

**Southern California Edison Company**

SAN ONOFRE NUCLEAR GENERATING STATION

P. O. BOX 128

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November 25, 1985

U.S. Nuclear Regulatory Commission  
Office of Inspection and Enforcement  
Region V  
1450 Maria Lane, Suite 210  
Walnut Creek, California 94596-5368

Attention: Mr. J. B. Martin, Regional Administrator

Dear Sir:

Subject: Docket No. 50-361  
Special Report - Inservice Inspection of Steam Generator Tubes  
San Onofre Nuclear Generating Station, Unit 2

Reference: Letter from M. O. Medford (Southern California Edison)  
to G. W. Knighton (Branch Chief, Licensing Branch No. 3,  
U.S. Nuclear Regulatory Commission), dated April 5, 1985,  
with the following enclosures:

- (1) Metallurgical Defects in Steam Generator Tubes,  
San Onofre Unit 2, April 3, 1985
- (2) Steam Generator Tubing Wear,  
San Onofre Unit 2, April 3, 1985

Pursuant to Section 6.9.2 of Appendix A, Technical Specifications to Facility Operating License NPF-10, this report is being submitted as required by Surveillance Requirement 4.4.4.5(b) associated with Limiting Condition for Operation (LCO) 3.4.4. This Surveillance Requirement requires that a Special Report be prepared and submitted to the Commission within 12 months following the completion of each inservice inspection of steam generator tubes. The referenced letter forwarded two detailed reports of this inspection and associated analysis. These reports addressed tube examinations and associated corrective actions.

During the refueling outage, an inservice full length inspection of 100% of the unplugged tubes in both steam generators was completed on January 27, 1985. A total of 146 tubes were plugged in Steam Generator E-088 and 184 tubes were plugged in Steam Generator E-089.

As required by Surveillance Requirement 4.4.4.5(b), the results of the recently completed inservice inspection are provided in the enclosures to this letter. Enclosure (1) is a steam generator internal location reference guide. The eddy current defect/indication locations on various enclosures are based upon this guide.

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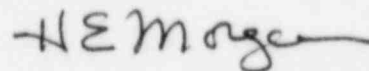
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Enclosures (2) through (5) provide the inservice inspection results for Steam Generator E-088. Enclosure (2) provides a list of defects including tube identification, defect depth and the axial location of the defect in the tube. A defect is an eddy current testing indication greater than or equal to 44% of nominal tube wall thickness. If a tube contains a defect, the tube is defective and must be plugged. Enclosure (3) provides a list of eddy current indications less than 44% but greater than or equal to 20% of nominal tube wall thickness. Enclosure (4) provides a list of eddy current indications that were detectable, but quantifiable only as less than 20% of nominal tube wall thickness. Enclosure (5) provides a list of tubes plugged after the completion of the inservice inspection. If a tube was plugged because of an eddy current test indication in the tube, the depth of the eddy current indication is provided. The location is provided only for batwing related indications. Batwings are illustrated on Enclosure (1) and are interchangeably referred to as diagonal bars.

Enclosures (6) through (9) are listings for Steam Generator E-089. They are formatted identically with the corresponding list for Steam Generator E-088.

If you require any additional information, please so advise.

Sincerely,



- Enclosures:
- (1) Combustion Engineering Model 3410 Steam Generator Support Designation Guide and Illustrative Diagram
  - (2) List of Tubing Defects, Steam Generator E-088
  - (3) List of Eddy Current Indications 20% - 43%, Steam Generator E-088
  - (4) List of Eddy Current Indications < 20%, Steam Generator E-088
  - (5) List of Tubes Plugged, Steam Generator E-088
  - (6) List of Tubing Defects, Steam Generator E-089
  - (7) List of Eddy Current Indications 20% - 43%, Steam Generator E-089
  - (8) List of Eddy Current Indications < 20%, Steam Generator E-089
  - (9) List of Tubes Plugged, Steam Generator E-089

cc: F. R. Huey (USNRC Senior Resident Inspector, Units 1, 2 and 3)  
H. Rood (Project Manager, SONGS 2/3, USNRC, NRR)

U. S. Nuclear Regulatory Commission  
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Institute of Nuclear Power Operations (INPO)

Mr. J. B. Martin

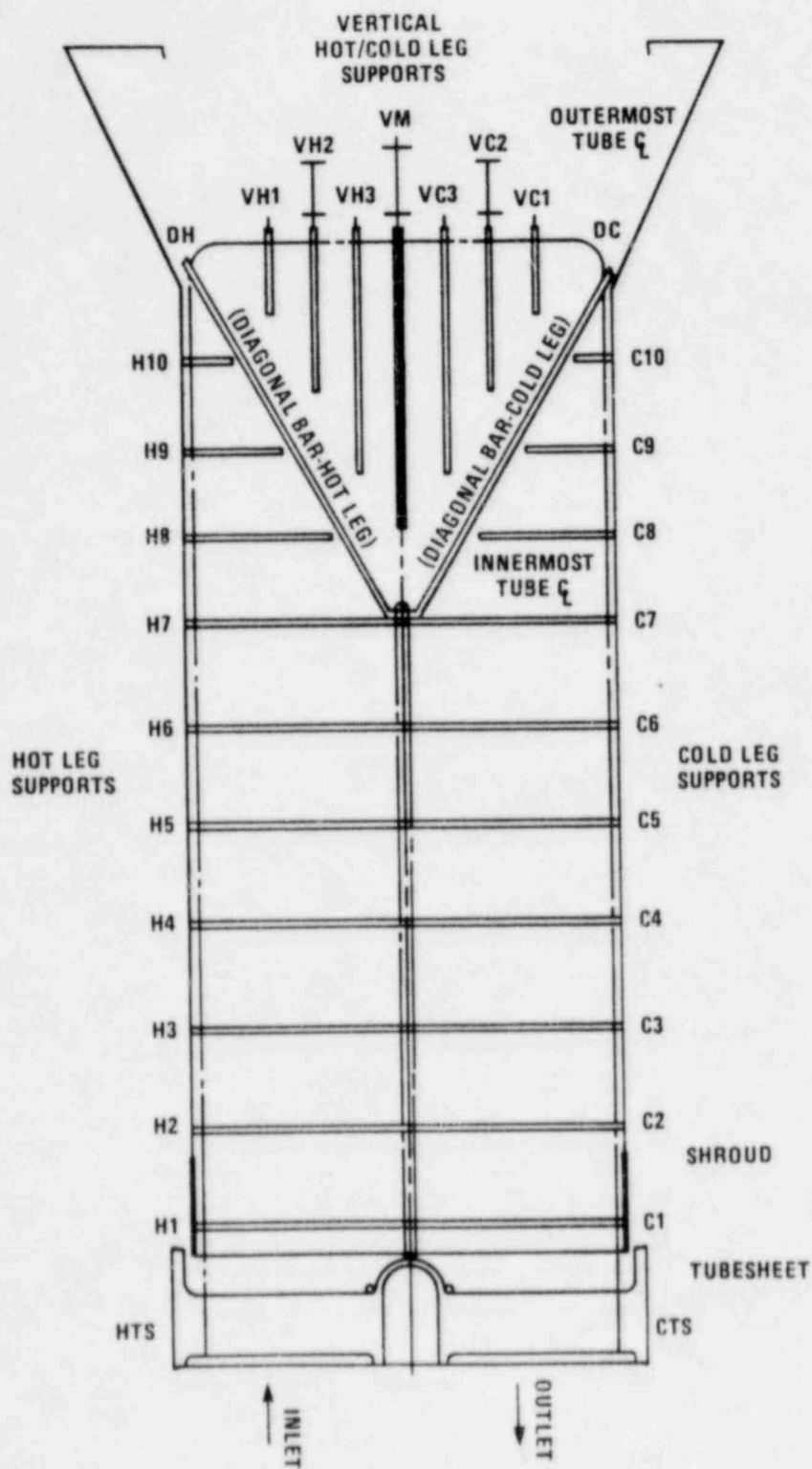
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cc: F. R. Huey (USNRC Senior Resident Inspector, Units 1, 2 and 3)  
H. Rood (Project Manager, SONGS 2/3, USNRC, NRR)

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COMBUSTION ENGINEERING MODEL 3410 STEAM GENERATOR ILLUSTRATIVE DIAGRAM



COMBUSTION ENGINEERING MODEL 3410 STEAM GENERATOR SUPPORT DESIGNATION GUIDE

CLARIFICATION OF ROWS CONTACTING SUPPORTS ABOVE 7TH TSP

<u>ROWS</u>	<u>SUPPORT DESIGNATION</u>
1 - 24	DH, DC
25 - 48	DH, VM, DC
49 - 50	H8, DH, VM, DC, C8
51 - 82	VH3, H8, DH, VM, DC, C8, VC3
83	VH2, VH3, H8, DH, VM, DC, C8, VC3, VC2
84 - 114	H9, VH2, VH3, H8, DH, VM, DC, C8, VC3, VC2, C9
115 - 119	VH1, H9, VH2, VH3, H8, DH, VM, DC, C8, VC3, VC2, C9, VC1
120 - 147	H10, VH1, H9, VH2, VH3, H8, DH, VM, DC, C8, VC3, VC2, C9, VC1, C10

NOTE: For purposes of this report, vertical support locations as reported on DDA4 printouts are defined as follows:

Vertical supports are incremented by one starting with the Hot Leg Side.

Example:

<u>Row</u>	<u>DDA4</u>	<u>Support Designation</u>
25	V1	VM
60	V1	VH3
80	V3	VC3
118	V4	VM
125	V6	VC2

LIST OF TUBING DEFECTS, STEAM GENERATOR 88

<u>ROW</u>	<u>LINE</u>	<u>PERCENT</u>	<u>LOCATION</u>
51	29	61	C3+2.4
106	28	45	C4+16.3
70	58	62	C8+38.4
41	71	94	HTS+7.9
109	103	50	C1+14.6
96	110	66	C2+22.2
49	127	48	H3+20.4
1	175	69	HTS+5.0
2	174	48	HTS+4.8
29	73	49	DC
33	77	52	DH
35	77	48	DH
34	78	50	DC
44	80	45	V1
39	83	53	V1
39	91	48	DH
37	95	52	DC
32	100	71	DH
31	101	45	DH
27	105	63	DH
32	76	46	DC
37	93	48	DC
38	82	55	DH

LIST OF EDDY CURRENT INDICATIONS 20% - 43%  
STEAM GENERATOR 88

<u>ROW</u>	<u>LINE</u>	<u>PERCENT</u>	<u>LOCATION</u>
24	70	37	DH
27	71	24	DC
29	73	38	DH
31	75	39	DH
		24	DC
34	76	40	DH
		20	DC
34	78	43	DH
35	79	40	DH
36	80	31	DH
		22	DC
36	78	22	DC
37	79	41	VM
37	81	26	DC
38	82	23	DC
37	83	42	DH
41	83	35	DH
39	85	27	DH
		20	DC
39	87	31	DC
		27	DH
45	87	23	DH
		20	DH
38	88	23	DC
		20	DH
39	89	22	DC
38	90	28	DH
39	91	20	DC
40	86	31	DH
38	94	43	DC
37	95	31	DC
		20	DH
		27	DH
39	95	28	DC
		20	DH
41	95	37	DC
43	95	26	DC

LIST OF EDDY CURRENT INDICATIONS 20% - 43%  
STEAM GENERATOR 88

(CONTINUED)

<u>ROW</u>	<u>LINE</u>	<u>PERCENT</u>	<u>LOCATION</u>
88	28	25	H9+0
84	28	37	C6+14.8
99	31	22	C1+25.4
53	45	26	H2+11.8
68	46	26	HTS+25.8
		20	C7+2.2
97	49	34	C5+31.2
52	50	21	H5+6
88	54	23	C3+15.1
137	69	23	VC3+10.9
139	75	23	C3+17.5
		20	C2+11.2
		20	C3+19
		20	C3+20.7
143	71	37	C3+15.5
66	28	29	H3+22.5
93	85	23	C7+7
87	95	41	C6+8.2
		28	C7+10.5
		24	C6+17.2
		20	C6+28.3
		20	C6+30.3
104	96	21	VM+10.1
41	105	33	C2+6.8
141	109	22	VC2+2.5
88	112	33	C8+29.2
133	117	23	C3+21.8
129	121	35	H1+13.8
49	127	33	H3+20.6
73	125	27	C7+20.5
42	122	22	H2+14.4
124	128	29	VM+12.1
82	136	22	H5+17.2
86	158	21	H6+17.7



LIST OF EDDY CURRENT INDICATIONS 20% - 43%  
STEAM GENERATOR 88  
(CONTINUED)

<u>ROW</u>	<u>LINE</u>	<u>PERCENT</u>	<u>LOCATION</u>
49	95	28	DH
		20	DC
37	93	25	DH
39	93	25	DH
41	93	40	DH
40	92	24	DH
38	92	37	DH
40	96	28	DC
		20	DH
36	96	40	DH
35	97	39	DC
		38	DH
33	99	38	DH
		26	DC
28	104	35	DC
		20	DH
33	101	36	DH
31	103	35	DH

LIST OF EDDY CURRENT INDICATIONS LESS THAN 20%  
STEAM GENERATOR 88

<u>ROW</u>	<u>LINE</u>	<u>LOCATION</u>
3	5	C2+21.5
43	19	C4+30.8
64	26	HTS+25.9
58	26	C8+7.3
27	33	H4+1.8
88	34	C3+15.6
111	35	C3+8.1
85	37	H4+9.1
106	38	C6+17.7
65	41	C1+22.2
113	41	C6+33.7
55	45	C1+6.7
48	48	H5+10.4
96	50	C2+8.5
41	51	H2+22.6
43	51	H2+22.7
116	52	H3+32.5
98	52	C7+9.3
82	52	CTS+13.3
11	53	C5+20.4
115	53	C7+3.1
		C6+34.1
		C6+30.2
5	53	H3+21.5
52	60	C2+32.4
71	61	VM+3.6
113	61	H3+6.2
114	62	C6+30.2
54	62	H1+17.3
45	63	C6+7.6
111	67	C1+10.9
77	67	CTS+6.1
35	75	VM
39	77	DC
49	77	DH
119	77	VM
37	29	VM
39	79	DC
40	82	DH
136	84	C4+16.9
38	84	DC

LIST OF EDDY CURRENT INDICATIONS LESS THAN 20%  
STEAM GENERATOR 88  
(CONTINUED)

<u>ROW</u>	<u>LINE</u>	<u>LOCATION</u>
108	84	H9+7.7
40	86	DH
38	86	DH
41	87	DH
119	91	H7+10.9
125	91	H2+21.8
115	93	C7+19.9
127	93	HTS+8.6
46	92	DH
34	98	DH
93	105	H6+16.3
115	103	VH1+10.9
44	120	H4+20.5
		H4+17
8	120	H4+10
30	122	H2+8
15	121	C4+6.2
39	129	H3+29.3
100	126	HTS+1.6
117	135	C3+5.4
93	137	V1+9.9
54	136	H1+29.4
13	145	CTS
64	150	H3+17.3
54	150	C4+27.8
84	154	C5+7.1
1	169	C2+3.8
4	174	HTS+12.9

LIST OF TUBES PLUGGED  
STEAM GENERATOR 88

<u>ROW</u>	<u>LINE</u>	<u>REASON</u>
1	167	PM
1	175	69%
2	174	48%
5	161	PM
23	69	PM
23	107	PM
24	70	37%
24	106	PM
25	69	PM
25	107	PM
26	70	PM
26	106	PM
27	69	PM
27	71	24% (BWW)
27	105	63%
27	107	PM
28	70	PM
28	72	PM
28	104	35% (BWW)
28	106	PM
29	71	PM
29	73	49%
29	103	PM
29	105	PM
30	72	PM
30	74	PM
30	102	PM
30	104	PM
31	73	PM
31	75	39% (BWW)
31	101	45%
31	103	35% (BWW)
32	74	PM
32	76	46%
32	100	71%
32	102	PM
32	104	PM
33	75	PM
33	77	52%
33	99	38% (BWW)

(BWW) = Batwing Wear

PM = Preventive Maintenance

## LIST OF TUBES PLUGGED

## STEAM GENERATOR 88

(CONTINUED)

<u>ROW</u>	<u>LINE</u>	<u>REASON</u>
33	101	36% (BWW)
33	103	PM
34	76	40% (BWW)
34	78	50%
34	98	<20% (BWW)
34	100	PM
34	102	PM
35	75	<20% (BWW)
35	77	48%
35	79	40% (BWW)
35	97	39% (BWW)
35	99	PM
35	101	PM
36	76	PM
36	78	22% (BWW)
36	80	31% (BWW)
36	96	40% (BWW)
36	98	PM
37	77	PM
37	79	41%
37	81	26% (BWW)
37	83	42% (BWW)
37	93	48%
37	95	52%
37	97	PM
38	78	PM
38	80	PM
38	82	55%
38	84	<20% (BWW)
38	86	<20% (BWW)
38	88	23% (BWW)
38	90	28% (BWW)
38	92	37% (BWW)
38	94	43% (BWW)
38	96	PM
39	79	<20% (BWW)
39	81	PM
39	83	53%
39	85	27% (BWW)
39	87	31% (BWW)

(BWW) = Batwing Wear

PM = Preventive Maintenance

LIST OF TUBES PLUGGED  
STEAM GENERATOR 88  
(CONTINUED)

<u>ROW</u>	<u>LINE</u>	<u>REASON</u>
39	89	22% (BWW)
39	91	48%
39	93	25% (BWW)
39	95	28% (BWW)
39	97	PM
40	20	PM
40	66	PM
40	78	PM
40	80	PM
40	82	<20% (BWW)
40	84	PM
40	86	31% (BWW)
40	88	PM
40	90	PM
40	92	24% (BWW)
40	94	PM
40	96	28% (BWW)
41	71	94%
41	79	PM
41	81	PM
41	83	35% (BWW)
41	85	PM
41	87	<20% (BWW)
41	89	PM
41	91	PM
41	93	40% (BWW)
41	95	37% (BWW)
41	97	PM
42	78	PM
42	82	PM
42	84	PM
42	86	PM
42	88	PM
42	90	PM
42	92	PM
42	94	PM
42	96	PM
43	83	PM
43	85	PM
43	87	PM

(BWW) = Batwing Wear  
PM = Preventive Maintenance

LIST OF TUBES PLUGGED  
STEAM GENERATOR 88  
(CONTINUED)

<u>ROW</u>	<u>LINE</u>	<u>REASON</u>
43	89	PM
43	91	PM
43	93	PM
43	95	26% (BWW)
44	80	45%
44	94	PM
44	96	PM
45	87	23% (BWW)
45	95	PM
46	80	PM
47	157	PM
49	95	28% (BWW)
49	127	48%
51	29	61%
54	70	PM
56	168	PM
58	112	PM
70	58	62%
84	122	PM
95	51	PM
96	110	66%
96	118	PM
98	80	PM
106	28	45%
109	103	50%
128	46	PM

(BWW) = Batwing Wear

PM = Preventive Maintenance

LIST OF TUBING DEFECTS  
STEAM GENERATOR 89

<u>ROW</u>	<u>LINE</u>	<u>PERCENT</u>	<u>LOCATION</u>
34	78	48	DH
39	79	51	DC
37	81	48	DC
38	82	61	DH
39	83	57	DC
37	83	54	DC
38	84	69	DH
		58	DC
38	86	48	DH
39	87	48	DH
39	89	64	DH
38	90	45	DC
		60	DH
39	91	95	DC
41	91	44	DH
38	92	47	DH
37	93	47	DC
37	95	56	DH
35	97	48	DH
34	98	48	DC
33	99	46	DH
31	101	59	DH
		49	DC
32	102	48	DH
29	103	51	DH
57	113	46	
105	53	61	C3+14.1
141	69	71	C4+1.6
		59	H4+0
97	103	54	C4+27.1
132	98	49	C3+8.2
139	81	74	C4+23.3
		45	C5+25.3
14	30	47	C5+22.6
70	50	68	C3+24.8
		48	H1+28.1
108	72	46	H1+20.2
48	168	62	H6+30.4
		51	H7+8.1
		57	VM+7.9
			VM



LIST OF EDDY CURRENT INDICATIONS 20% - 43%  
STEAM GENERATOR 89

<u>ROW</u>	<u>LINE</u>	<u>PERCENT</u>	<u>LOCATION</u>
28	72	23	DC
44	72	35	DH
29	73	22	DC
		20	DH
32	76	40	DC
		20	DH
34	76	35	DC
34	78	28	DH
		20	DC
36	78	38	DC
35	79	21	DH
		31	DC
36	80	43	DC
		23	DH
38	80	24	DC
40	80	38	DC
37	81	42	DH
39	81	33	DC
38	82	20	DC
37	83	33	DH
39	83	22	DH
39	85	39	DC
39	87	28	DC
38	88	40	DH
40	88	22	DH
42	88	41	DH
44	88	38	DH
46	88	23	DH
41	89	26	DH
40	90	31	VM
		20	DH
39	91	22	DH
43	91	25	DH
49	91	24	DH
		23	DC
38	92	22	DC
37	93	20	DC

LIST OF EDDY CURRENT INDICATIONS 20% - 43%  
STEAM GENERATOR 89  
(CONTINUED)

<u>ROW</u>	<u>LINE</u>	<u>PERCENT</u>	<u>LOCATION</u>
45	93	38	DH
46	94	33	DH
38	94	33	DH
		37	DC
37	95	32	DH
36	96	37	DC
44	96	33	VM
46	96	35	DH
33	99	32	DC
29	103	20	DC
27	105	31	DH

LIST OF EDDY CURRENT INDICATIONS 20% - 43%

STEAM GENERATOR 89

(CONTINUED)

<u>ROW</u>	<u>LINE</u>	<u>PERCENT</u>	<u>LOCATION</u>
121	45	32	VC2
132	62	21	VH3
70	82	34	H8+2.4
141	109	29	VH3
		28	VC3
		25	VC2
133	113	27	VH3
81	127	26	VC3
84	144	22	VH2
48	168	34	DC
		20	VM
1	61	33	C5+20.8
2	6	36	C2+18.4
11	111	43	C6-C5
12	20	32	C5-C4
12	124	37	H4-H5
13	167	22	C6-C5
17	117	24	H3-H4
18	32	21	CTS
20	116	22	C2-C1
27	71	38	C7-C6
33	39	24	H2-H3
37	55	22	C2-C1
39	167	36	C3-C2
40	18	24	C3-C2
40	140	26	C5-C4
40	160	37	C4
41	33	43	C1+25.9
46	8	27	C3+22.0
46	8	22	C3+17.7
48	118	40	C6-C5
		32	C7-C6
51	73	27	C7-C6
54	78	24	H4-H5
59	95	27	C7
60	52	32	C3-C2
66	58	27	H6-H7
68	124	22	H6-H7
70	50	34	H1-H2
70	98	35	C3-C2

## LIST OF EDDY CURRENT INDICATIONS 20% - 43%

## STEAM GENERATOR 89

(CONTINUED)

<u>ROW</u>	<u>LINE</u>	<u>PERCENT</u>	<u>LOCATION</u>
70	106	39	H2-H3
73	133	25	H3-H4
74	54	26	H4-H5
76	154	28	HTS-H1
78	88	43	H3-H4
79	157	25	H5-H6
		28	H5-H6
92	58	22	H2-H3
101	105	38	DH
107	131	35	HTS-H1
108	42	27	DH
108	78	22	H6-H7
114	104	27	H6-H7
118	84	35	H7
119	79	23	H4-H5
123	57	38	C1-CTS
123	77	24	H6-H7
124	62	24	C10-C9
124	114	27	C1-CTS
125	91	36	H3-H4
125	95	33	C7
126	52	21	C7-C6
126	132	24	HTS-H1
131	115	22	C7-C6
139	81	32	C6-C5
		20	C7-C6
141	69	29	H3-H4
		26	H4-H5
141	83	22	C4-C3
147	81	38	C5-C4

LIST OF EDDY CURRENT INDICATIONS LESS THAN 20%  
STEAM GENERATOR 89

<u>ROW</u>	<u>LINE</u>	<u>LOCATION</u>
34	6	VM
70	16	VH3
77	47	VH3+4.6
129	49	VH1+6.1
59	51	VM+12.5
103	55	VM+9.7
70	58	VM+5.3
82	60	VH3
		VH3+11.2
123	65	VC3+10.2
143	67	DH
33	77	DC
138	80	VH2+9.8
40	86	DH
39	93	DH
77	93	DC
40	94	DC
95	115	VC3+5.0
122	116	VM+7.1
92	116	VH3+1.9
127	123	DH
88	140	VM+5.6
50	90	DH
46	92	C2+8.5
51	83	C2+9.8
7	7	H6+24.6
30	168	C3+3.4
70	160	C6+30.8
69	159	C7+6.2
86	152	H4+17.5
73	147	CTS+16.6
76	144	C3+3.1
62	144	H4+19.1
		H4+16.1
99	141	H4+32.9
73	139	C5+9.3
		C5+14.5
86	138	C2+17.7
80	138	C7+25.1
43	137	H7+17.1

LIST OF EDDY CURRENT INDICATIONS LESS THAN 20%  
STEAM GENERATOR 89  
(CONTINUED)

<u>ROW</u>	<u>LINE</u>	<u>LOCATION</u>
119	135	C3+18.5
115	133	C7+24.3
85	129	H6+14.3
46	124	C2+11.7
127	123	H8+26.0*
48	118	C7+9.9
137	117	C5+7.9
17	117	H6
122	116	C9+8.4*
123	115	C7+28.8
101	113	H2+20.4
70	112	C3+2.9
120	110	C5+26.8
70	110	H8+16.6
115	109	C4+30.4
101	105	H7+26.9
30	10	C4+4.5
		C3+35.4
16	12	H4+6.6
49	15	H3+2.4
80	16	C5+6.7
70	16	H8+4.5*
20	16	C1+22.8
15	17	C5+34.0
37	21	H4+29.5
29	23	C2
10	24	H5+6.3
35	29	H2+27.8
		H2+25.0
59	29	H3+33.5
105	29	H2+29.3
		H5+12.4
84	30	H7+26.7
47	31	C4+18.0
7	33	C4+29.1
84	34	H3+16.0
44	34	H4+4.2
115	35	C4+30.6
16	38	C4+8.5

\* Multiple Indications

LIST OF EDDY CURRENT INDICATIONS LESS THAN 20%  
STEAM GENERATOR 89  
(CONTINUED)

<u>ROW</u>	<u>LINE</u>	<u>LOCATION</u>
112	40	H5+20.1 H5+23.1 H6+25.2 H6+4.9
94	40	C4+24.4
116	42	H4+18.2
52	46	C6+8.5
13	47	C2+8.3
61	47	C5+8.3
115	47	H4+21.6
121	47	H6+13.6 H6+10.0 H4+34.4
48	48	C5+4.7
121	49	H6+28.8*
59	51	H2+31.9
34	52	C5+25.7
91	57	HTS+14.1
130	58	C8+8.7
66	58	H6+14.9
34	58	H1+13.8
37	59	CTS+21.3
121	59	CTS+16.0
114	60	H8+7.5
111	63	C4+17.9
119	63	H9+29.0
129	63	H5-H6 C8+7.3
108	64	H3+8.2
92	64	HTS+24.0
117	65	C3+17.1
126	66	C1+21.3
69	69	H5+31.1
110	70	H8+23.5
108	84	H9+21.3 H5+16.9
95	121	H8+9.5
70	108	H8+8.1 H8+5.1

\* Multiple Indications

## LIST OF EDDY CURRENT INDICATIONS LESS THAN 20%

STEAM GENERATOR 89

(CONTINUED)

<u>ROW</u>	<u>LINE</u>	<u>LOCATION</u>
86	106	H7+21.7
139	105	H6+12.1
108	80	H4+33.2
130	102	C7+17.7
114	98	C1+19.2
117	95	C3+31.6
		C4+0.8
108	81	H8+23.5
		H9+21.3
139	85	H6+5.3
135	98	H7+14.9
		H7+32.0
124	94	H1+29.6
		HTS+22.3
3	3	C5+15.7
77	91	C7+15.6
4	138	HTS+26.6
9	17	C3+11.8
28	42	H6+9.0
15	43	C3+37.1
117	61	C8+18.7
		C8+9.2
		C8+10.5
93	91	C6+25.1
		C6+23.2



LIST OF TUBES PLUGGED  
STEAM GENERATOR 89

<u>ROW</u>	<u>LINE</u>	<u>REASON</u>
3	41	PM
6	4	PM
6	34	PM
9	37	PM
12	36	PM
12	126	PM
13	19	PM
13	27	PM
14	30	47%
14	36	PM
14	60	PM
14	164	PM
18	18	PM
18	32	21%
18	36	PM
20	12	PM
23	27	PM
23	69	PM
23	107	PM
24	70	PM
24	106	PM
25	69	PM
25	107	PM
26	70	PM
26	106	PM
27	69	PM
27	71	38% (BWW)
27	105	31% (BWW)
27	107	PM
28	12	PM
28	70	PM
28	72	23% (BWW)
28	104	PM
28	106	PM
29	71	PM
29	73	22% (BWW)

(BWW) = Batwing Wear  
PM + Preventive Maintenance

LIST OF TUBES PLUGGED  
STEAM GENERATOR 89  
(CONTINUED)

<u>ROW</u>	<u>LINE</u>	<u>REASON</u>
29	103	51% (BWW)
29	105	PM
30	72	PM
30	74	PM
30	102	PM
30	104	PM
31	73	PM
31	75	PM
31	101	59% (BWW)
31	103	PM
32	74	PM
32	76	40% (BWW)
32	100	PM
32	102	48% (BWW)
33	75	PM
33	77	<20% (BWW)
33	99	46% (BWW)
33	101	PM
33	103	PM
34	76	35% (BWW)
34	78	48% (BWW)
34	98	48% (BWW)
34	100	PM
34	102	PM
35	77	PM
35	79	31% (BWW)
35	97	48% (BWW)
35	99	PM
36	78	38% (BWW)
36	80	43% (BWW)
36	96	37% (BWW)
36	98	PM
37	77	PM
37	79	PM
37	81	48% (BWW)
37	83	54% (BWW)
37	93	47% (BWW)

(BWW) = Batwing Wear

PM = Preventive Maintenance

LIST OF TUBES PLUGGED  
STEAM GENERATOR 89  
(CONTINUED)

<u>ROW</u>	<u>LINE</u>	<u>REASON</u>
37	95	56% (BWw)
37	97	PM
38	78	PM
38	80	24% (BWw)
38	82	61% (BWw)
38	84	69% (BWw)
38	86	48% (BWw)
38	88	40% (BWw)
38	90	45% (BWw)
38	92	47% (BWw)
38	94	33% (BWw)
38	96	PM
39	79	51% (BWw)
39	81	33% (BWw)
39	83	57% (BWw)
39	85	39% (BWw)
39	87	48% (BWw)
39	89	64% (BWw)
39	91	95% (BWw)
39	93	<20% (BWw)
39	95	PM
39	97	PM
39	167	36%
40	40	PM
40	78	PM
40	80	38% (BWw)
40	82	PM
40	84	PM
40	86	<20% (BWw)
40	88	22% (BWw)
40	90	31% (BWw)
40	92	PM
40	94	<20% (BWw)
40	96	PM
41	79	PM
41	81	PM
41	83	PM

(BWw) = Batwing Wear

PM = Preventive Maintenance

LIST OF TUBES PLUGGED  
STEAM GENERATOR 89  
(CONTINUED)

<u>ROW</u>	<u>LINE</u>	<u>REASON</u>
41	85	PM
41	87	PM
41	89	26% (BWW)
41	91	44% (BWW)
41	93	PM
41	95	PM
42	80	PM
42	82	22% (BWW)
42	84	PM
42	86	PM
42	88	41% (BWW)
42	90	PM
42	92	PM
42	94	PM
42	96	PM
43	85	PM
43	87	PM
43	89	PM
43	91	25% (BWW)
44	88	38% (BWW)
44	90	PM
44	92	PM
44	96	33% (BWW)
45	87	PM
45	89	PM
45	91	PM
45	93	38% (BWW)
46	80	PM
46	88	23% (BWW)
46	94	33% (BWW)
46	96	35% (BWW)
47	85	PM
47	87	PM
47	89	PM
48	88	PM
48	168	62%
49	91	24% (BWW)

(BWW) = Batwing Wear

PM = Preventive Maintenance

LIST OF TUBES PLUGGED  
STEAM GENERATOR 89  
(CONTINUED)

<u>ROW</u>	<u>LINE</u>	<u>REASON</u>
51	59	PM
51	81	PM
51	111	PM
57	113	46%
61	145	PM
62	62	PM
65	105	PM
65	145	PM
70	18	PM
70	50	68%
81	69	PM
83	59	PM
90	54	PM
97	27	PM
97	103	54%
101	125	PM
104	80	PM
105	53	61%
105	81	PM
107	131	35%
108	72	46%
109	83	PM
112	90	PM
113	33	PM
116	66	PM
119	95	PM
120	78	PM
121	65	PM
122	60	PM
126	54	PM
129	63	PM
132	98	49%
135	109	PM
138	62	PM
138	98	PM
139	81	74%
141	69	71%

(BWW) = Batwing Wear

PM = Preventive Maintenance