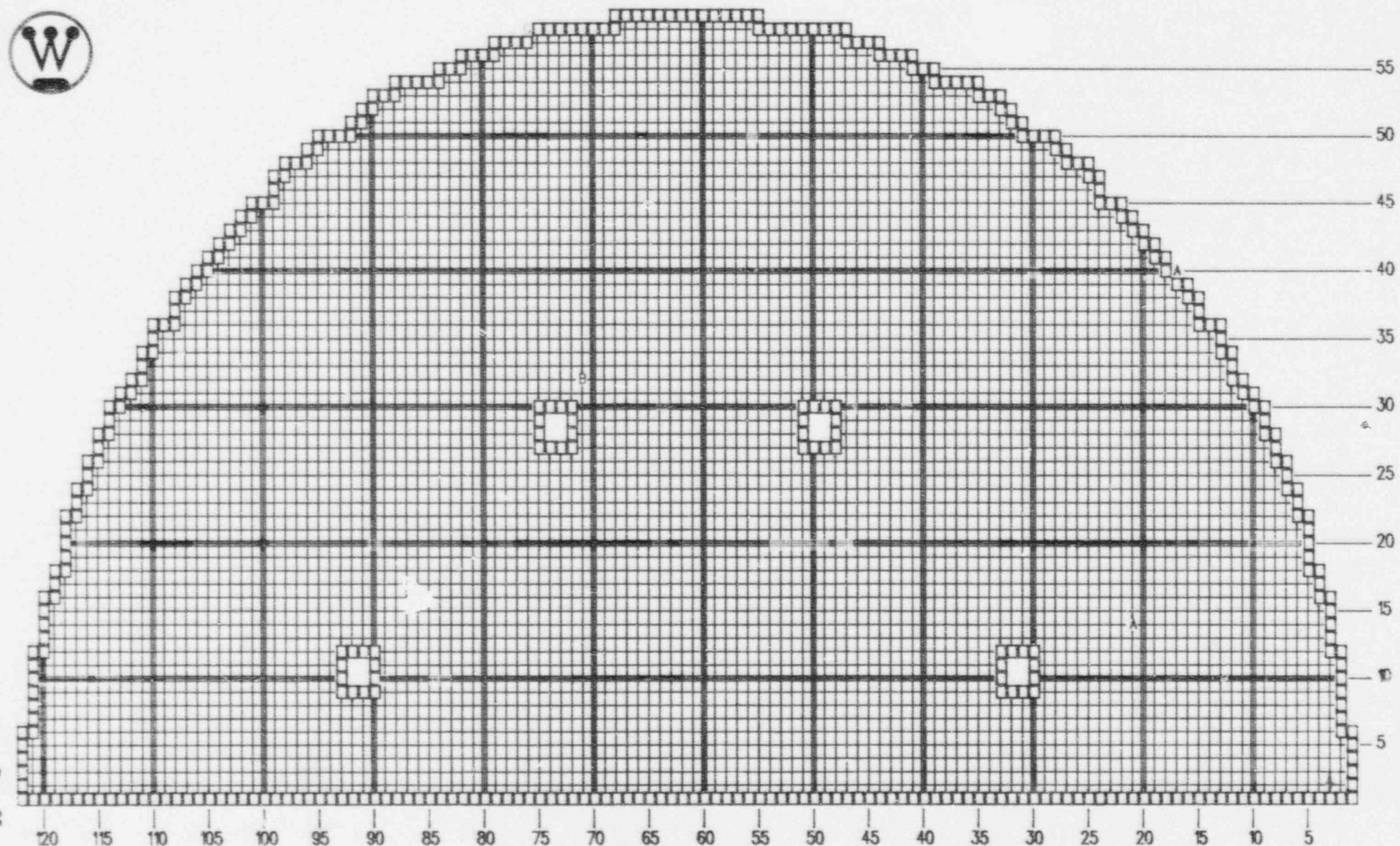


Figure 5 - S/G 'B' - Tubes With % Through Wall >= 11% Growth

FROM RFO 3 REANALYSIS
Millstone 3 - RFO 5

NEU-B SERIES F

05-09-1995 17:31 HRS.

SUPERTUBIN

TECH SPEC SUMMARY

D : 5 DEGRADED TUBE

& : 1 DEGRADED/DEFECTIVE TUBE

□ : 3 PLUGGED TUBE

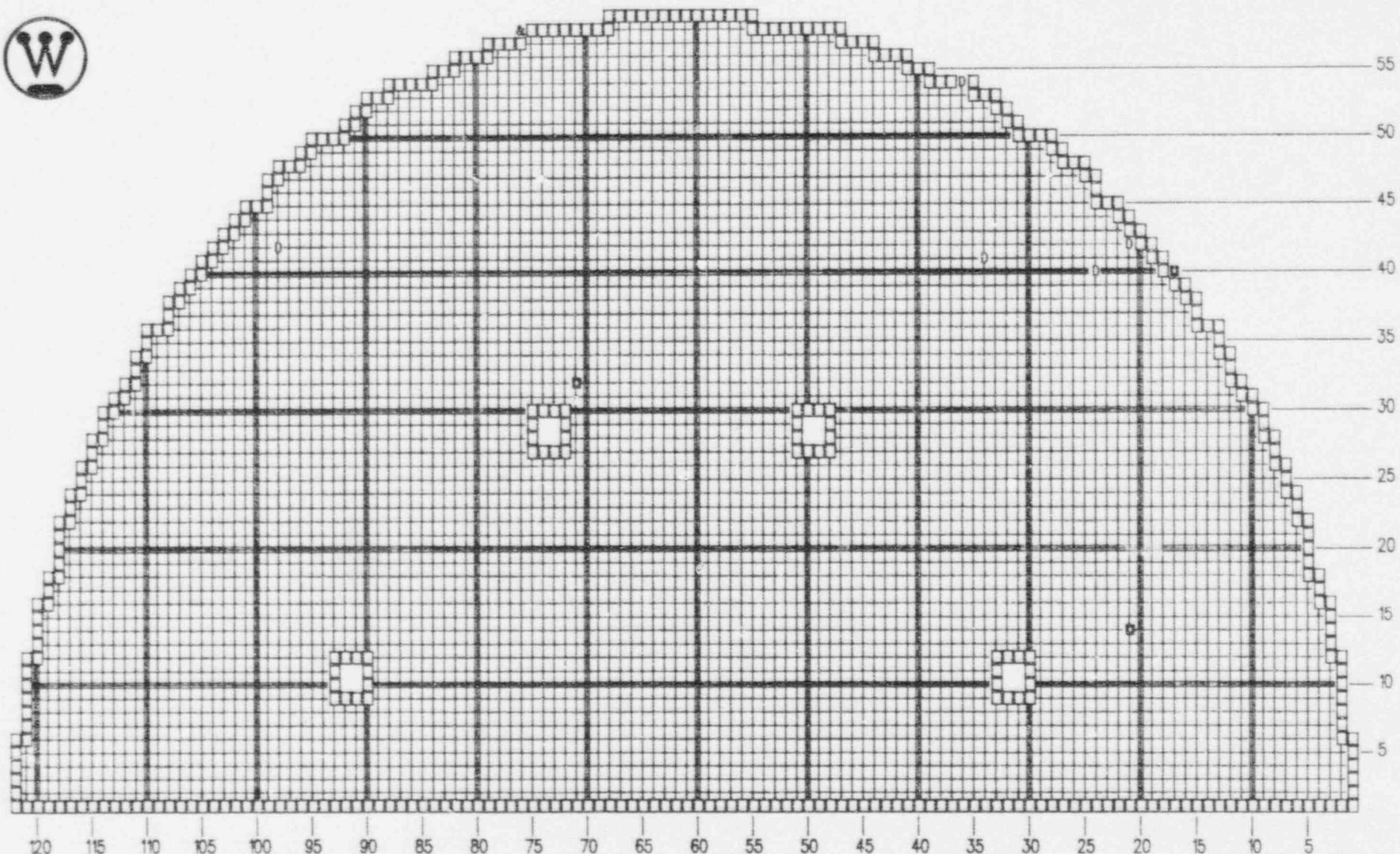


Figure 6 - S/G 'B' - Through Wall Indication Distribution Map (Hot and Cold Legs)

MOST SEVERE INDICATION PER TUBE

Millstone 3 - RFO 5

NEU-B SERIES F

05-07-1995

14:30 HRS.

SUPERTUBIN

NO % CALLS AT HOT LEG OR COLD 4 : 1 40-49% INDICATION
LEG LOCATIONS

□ : 3 PLUGGED TUBE

PERCENT DISTRIBUTION - AVB's

1 : 0 <20% INDICATION

2 : 10 20-29% INDICATION

3 : 1 30-39% INDICATION

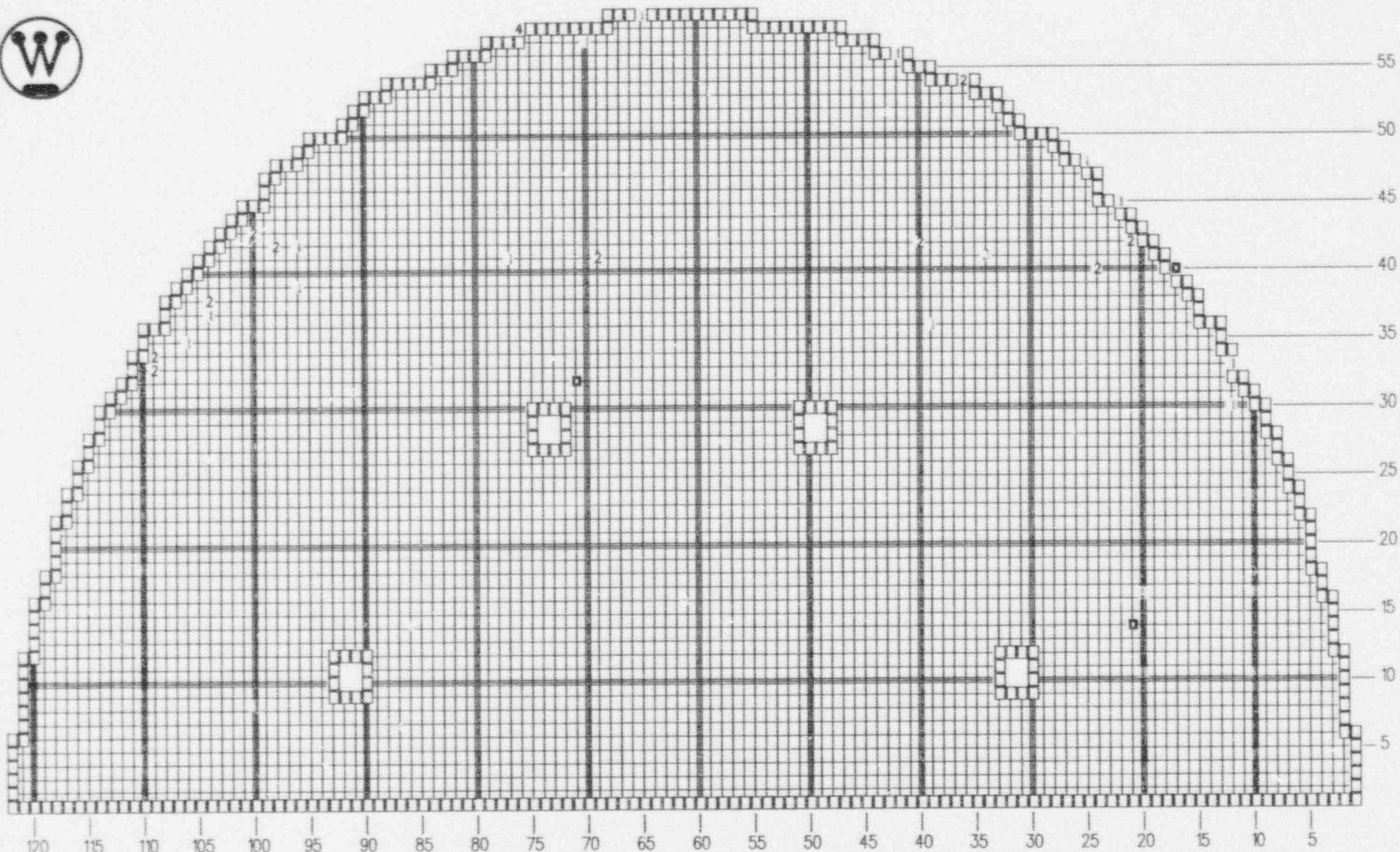


Figure 7 - S/G 'D' - Bobbin Inspection Map

HUI LEG

Millstone 3 – RFO 5

05-09-1995 11:15 HRS.

NEU-D SERIES F

SUPERTUBIN

E : 4100 TUBE TESTED TEC-TEH

8 : 121 TUBE TESTED 08H-TEH

△ : 14 TUBE TESTED TEC-TEH
(UNSCHEDLED)

▽ : 1 TUBE TESTED 08H-TEH
(UNSCHEDLED)

PLUG REMOVAL TUBES

S : 1 TUBE TESTED TSC-TEH

U : 1 TUBE TESTED 08C-TEH

□ : 5 PLUGGED TUBE

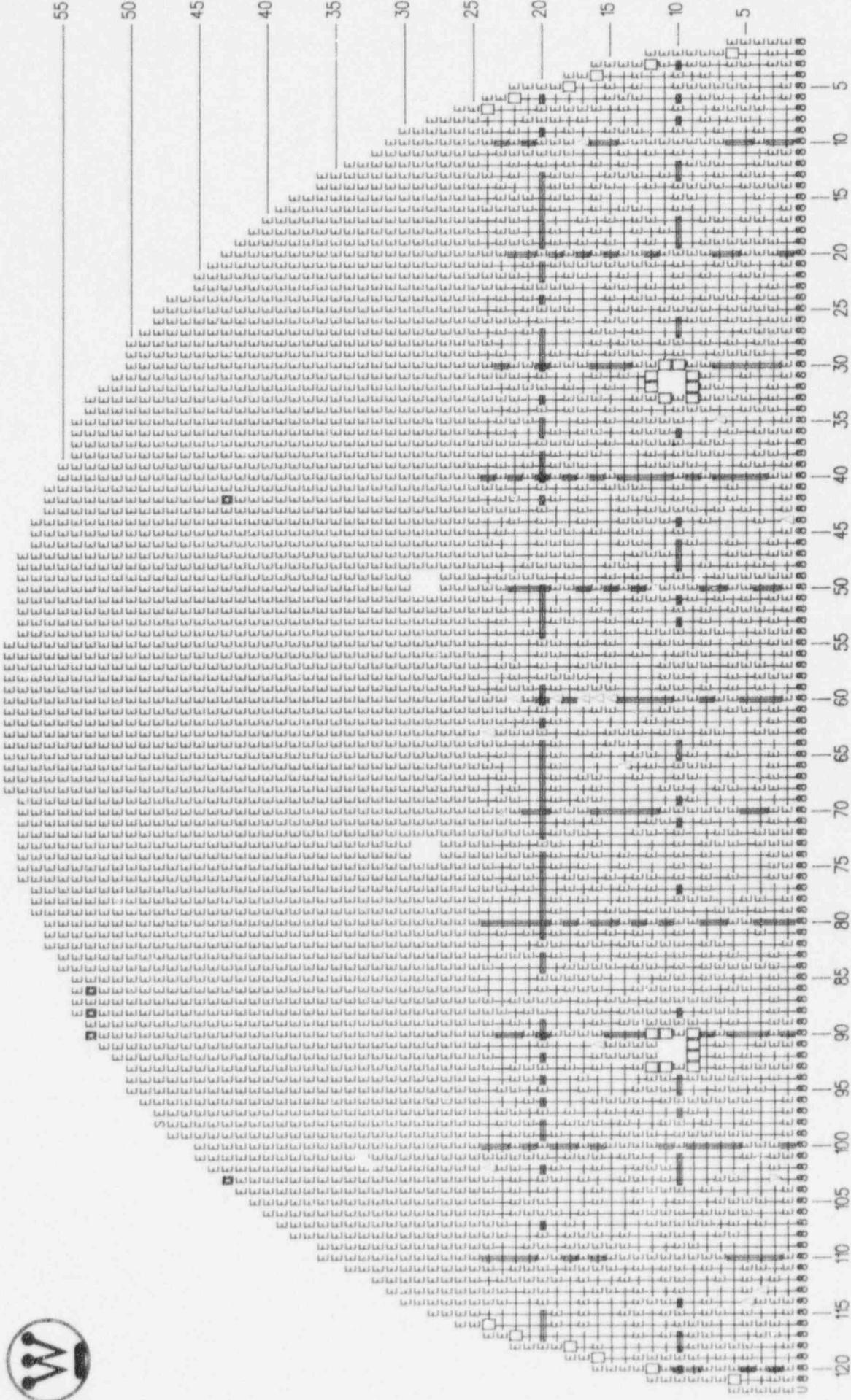




Figure 8 - S/G 'D' - Cecco Inspection Map

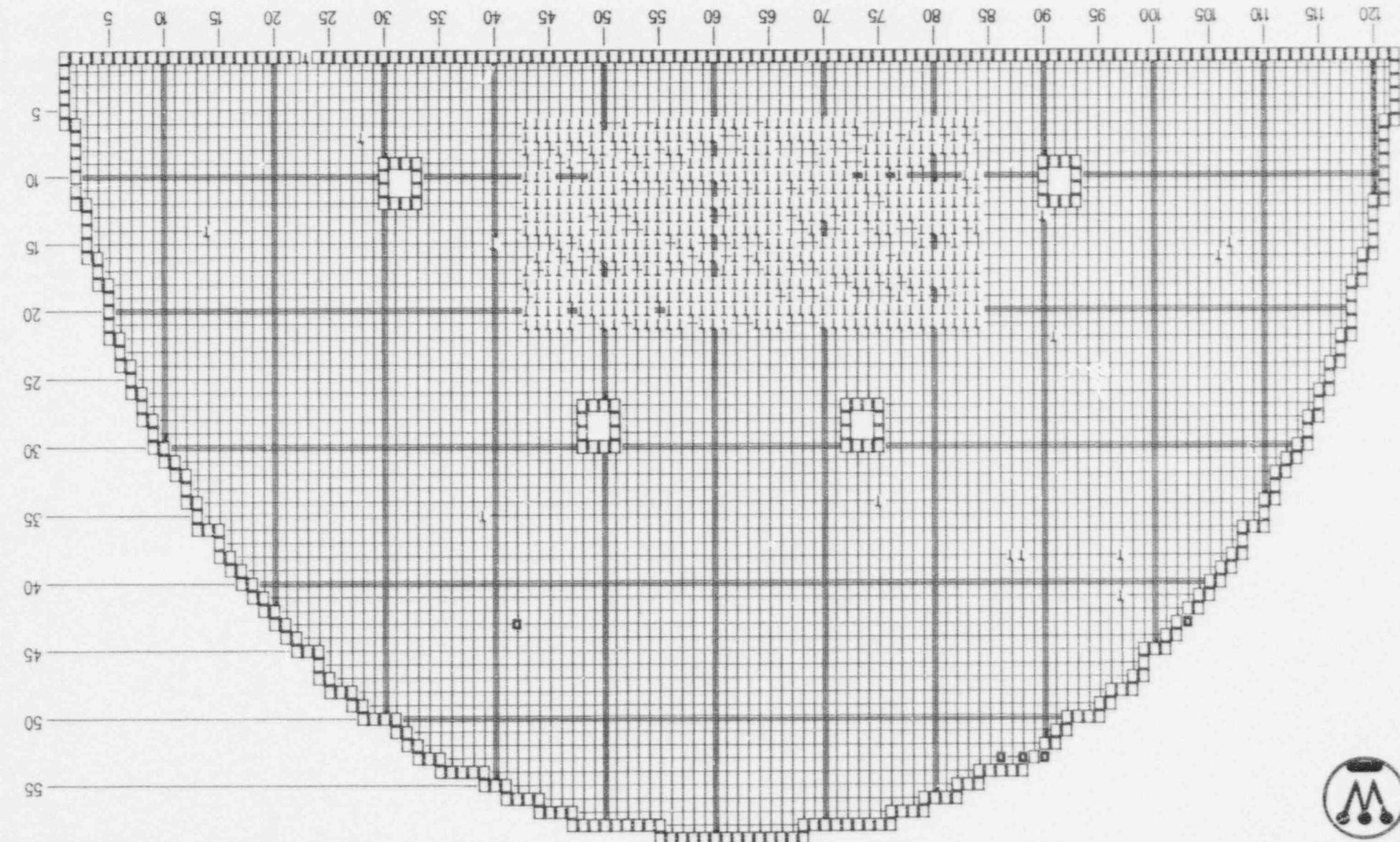


Figure 9 - S/G 'D' - RPC Inspection Map

T : 4 TEST TSH +/- 3 INCHES

■ : 5 PLUGGED TUBE

HOT LEG

Millstone 3 - RFO 5

05-06-1995

11:45 HRS.

SUPERTUBIN

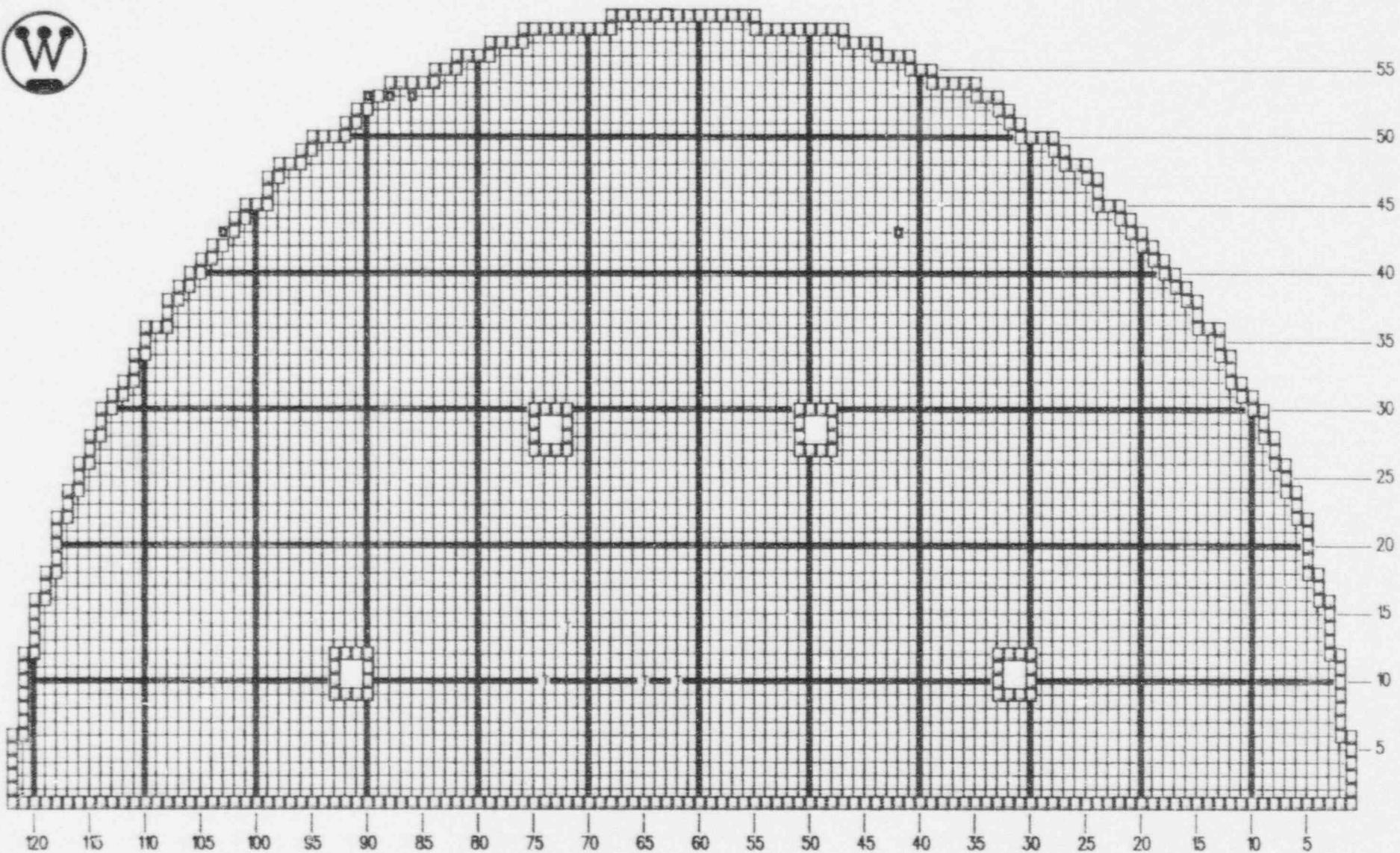


Figure 10 - S/G 'D' - Tube Repair History Map (Includes RFO5)

POST RFO 5

Millstone 3 – RFO 5

NEU-D SERIES F

05-09-1995

10:05 HRS.

SUPERTUBIN

A : 1 05/95; MP HL & CL NX7252HK D : 10 05/95; MP HL & CL NX7252HK
INITIAL PLUG PRESERVICE - 2/85 RFO5 NX7252HK = 1690

B : 1 05/95; MP HL & CL NX7252HK
INITIAL PLUG W MP - 6/87

C : 5 07/91; BW MP (RFO)

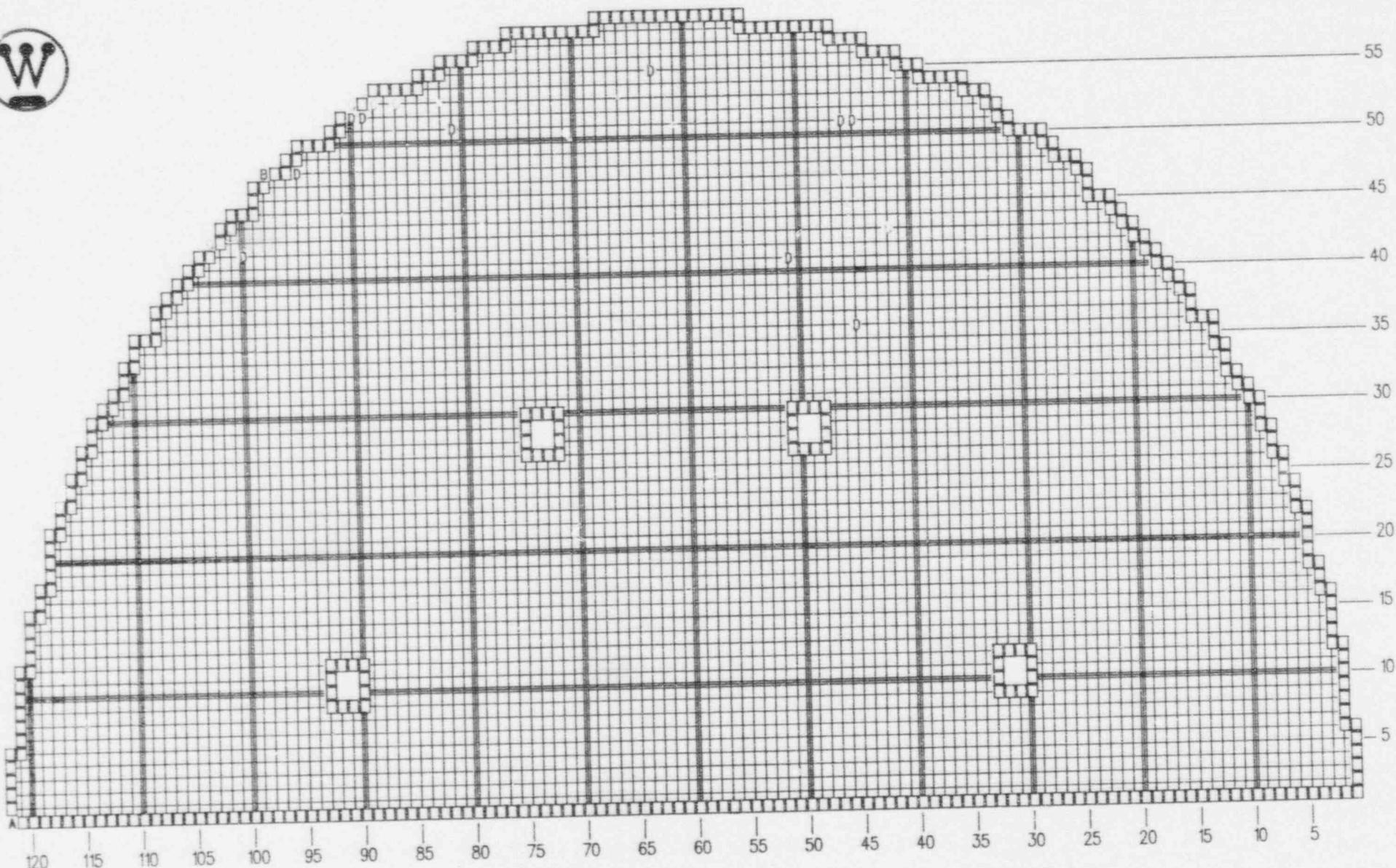


Figure 11 - S/G 'D' - Tubes With % Through Wall >= 11% Growth

FROM RFO 3 REANALYSIS
Millstone 3 - RFO 5

NEU-D SERIES F

05-09-1995 17:25 HRS.

SUPERTUBIN

TECH SPEC SUMMARY

D : 11 DEGRADED TUBE

& : 9 DEGRADED/DEFECTIVE TUBE

□ : 5 PLUGGED TUBE

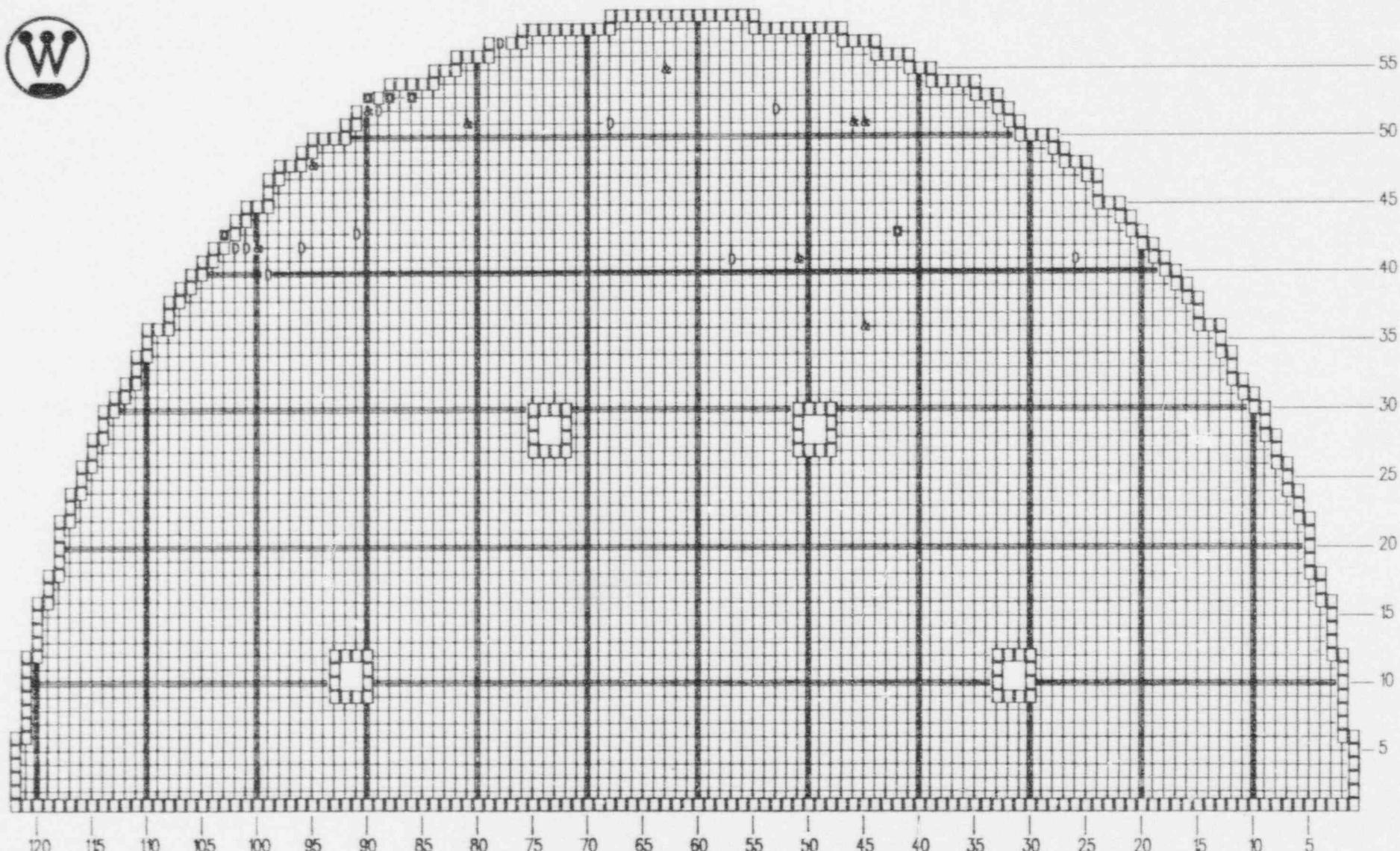


Figure 12 - S/G 'D' - Through Wall Indication Distribution Map (Hot Leg)

□ : 5 PLUGGED TUBE

MOST SEVERE PER TUBE / PER SIDE
Millstone 3 - RFO 5 NEU-D SERIES F

05-09-1995 18:25 HRS. SUPERTUBIN

- | | | | |
|---|---|----|-------------------|
| 1 | : | 37 | <20% INDICATION |
| 2 | : | 12 | 20-29% INDICATION |
| 3 | : | 16 | 30-39% INDICATION |
| 4 | : | 4 | 40-49% INDICATION |
| 5 | : | 6 | 50-59% INDICATION |
| 7 | : | 1 | 70-79% INDICATION |

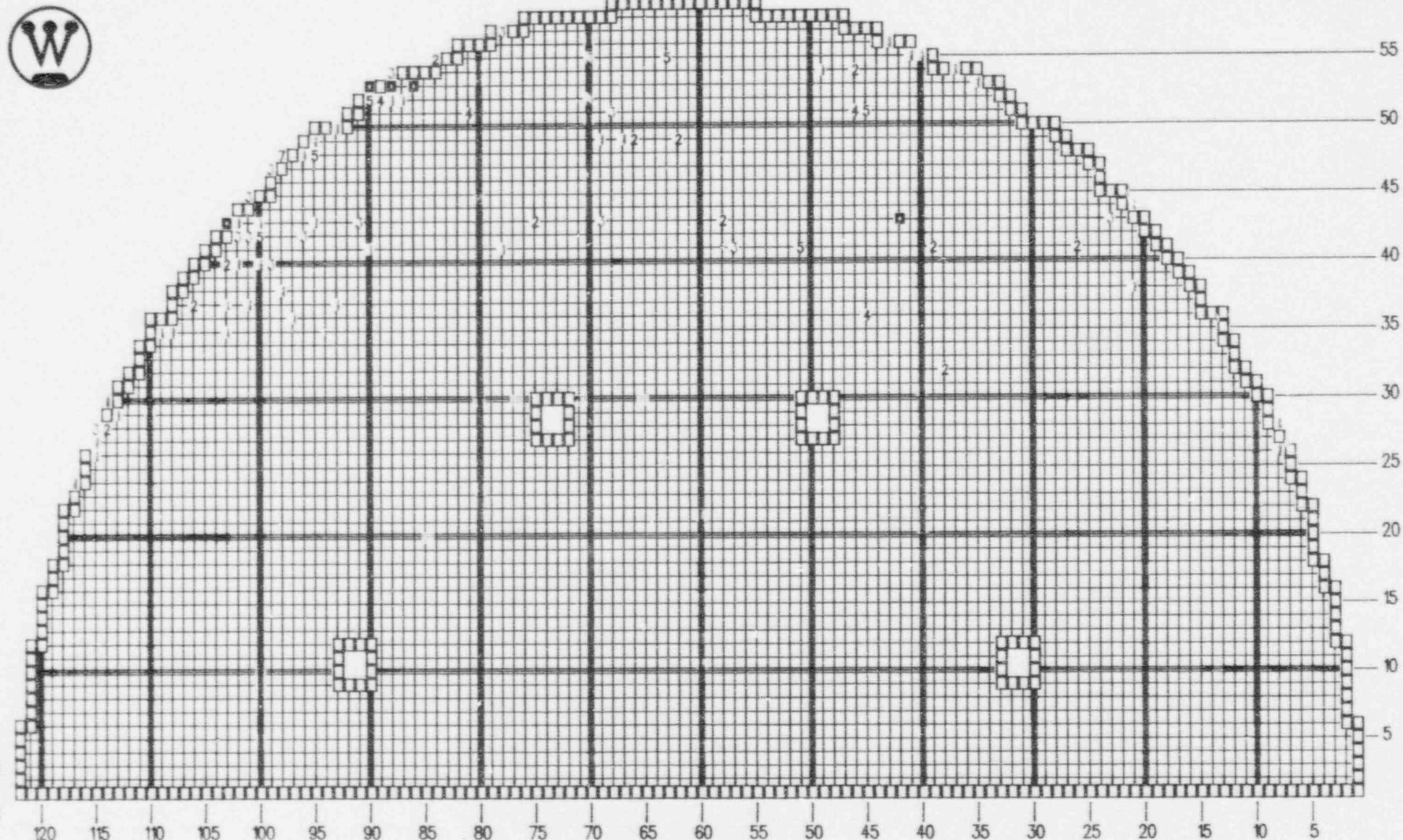


Figure 13 - S/G 'D' - Through Wall Indication Distribution Map (Cold Leg)

MOST SEVERE PER TUBE / PER SIDE
Millstone 3 - RFO 5

NEU-D SERIES F

05-09-1995

18:20 HRS.

SUPERTUBIN

1 : 1 <20% INDICATION

2 : 1 20-29% INDICATION

9 : 1 90-100% INDICATION
DEPLUGGED TUBE EC DATA

□ : 5 PLUGGED TUBE

