

ARKANSAS NUCLEAR ONE - UNIT 1

STEAM GENERATOR TUBING INSERVICE INSPECTION
REPORT FOR THE TENTH REFUELING OUTAGE

INSPECTION SUMMARY

An inservice eddy current inspection was performed on tubes in the Arkansas Nuclear One, Unit 1 (ANO-1) Once Through Steam Generators (OTSGs) "A" and "B" during March 1992. The previous inservice inspection, conducted October 10, 1990, through October 26, 1990, resulted in a twenty-four (24) month inspection interval (per ANO-1 Technical Specification 4.18.4.8).

The tenth refueling outage (RTO) inspection was conducted in accordance with Technical Specification 4.18. A one-hundred percent (100%) full length inspection of both OTSGs was performed. Included in these inspections were the full length inspection of 176 sleeved tubes in the "A" OTSG and 147 sleeved tubes in the "B" OTSG. The subsequent inservice inspection shall be conducted at a 10 to 24 month interval in accordance with current Technical Specifications. The multifrequency method of eddy current testing was utilized during the inspection to determine tube wall degradation.

INSPECTION RESULTS

Tube wall degradation was observed in both the "A" and "B" OTSGs. In the "A" OTSG, 390 tubes were identified as having $\geq 40\%$ throughwall (TW) imperfections (defective per Technical Specification 4.18.5.a.6) and/or distorted or non-quantifiable indications. Of these, 235 were plugged and 155 sleeved. Additionally, 75 tubes in the lane region were also sleeved as a preventative measure.

In the "B" OTSG, 295 tubes were identified as having $\geq 40\%$ TW imperfections, and/or distorted or non-quantifiable indications, or were obstructed. Of these, 71 were plugged and 224 sleeved. In addition, 118 tubes in the lane region were also sleeved as a preventative measure.

Tables 1 and 2, attached, list the defective tubes for the "A" and "B" OTSGs, respectively. Defect location, size (%TW), and disposition as indicated by the primary inspection technique (bobbin coil) are also listed.

Tables 3 and 4 list the remaining reportable indications ($>20\%$ but $<40\%$ TW imperfections per Technical Specification 4.18.5.a.2) in the "A" and "B" OTSGs. Degradation location, size, and disposition, if any, are also provided.

Tables 5 and 6 lists the tubes sleeved as a preventative measure in the "A" and "B" OTSGs, respectively.

PLUG REMOVAL

The ribbed plug removal program continued this outage with the removal of ten (10) hot leg Alloy 600 Babcock and Wilcox (B&W) plugs in the "A" OTSG. Four (4) of these plugs were from heat NX-2960 and the remaining six (6) were heat W945-1. These plugs were removed to allow a metallurgical examination for evidence of Pure Water Stress Corrosion Cracking (PWSCC) or Intergranular Attack (IGA). All but one plug (98-127) were sent to B&W for the examination.

The results of the examination of the removed plugs showed no significant PWSCC or IGA present, and therefore, no additional plugs were removed. The ten (10) plugs that were removed were replaced with four (4) Alloy 690 sleeves and six (6) Alloy 690 rolled plugs.

Table 7 provides a summary of the tubes that had plugs replaced during 1R10.

CONCLUSIONS

Based on the results of the removed plug examinations and the inspections described above, the plugs and sleeves installed in the ANO-1 OTSGs are considered acceptable for the duration of Cycle 11.

TABLE 1

"A" OTSG TUBE DEFECTS
 (>=40% Throughwall Indications)

ROW	TUBE	% TW	LOCATION	DISPOSITION
2	2	53	UTSF + 7.37	SLEEVED
4	8	50	UTSF + 13.88	PLUGGED
6	11	53	UTSF + 7.47	SLEEVED
7	30	52	UTSF + 4.64	SLEEVED
7	53	49	UTSF + 15.07	PLUGGED
8	23	NQI	12 + 13.31	PLUGGED
11	1	42	5 - 1.05	PLUGGED
11	65	47	UTSF + 11.78	PLUGGED
12	35	44	UTSF + 7.80	PLUGGED
12	67	50	UTSF + 10.11	PLUGGED
14	25	87	UTSF + 8.45	PLUGGED
16	28	80	UTSF + 14.18	PLUGGED
17	1	53	11 + 0.64	PLUGGED
17	43	NQI	2 + 8.51	PLUGGED
18	31	41	UTSF + 13.13	PLUGGED
21	43	63	UTSF + 9.44	PLUGGED
24	47	85	LTPF + 5.79	PLUGGED
24	95	43	UTSF + 10.77	PLUGGED
		66	UTSF + 12.45	
25	7	64	UTSF + 3.31	SLEEVED
25	37	NQI	UTSF + 14.82	PLUGGED
26	7	55	UTSF + 3.07	SLEEVED
26	41	NQI	UTSF + 14.81	PLUGGED
28	50	NQI	7 + 17.03	PLUGGED
		50	UTSF + 3.85	
29	58	45	1 + 0.76	PLUGGED
31	7	52	UTSF + 4.89	SLEEVED
31	41	NQI	LTPF + 11.42	PLUGGED
32	14	52	UTSF + 9.30	PLUGGED
32	56	NQI	UTSF + 7.72	SLEEVED
		42	UTSF + 6.14	
33	45	48	UTSF + 9.61	PLUGGED
34	14	70	UTSF + 7.60	PLUGGED
34	75	NQI	12 + 28.60	PLUGGED
34	90	NQI	LTPF + 13.27	PLUGGED
34	105	NQI	UTSF + 7.94	PLUGGED
35	14	45	UTSF + 8.39	PLUGGED
35	88	NQI	UTSF + 12.54	PLUGGED
36	104	69	UTSF + 7.74	PLUGGED
37	3	64	UTSF + 10.87	PLUGGED
37	33	53	UTSF + 9.33	PLUGGED
37	62	59	UTSF + 5.92	SLEEVED
37	109	47	UTSF + 7.68	PLUGGED
37	112	NQI	4 + 16.69	PLUGGED
38	19	64	UTSF + 7.25	SLEEVED
38	115	NQI	14 + 30.70	PLUGGED
39	7	4	UTSF + 3.75	SLEEVED
40	2	77	UTSF + 7.88	PLUGGED

TABLE 1

"A" OTSG TUBE DEFECTS
($\geq 40\%$ Throughwall Indications)

ROW	TUBE	% TW	LOCATION	DISPOSITION
41	1	42	UTSF + 6.84	SLEEVED
		55	UTSF + 9.69	
41	4	54	UTSF + 10.16	PLUGGED
41	11	50	UTSF + 3.64	SLEEVED
42	95	NQI	4 + 6.63	PLUGGED
42	107	50	UTSF + 6.11	SLEEVED
42	115	NQI	UTSF + 5.51	SLEEVED
42	116	48	UTSF + 8.17	PLUGGED
42	117	49	UTSF + 9.04	PLUGGED
43	22	57	4 + 37.38	PLUGGED
43	106	47	UTSF + 11.27	PLUGGED
43	110	47	UTSF + 11.32	PLUGGED
43	116	47	UTSF + 12.48	SLEEVED
		55	UTSF + 7.92	
		60	UTSF + 6.18	
44	5	46	UTSF + 9.69	PLUGGED
44	12	56	UTSF + 5.88	SLEEVED
44	57	48	LTPF + 10.65	PLUGGED
44	117	40	UTSF + 8.29	SLEEVED
		51	UTSF + 5.72	
		56	UTSF + 9.61	
45	72	NQI	LTPF + 6.45	PLUGGED
46	36	NQI	11 + 29.59	PLUGGED
46	116	50	UTSF + 10.73	PLUGGED
		50	UTSF + 9.03	
		72	UTSF + 12.31	
47	99	43	UTSF + 11.61	PLUGGED
47	108	45	UTSF + 5.96	SLEEVED
		52	UTSF + 8.21	
47	119	68	UTSF + 3.42	SLEEVED
48	15	65	UTSF + 3.73	SLEEVED
48	121	45	UTSF + 10.29	PLUGGED
		50	UTSF + 8.35	
49	8	40	UTSF + 4.94	SLEEVED
49	18	NQI	4 + 22.67	PLUGGED
		NQI	3 + 1.36	
50	7	67	UTSF + 3.90	SLEEVED
50	8	57	UTSF + 8.22	PLUGGED
50	22	55	UTSF + 7.41	SLEEVED
		56	UTSF + 5.22	
50	24	59	UTSF + 9.47	PLUGGED
50	29	NQI	13 + 5.56	PLUGGED
50	118	74	UTSF + 11.82	PLUGGED
51	20	42	UTSF + 11.40	PLUGGED
51	105	85	UTSF + 10.04	PLUGGED
51	118	60	UTSF + 6.84	PLUGGED
51	123	53	UTSF + 11.07	PLUGGED
51	124	85	UTSF + 11.87	PLUGGED

TABLE 1

"A" OTSG TUBE DEFECTS
 (>=40% Throughwall Indications)

ROW	TUBE	% TW	LOCATION	DISPOSITION
52	102	84	UTSF + 19.55	PLUGGED
52	123	51	UTSF + 0.69	SLEEVED
52	124	55	UTSF + 11.71	PLUGGED
		61	UTSF + 17.31	
		83	UTSF + 13.87	
53	4	NQI	UTSF + 16.13	PLUGGED
53	116	76	UTSF + 10.07	PLUGGED
53	125	48	UTSF + 11.55	PLUGGED
54	10	62	UTSF + 9.21	PLUGGED
54	55	NQI	UTSF + 12.31	PLUGGED
		NQI	UTSF + 11.74	
54	118	46	UTSF + 6.19	SLEEVED
54	122	50	UTSF + 6.94	SLEEVED
		57	UTSF + 8.76	
55	9	54	UTSF + 6.81	SLEEVED
55	24	49	UTSF + 6.28	SLEEVED
56	4	82	UTSF + 4.83	SLEEVED
56	5	49	UTSF + 6.97	SLEEVED
56	117	57	UTSF + 6.43	SLEEVED
56	126	43	UTSF + 8.75	PLUGGED
57	18	46	UTSF + 5.26	SLEEVED
57	29	53	UTSF + 6.25	SLEEVED
57	118	41	UTSF + 8.39	PLUGGED
57	125	44	UTSF + 10.68	PLUGGED
		49	UTSF + 10.95	
		57	8 + 0.05	
57	127	62	UTSF + 11.93	PLUGGED
58	5	87	UTSF + 5.70	SLEEVED
58	18	43	UTSF + 6.77	SLEEVED
58	104	NQI	UTSF + 18.26	PLUGGED
		NQI	UTSF + 17.90	
58	127	NQI	13 + 19.96	PLUGGED
		50	UTSF + 14.76	
59	19	40	UTSF + 16.29	PLUGGED
59	74	NQI	UTSF + 13.03	PLUGGED
60	52	NQI	UTSF + 6.78	SLEEVED
60	126	NQI	UTSF + 20.24	PLUGGED
61	75	NQI	UTSF + 14.91	PLUGGED
61	86	46	15 + 0.86	SLEEVED
61	101	61	UTSF + 7.15	SLEEVED
62	1	65	UTSF + 7.33	SLEEVED
62	2	86	15 + 0.94	SLEEVED
62	7	47	UTSF + 13.51	PLUGGED
62	96	NQI	UTSF + 11.17	PLUGGED
		NQI	UTSF + 13.56	
63	1	42	15 + .97	SLEEVED
63	2	82	15 + 0.93	SLEEVED
		90	UTSF + 1.54	

TABLE 1

"A" OTSG TUBE DEFECTS
 (>=40% Throughwall Indications)

ROW	TUBE	% TW	LOCATION	DISPOSITION
63	7	75	UTSF + 6.45	SLEEVED
63	62	69	UTSF + 18.93	PLUGGED
63	97	61	UTSF + 10.89	PLUGGED
63	126	46	UTSF + 10.61	PLUGGED
64	2	65	15 + 0.90	SLEEVED
64	3	80	15 + 0.92	SLEEVED
64	52	47	UTSF + 8.08	SLEEVED
		67	UTSF + 4.85	
65	1	44	15 + 1.07	SLEEVED
		72	UTSF + 6.03	
65	2	45	UTSF + 7.19	SLEEVED
		92	15 + 1.03	
65	50	61	UTSF + 8.03	PLUGGED
65	61	71	UTSF + 19.11	PLUGGED
66	1	89	15 + 0.97	SLEEVED
		92	UTSF + 8.50	
66	2	70	15 + 1.03	SLEEVED
66	3	95	15 + 1.02	SLEEVED
66	116	NQI	1 + 31.93	PLUGGED
67	3	98	15 + 1.03	SLEEVED
67	13	NQI	UTSF + 7.27	SLEEVED
67	58	49	UTSF + 14.86	PLUGGED
		90	UTSF + 14.72	
67	61	NQI	UTSF + 11.55	PLUGGED
68	18	70	UTSF + 10.15	SLEEVED
		74	UTSF + 5.91	
68	24	45	UTSF + 7.04	SLEEVED
68	46	48	UTSF + 15.63	PLUGGED
68	63	58	UTSF + 13.41	PLUGGED
68	127	65	UTSF + 7.59	PLUGGED
69	4	NQI	UTSF + 6.22	SLEEVED
69	8	72	UTSF + 8.56	SLEEVED
69	9	44	UTSF + 19.28	SLEEVED
69	42	75	UTSF + 12.11	PLUGGED
69	44	75	UTSF + 14.30	PLUGGED
69	106	NQI	LTPF + 7.50	PLUGGED
69	113	71	UTSF + 14.87	PLUGGED
69	126	56	UTSF + 7.41	SLEEVED
70	6	69	UTSF + 7.72	SLEEVED
70	7	42	UTSF + 7.97	SLEEVED
70	13	60	UTSF + 16.99	SLEEVED
70	24	NQI	UTSF + 10.36	PLUGGED
70	32	44	UTSF + 3.55	SLEEVED
		68	UTSF + 4.95	
70	42	57	UTSF + 7.27	SLEEVED
70	54	71	UTSF + 18.92	PLUGGED
70	59	59	UTSF + 9.88	PLUGGED
70	60	44	UTSF + 10.20	PLUGGED

TABLE 1

"A" OTSG TUBE DEFECTS
(>=40% Throughwall Indications)

ROW	TUBE	% TW	LOCATION	DISPOSITION
70	66	57	UTSF + 19.95	PLUGGED
71	53	42	UTSF + 6.71	SLEEVED
		55	UTSF + 1.54	
		75	UTSF + 16.72	
71	62	NQI	UTSF + 16.54	PLUGGED
72	16	55	UTSF + 4.36	SLEEVED
		78	UTSF + 16.87	
		85	UTSF + 10.08	
72	17	NQI	UTSF + 7.39	SLEEVED
72	18	73	UTSF + 1.11	SLEEVED
		79	UTSF + 5.20	
73	22	45	UTSF + 2.36	SLEEVED
		68	UTSF + 3.39	
		69	UTSF + 7.30	
		83	UTSF + 1.46	
72	18	66	UTSF + 3.76	SLEEVED
72	65	40	UTSF + 1.12	SLEEVED
72	68	42	UTSF + 19.85	PLUGGED
72	69	85	UTSF + 15.54	PLUGGED
73	9	85	UTSF + 8.37	SLEEVED
73	10	75	UTSF + 2.74	SLEEVED
		86	UTSF + 7.46	
73	62	40	UTSF + 2.82	SLEEVED
73	105	NQI	12 + 13.70	PLUGGED
74	93	NQI	1 + 12.91	PLUGGED
75	87	NQI	UTSF + 20.24	PLUGGED
75	101	53	UTSF + 20.46	PLUGGED
79	3	44	UTSF + 1.66	SLEEVED
79	104	49	UTSF + 16.98	PLUGGED
79	112	43	UTSF + 19.75	PLUGGED
80	15	63	UTSF + 5.25	SLEEVED
80	19	66	UTSF + 8.17	PLUGGED
80	28	NQI	UTSF + 0.55	SLEEVED
80	69	NQI	UTSF + 18.55	PLUGGED
81	8	66	UTSF + 5.59	SLEEVED
81	9	55	UTSF + 1.77	SLEEVED
81	14	NQI	10 + 26.24	PLUGGED
		NQI	UTSF + 6.99	
		61	UTSF + 5.52	
		98	UTSF + 20.51	
81	15	NQI	UTSF + 0.87	SLEEVED
81	19	NQI	UTSF + 13.79	PLUGGED
81	22	58	UTSF + 10.11	PLUGGED
81	23	NQI	UTSF + 21.00	PLUGGED
		69	9 + 0.57	
81	24	NQI	UTSF + 10.15	PLUGGED
81	38	NQI	UTSF + 12.86	PLUGGED
81	54	42	UTSF + 0.92	SLEEVED

TABLE 1

"A" OTSG TUBE DEFECTS
 (>=40% Throughwall Indications)

ROW	TUBE	% TW	LOCATION	DISPOSITION
		61	UTSF + 0.55	
81	62	86	UTSF + 16.21	PLUGGED
81	73	60	14 + 25.96	PLUGGED
81	95	46	UTSF + 11.13	PLUGGED
82	9	48	UTSF + 3.86	SLEEVED
		68	UTSF + 3.83	
82	10	57	UTSF + 6.24	SLEEVED
		69	UTSF + 6.95	
82	18	NQI	UTSF + 22.68	SLEEVED
		NQI	UTSF + 0.87	
82	19	43	UTSF + 5.81	SLEEVED
		66	UTSF + 6.81	
		73	UTSF + 10.67	
82	24	67	UTSF + 18.69	PLUGGED
82	53	50	UTSF + 6.17	SLEEVED
82	56	79	UTSF + 5.68	SLEEVED
82	59	50	UTSF + 16.27	PLUGGED
82	61	61	UTSF + 16.31	PLUGGED
82	66	NQI	UTSF + 10.62	PLUGGED
83	1	65	10 - 0.59	PLUGGED
83	5	44	UTSF + 4.37	SLEEVED
83	13	73	UTSF + 7.63	PLUGGED
83	14	46	UTSF + 6.71	SLEEVED
83	27	41	UTSF + 14.92	PLUGGED
		68	UTSF + 12.14	
83	47	58	UTSF + 7.72	PLUGGED
84	5	NQI	UTSF + 15.33	SLEEVED
84	11	NQI	UTSF + 3.82	SLEEVED
		49	UTSF + 3.21	
		78	UTSF + 2.69	
84	25	42	UTSF + 6.44	SLEEVED
84	46	41	UTSF + 18.20	PLUGGED
84	47	60	UTSF + 7.46	SLEEVED
85	8	83	UTSF + 9.88	PLUGGED
85	16	54	UTSF + 8.97	PLUGGED
85	84	49	15 - 0.41	SLEEVED
86	12	44	UTSF + 7.02	SLEEVED
		51	UTSF + 4.37	
		77	UTSF + 6.32	
87	2	NQI	UTSF + 1.08	SLEEVED
87	4	60	UTSF + 9.03	SLEEVED
87	11	55	UTSF + 0.70	SLEEVED
87	19	68	UTSF + 13.26	PLUGGED
87	49	83	UTSF + 14.57	PLUGGED
87	62	91	UTSF + 9.17	PLUGGED
87	112	55	UTSF + 7.42	SLEEVED
87	130	46	UTSF + 5.97	SLEEVED
88	3	57	UTSF + 9.19	SLEEVED

TABLE 1
 "A" UTSG TUBE DEFECTS
 (>=40% Th:oughwall Indications)

ROW	TUBE	% TW	LOCATION	DISPOSITION
88	12	71	UTSF + 4.37	SLEEVED
88	49	NQI	UTSF + 17.79	PLUGGED
89	124	44	UTSF + 11.59	PLUGGED
		52	UTSF + 11.16	
90	1	66	UTSF + 1.01	SLEEVED
90	25	81	UTSF + 6.96	SLEEVED
90	27	NQI	4 + 7.60	PLUGGED
90	123	58	UTSF + 4.98	SLEEVED
91	3	87	UTSF + 1.28	SLEEVED
91	15	71	UTSF + 4.09	SLEEVED
91	119	53	UTSF + 5.43	SLEEVED
91	120	83	UTSF + 9.89	PLUGGED
93	1	86	UTSF + 2.70	SLEEVED
93	80	74	14 + 26.38	PLUGGED
93	118	60	UTSF + 6.30	SLEEVED
97	4	49	UTSF + 7.71	PLUGGED
97	91	NQI	12 + 11.04	PLUGGED
98	83	NQI	14 + 3.50	PLUGGED
98	117	40	UTSF + 9.21	PLUGGED
98	124	48	UTSF + 8.74	PLUGGED
98	125	NQI	LTPF + 8.30	PLUGGED
99	71	NQI	4 + 37.05	PLUGGED
100	118	55	UTSF + 5.69	SLEEVED
100	123	42	UTSF + 3.76	SLEEVED
101	1	54	UTSF + 10.21	PLUGGED
101	53	48	UTSF + 12.81	PLUGGED
		58	UTSF + 16.04	
102	1	46	UTSF + 8.32	PLUGGED
103	1	49	UTSF + 7.13	SLEEVED
103	16	54	UTSF + 8.42	PLUGGED
103	120	54	UTSF + 3.64	SLEEVED
103	123	74	UTSF + 3.86	SLEEVED
104	2	53	UTSF + 6.36	SLEEVED
104	95	72	UTSF + 11.28	PLUGGED
104	119	NQI	UTSF + 14.93	PLUGGED
105	4	NQI	10 + 0.66	PLUGGED
105	87	NQI	LTSF + 19.84	PLUGGED
106	65	40	14 + 11.88	PLUGGED
106	115	60	UTSF + 15.47	PLUGGED
107	105	52	UTSF + 18.84	PLUGGED
107	113	60	UTSF + 5.21	PLUGGED
108	52	75	UTSF + 12.13	PLUGGED
108	108	<	UTSF + 0.19	SLEEVED
108	111	47	LTPF + 21.86	PLUGGED
109	75	NQI	15 + 10.41	PLUGGED
110	112	43	UTSF + 10.80	PLUGGED
111	1	41	UTSF + 14.44	PLUGGED
111	101	49	UTSF + 19.27	PLUGGED

TABLE 1

"A" OTSG TUBE DEFECTS
(>=40% Throughwall Indications)

ROW	TUBE	% TW	LOCATION	DISPOSITION
111	113	60	UTSF + 12.17	PLUGGED
112	12	42	UTSF + 6.74	SLEEVED
112	14	71	UTSF + 8.04	PLUGGED
112	35	97	13 + 0.82	PLUGGED
112	67	56	LTSF + 7.04	PLUGGED
113	115	48	UTSF + 12.59	SLEEVED
		54	UTSF + 6.80	
114	100	53	UTSF + 18.66	PLUGGED
114	104	68	UTSF + 5.95	SLEEVED
114	105	46	UTSF + 7.09	SLEEVED
115	102	41	UTSF + 19.94	PLUGGED
115	111	54	UTSF + 6.02	SLEEVED
115	112	62	UTSF + 10.09	SLEEVED
		87	UTSF + 6.70	
116	14	53	UTSF + 7.99	PLUGGED
116	110	73	15 + 14.57	SLEEVED
117	14	NQI	12 + 9.84	PLUGGED
		45	UTSF + 8.42	
117	78	NQI	8 + 34.84	PLUGGED
117	105	54	UTSF + 5.90	SLEEVED
117	106	55	UTSF + 7.45	SLEEVED
		65	UTSF + 13.93	
117	107	61	UTSF + 3.55	SLEEVED
118	43	48	UTSF + 7.60	PLUGGED
118	107	92	UTSF + 6.14	SLEEVED
119	6	56	UTSF + 19.99	PLUGGED
120	2	82	UTSF + 0.38	SLEEVED
120	11	46	UTSF + 9.00	PLUGGED
120	93	48	UTSF + 5.15	SLEEVED
120	100	NQI	11 + 1.81	PLUGGED
120	102	49	UTSF + 5.57	SLEEVED
121	59	NQI	3 + 30.03	PLUGGED
121	102	44	UTSF + 10.76	PLUGGED
121	105	40	UTSF + 5.65	SLEEVED
122	6	42	UTSF + 5.81	SLEEVED
122	99	52	UTSF + 4.78	SLEEVED
123	94	59	UTSF + 9.97	PLUGGED
123	97	NQI	UTSF + 16.51	PLUGGED
124	96	52	UTSF + 11.79	PLUGGED
125	84	41	LTPF + 8.86	PLUGGED
125	95	NQI	UTSF + 7.49	SLEEVED
		40	UTSF + 6.01	
		59	UTSF + 10.36	
126	2	70	UTSF + 4.26	SLEEVED
126	19	61	UTSF + 5.18	SLEEVED
126	61	63	UTSF + 18.14	PLUGGED
126	65	NQI	LTSF + 22.96	PLUGGED
125	91	NQI	7 + 9.50	PLUGGED

TABLE 1

"A" OTSG TUBE DEFECTS
($\geq 40\%$ Throughwall Indications)

ROW	TUBE	% TW	LOCATION	DISPOSITION
126	93	97	UTSF + 18.03	PLUGGED
126	98	48	UTSF + 11.79	PLUGGED
		72	UTSF + 10.62	
127	8	70	UTSF + 14.59	PLUGGED
127	85	NQI	UTSF + 4.92	SLEEVED
127	87	NQI	3 + 4.49	PLUGGED
127	95	48	UTSF + 7.65	PLUGGED
128	8	60	UTSF + 3.55	SLEEVED
128	47	NQI	1 + 27.85	PLUGGED
128	49	NQI	UTSF + 13.77	PLUGGED
129	4	61	UTSF + 3.88	SLEEVED
129	8	65	UTSF + 10.77	PLUGGED
129	40	44	UTSF + 5.28	SLEEVED
132	18	NQI	UTSF + 8.58	PLUGGED
132	62	50	UTSF + 8.67	PLUGGED
132	81	54	UTSF + 9.44	PLUGGED
134	38	76	12 + 2.29	PLUGGED
135	75	65	LTPF + 19.76	PLUGGED
135	78	45	UTSF + 9.96	PLUGGED
135	6	78	12 + 5.58	PLUGGED
136	63	NQI	UTSF + 1.03	SLEEVED
136	74	45	UTSF + 7.49	SLEEVED
137	7	64	UTSF + 7.67	PLUGGED
137	37	NQI	LTPF + 13.96	PLUGGED
137	74	73	UTSF + 8.22	PLUGGED
137	75	57	UTSF + 11.66	PLUGGED
137	77	64	UTSF + 10.15	PLUGGED
137	78	63	5 + 0.97	PLUGGED
138	49	NQI	UTSF + 16.00	PLUGGED
138	50	59	UTSF + 9.67	PLUGGED
138	73	79	UTSF + 9.92	PLUGGED
139	6	40	8 - 0.37	PLUGGED
139	21	60	UTSF + 6.73	SLEEVED
139	22	41	UTSF + 4.82	SLEEVED
139	23	51	UTSF + 5.03	SLEEVED
139	44	NQI	UTSF + 9.64	PLUGGED
139	47	73	UTSF + 8.56	PLUGGED
139	49	NQI	14 + 15.77	PLUGGED
139	71	65	UTSF + 7.93	PLUGGED
140	9	60	UTSF + 0.40	SLEEVED
140	39	75	UTSF + 8.68	PLUGGED
140	49	74	UTSF + 6.46	SLEEVED
140	61	40	UTSF + 8.50	PLUGGED
141	33	61	UTSF + 4.61	SLEEVED
141	36	65	UTSF + 5.09	SLEEVED
141	47	53	UTSF + 13.08	PLUGGED
142	46	NQI	UTSF + 0.69	SLEEVED
142	47	80	UTSF + 7.09	SLEEVED

TABLE 1

"A" OTSG TUBE DEFECTS
(>=40% Throughwall Indications)

ROW	TUBE	% TW	LOCATION	DISPOSITION
142	52	83	UTSF + 10.86	PLUGGED
143	13	89	UTSF 9.72	PLUGGED
143	53	NQI	15 + 42.78	SLEEVED
144	51	74	UTSF + 8.98	PLUGGED
145	21	52	UTSF + 7.51	PLUGGED
145	42	59	UTSF + 9.70	PLUGGED
145	46	70	UTSF + 9.37	PLUGGED
146	6	NQI	14 + 5.65	PLUGGED
146	9	84	UTSF + 17.75	PLUGGED
146	26	98	UTSF + 3.01	SLEEVED
146	38	46	UTSF + 6.70	SLEEVED
146	45	55	UTSF + 9.13	PLUGGED
147	6	NQI	UTSF + 18.46	PLUGGED
147	7	59	UTSF + 17.29	PLUGGED
147	42	57	UTSF + 10.39	PLUGGED
147	43	96	UTSF + 16.10	PLUGGED
148	13	77	UTSF + 8.09	PLUGGED
148	17	83	LTPF + 12.01	PLUGGED
148	22	NQI	UTSF + 16.41	PLUGGED
148	32	59	UTSF + 10.01	PLUGGED
149	13	60	UTSF + 8.34	PLUGGED
150	13	50	10 + 0.79	PLUGGED

LEGEND:

UTSF - UPPER TUBESHEET SECONDARY FACE
 LTSF - LOWER TUBESHEET SECONDARY FACE
 UTPF - UPPER TUBESHEET PRIMARY FACE
 LTPF - LOWER TUBESHEET PRIMARY FACE
 NQI - NON-QUANTIFIABLE INDICATION
 % TW - % THROUGHWALL DEGRADATION
 UTSF + X.X - DEFECT LOCATED X.X INCHES ABOVE
 THE UPPER TUBESHEET SECONDARY FACE
 12 + X.X - DEFECT LOCATED X.X INCHES ABOVE THE
 12th TUBE SUPPORT PLATE

TABLE 2

"B" OTSG TUBE DEFECTS
 (>=40% Throughwall Indications)

ROW	COL	% TW	LOCATION	DISPOSITION
2	3	NQI	10 - 0.65	PLUGGED
		NQI	15 + 1.04	
2	8	NQI	10 + 0.55	PLUGGED
3	3	NQI	15 + 1.01	SLEEVED
3	18	54	UTSF + 3.2	SLEEVED
4	5	NQI	14 - 0.63	PLUGGED
4	19	NQI	10 - 0.59	PLUGGED
11	15	NQI	14 + 8.23	PLUGGED
11	65	NQI	UTSF + 0	SLEEVED
12	1	NQI	UTSF + 11.38	SLEEVED
15	5	NQI	UTSF + 15.81	SLEEVED
18	2	NQI	14 - 0.75	PLUGGED
18	5	NQI	UTSF + 14.03	SLEEVED
19	23	41	8 - 0.67	PLUGGED
24	9	42	UTSF + 21.38	SLEEVED
25	8	79	LTPF + 5.16	PLUGGED
26	93	NQI	UTSF + 0.02	SLEEVED
33	105	OBS	LTSF + 5.00	PLUGGED
35	7	44	8 + 0.76	PLUGGED
35	10	NQI	8 + 0.76	PLUGGED
37	3	62	UTSF + 13.71	SLEEVED
38	105	55	UTSF + 3.16	SLEEVED
40	86	NQI	15 - 0.8	SLEEVED
40	97	46	3 + 13.84	PLUGGED
41	2	67	UTSF + 6.38	SLEEVED
41	48	NQI	15 + 18.77	SLEEVED
43	34	66	LTPF + 5.86	PLUGGED
43	98	NQI	7 + 22.27	PLUGGED
46	5	46	6 + 0.38	PLUGGED
49	2	56	UTSF + 8.01	SLEEVED
49	3	61	UTSF + 7.12	SLEEVED
		47	UTSF + 9.03	
49	84	42	1 + 27.32	PLUGGED
51	2	41	UTSF + 6.62	SLEEVED
52	7	NQI	12 + 28.91	PLUGGED
52	118	49	14 + 0.76	PLUGGED
54	121	58	14 + 0.74	PLUGGED
56	119	NQI	14 + 9.32	PLUGGED
58	51	74	LTPF + 12.1	PLUGGED
59	4	NQI	UTSF + 6.11	SLEEVED
59	107	NQI	10 - 0.82	PLUGGED
59	108	51	UTSF + 20.42	SLEEVED
60	2	58	UTSF + 10.44	SLEEVED
60	3	45	UTSF + 4.15	SLEEVED
60	32	NQI	UTSF + 1.91	SLEEVED
60	126	56	9 + 0.73	PLUGGED
60	128	NQI	11 + 7.75	PLUGGED
61	3	NQI	UTSF + 0.26	PLUGGED
62	3	82	UTSF + 3.82	SLEEVED

TABLE 2

"B" OTSG TUBE DEFECTS
(>=40% Throughwall Indications)

ROW	COL	% TW	LOCATION	DISPOSITION
63	1	49	UTSF + 5.7	SLEEVED
63	3	48	UTSF + 17.34	PLUGGED
63	10	43	UTSF + 6.08	SLEEVED
63	11	65	UTSF + 5.04	SLEEVED
63	19	51	10 + 3.62	PLUGGED
63	32	51	UTSF + 5.67	SLEEVED
63	112	NQI	LTPF + 16.42	PLUGGED
63	126	66	8 + 0.65	PLUGGED
64	2	53	UTSF + 7.64	SLEEVED
64	52	NQI	LTPF + 9.57	PLUGGED
65	2	49	UTSF + 6.01	SLEEVED
		57	UTSF + 7.6	
65	4	53	UTSF + 8.56	SLEEVED
66	24	43	UTSF + 7.25	SLEEVED
67	10	55	UTSF + 6.2	SLEEVED
67	24	80	UTSF + 7.45	SLEEVED
68	5	80	UTSF + 2.83	SLEEVED
		40	UTSF + 4.87	
		53	UTSF + 6.41	
68	10	67	UTSF + 4.83	SLEEVED
68	13	58	UTSF + 5.47	SLEEVED
68	17	53	UTSF + 9.7	SLEEVED
		70	UTSF + 2.74	
68	27	64	UTSF + 3.81	SLEEVED
		51	UTSF + 4.69	SLEEVED
68	47	NQI	15 + 22.2	SLEEVED
68	2	42	UTSF + 2.85	SLEEVED
		51	UTSF + 3.81	
68	4	NQI	UTSF + 3.87	SLEEVED
69	6	46	UTSF + 5.51	SLEEVED
70	10	40	UTSF + 4.29	SLEEVED
70	15	62	UTSF + 5.62	SLEEVED
70	16	60	UTSF + 4.07	SLEEVED
70	20	63	UTSF + 5.64	SLEEVED
70	28	55	10 + 0.72	PLUGGED
70	29	49	UTSF + 2.45	SLEEVED
70	32	41	UTSF + 6.02	SLEEVED
70	36	NQI	UTSF + 4.64	SLEEVED
71	8	51	UTSF + 7.16	SLEEVED
71	9	51	UTSF + 4.93	SLEEVED
71	11	56	UTSF + 4.07	SLEEVED
71	12	80	UTSF + 6.19	SLEEVED
71	16	71	UTSF + 5.54	SLEEVED
71	17	99	UTSF + 3.64	SLEEVED
71	21	62	UTSF + 11.23	SLEEVED
71	23	58	UTSF + 3.54	SLEEVED
71	25	70	UTSF + 4.03	SLEEVED
71	27	53	UTSF + 7.16	SLEEVED
		48	UTSF + 5.62	

TABLE 2

"B" OTSG TUBE DEFECTS
(>=40% Throughwall Indications)

ROW	COL	% TW	LOCATION	DISPOSITION
71	30	42	UTSF + 3.25	SLEEVED
71	31	62	UTSF + 2.9	SLEEVED
71	32	NQI	UTSF - 0.02	SLEEVED
		NQI	1 - 0.78	
71	34	50	UTSF + 6.73	SLEEVED
71	58	59	UTSF + 7.09	SLEEVED
		61	UTSF + 4.69	
72	2	41	UTSF + 8.13	SLEEVED
72	7	67	UTSF + 8.2	SLEEVED
72	11	46	UTSF + 5.16	SLEEVED
72	12	67	UTSF + 0.02	SLEEVED
72	17	63	UTSF + 8.18	SLEEVED
72	18	53	UTSF + 4.4	SLEEVED
		45	UTSF + 5.18	
72	19	4	UTSF + 14.73	SLEEVED
72	20	6	UTSF + 4.71	SLEEVED
		64	UTSF + 3.75	
		65	UTSF + 3.06	
72	22	55	UTSF + 5.45	SLEEVED
72	5	65	UTSF + 3.15	SLEEVED
72	26	67	UTSF + 3.51	SLEEVED
72	31	NQI	UTSF + 5.7	SLEEVED
72	32	53	UTSF + 7.15	SLEEVED
72	35	48	UTSF + 4.58	SLEEVED
72	36	42	UTSF + 19.91	SLEEVED
72	50	NQI	UTSF + 11.04	SLEEVED
72	53	40	UTSF + 5.28	SLEEVED
72	58	61	UTSF + 4.15	SLEEVED
		76	UTSF + 4.72	
73	7	61	UTSF + 1.78	SLEEVED
73	10	59	UTSF + 3.42	SLEEVED
		59	UTSF + 6.2	
73	11	50	UTSF + 4.11	SLEEVED
73	12	65	UTSF + 3.14	SLEEVED
73	13	49	UTSF + 4.4	SLEEVED
73	20	100	UTSF + 12.88	SLEEVED
73	21	47	UTSF + 5.93	SLEEVED
		44	UTSF + 3.77	
73	28	NQI	UTSF + 3.68	SLEEVED
73	32	49	15 + 43.89	SLEEVED
73	34	53	UTSF + 10.46	SLEEVED
73	40	47	UTSF + 4.87	SLEEVED
73	50	44	UTSF + 5.43	SLEEVED
		NQI	UTSF - 0.02	
73	57	NQI	UTSF - 0.02	SLEEVED
73	58	51	UTSF + 5.96	SLEEVED
73	64	41	UTSF + 5.04	SLEEVED
73	68	52	UTSF + 0.61	SLEEVED
74	20	43	UTSF + 3.62	SLEEVED

TABLE 2

"R" OTSG TUBE DEFECTS
(>=40% Throughwall Indications)

ROW	COL	% TW	LOCATION	DISPOSITION
74	32	47	UTSF + 4.84	SLEEVED
		50	UTSF + 3.33	
74	61	47	UTSF + 4.39	SLEEVED
75	46	50	UTSF + 4.69	SLEEVED
76	64	41	UTSF + 0.5	SLEEVED
76	65	45	13 + 0.6	PLUGGED
77	52	81	6 - 0.83	PLUGGED
78	9	58	UTSF + 4.52	SLEEVED
78	11	43	UTSF + 3.18	SLEEVED
78	16	44	UTSF + 4.29	SLEEVED
78	26	40	UTSF + 6.41	SLEEVED
		NQI	UTSF + 7.29	
79	3	56	UTSF + 8.18	SLEEVED
79	14	55	UTSF + 6.54	SLEEVED
79	16	42	UTSF + 5.17	SLEEVED
79	24	51	UTSF + 3.79	SLEEVED
79	30	59	UTSF + 4.11	SLEEVED
79	56	55	UTSF + 1.84	SLEEVED
79	65	57	UTSF + 4.06	SLEEVED
80	9	58	UTSF + 3.46	SLEEVED
		71	UTSF + 8.38	
80	14	48	UTSF + 3.81	SLEEVED
		45	UTSF + 3.4	
80	17	40	UTSF + 4.49	SLEEVED
80	20	50	UTSF + 4.91	SLEEVED
80	21	50	UTSF + 3.9	SLEEVED
		42	UTSF + 3.54	
		85	UTSF + 0	
80	23	73	UTSF + 4.25	SLEEVED
80	25	46	UTSF + 5.63	SLEEVED
		58	UTSF + 4.45	
80	26	46	UTSF + 4.39	SLEEVED
		45	UTSF + 6.79	
		54	UTSF + 3.26	
80	27	54	UTSF + 5.12	SLEEVED
		47	UTSF + 4.01	
80	32	54	UTSF + 2.37	SLEEVED
80	34	57	UTSF + 7.91	SLEEVED
80	54	73	UTSF + 6.22	SLEEVED
		53	UTSF + 5.28	
90	63	55	UTSF + 6.53	SLEEVED
80	64	88	7 + 0.68	PLUGGED
80	68	NQI	UTSF + 0.11	SLEEVED
81	10	61	UTSF + 1.27	SLEEVED
81	15	58	UTSF + 4.76	SLEEVED
		54	UTSF + 4.44	
		62	UTSF + 2.78	
81	21	86	UTSF + 4.58	SLEEVED
81	25	NQI	UTSF + 16.21	SLEEVED

TABLE 2

"B" OTSG TUBE DEFECTS
 (>=40% Throughwall Indications)

ROW	COL	% TW	LOCATION	DISPOSITION
		57	UTSF + 5.21	
81	26	64	UTSF + 0.8	SLEEVED
81	51	53	UTSF + 6.01	SLEEVED
81	53	56	10 - 0.68	PLUGGED
		47	UTSF + 7.05	
		53	UTSF + 7.43	
81	55	63	UTSF + 4.3	SLEEVED
81	69	48	UTSF + 3.48	SLEEVED
81	90	NQI	11 + 12.65	PLUGGED
82	3	84	UTSF + 3.82	SLEEVED
82	12	42	UTSF + 6.5	SLEEVED
82	12	40	UTSF + 3.64	SLEEVED
82	15	55	UTSF + 8.78	SLEEVED
		66	UTSF + 6.62	
		61	UTSF + 3.47	
82	16	52	UTSF + 7.89	SLEEVED
		56	UTSF + 7.13	
82	18	42	UTSF + 4.49	SLEEVED
		55	UTSF + 3.4	
82	22	48	UTSF + 6.43	SLEEVED
82	28	47	UTSF + 4.82	SLEEVED
82	33	57	UTSF + 2.3	SLEEVED
		55	UTSF + 3.97	
		55	UTSF + 3.52	
		44	UTSF + 1.65	
82	34	40	UTSF + 7.35	SLEEVED
82	36	69	LTPF + 12.86	PLUGGED
82	42	44	UTSF + 6.2	SLEEVED
82	68	51	UTSF + 4.28	SLEEVED
83	8	66	UTSF + 5.18	SLEEVED
83	9	74	UTSF + 3.89	SLEEVED
83	13	NQI	UTSF + 3.09	SLEEVED
83	16	77	UTSF + 8.85	SLEEVED
		51	UTSF + 3.54	
83	19	61	UTSF + 2.61	SLEEVED
83	22	72	UTSF + 1.77	SLEEVED
83	24	52	UTSF + 4.05	SLEEVED
		54	UTSF + 6.24	
83	25	71	UTSF + 5.75	SLEEVED
83	26	46	UTSF + 3.57	SLEEVED
83	27	58	UTSF + 3.18	SLEEVED
		58	UTSF + 5.29	
83	29	75	UTSF + 3.43	SLEEVED
83	69	53	UTSF + 8.87	SLEEVED
83	70	NQI	9 - 2.97	PLUGGED
84	6	71	UTSF + 0.39	SLEEVED
84	11	40	UTSF + 3.16	SLEEVED
84	14	63	UTSF + 2.24	SLEEVED
84	22	NQI	UTSF + 10.57	SLEEVED

TABLE 2

"B" OTSG TUBE DEFECTS
 (>=40% Throughwall Indications)

ROW	COL	% TW	LOCATION	DISPOSITION
84	24	44	UTSF + 2.97	SLEEVED
85	3	45	UTSF + 6.46	SLEEVED
		60	UTSF + 7.6	
85	8	54	UTSF + 5.61	SLEEVED
85	22	52	UTSF + 5.32	SLEEVED
85	23	50	UTSF + 1.58	SLEEVED
85	24	53	UTSF + 2.13	SLEEVED
		52	UTSF + 1.26	
		40	UTSF + 6.28	
86	6	65	UTSF + 4.96	SLEEVED
87	28	46	UTSF + 5.68	SLEEVED
87	51	51	UTSF + 6.1	SLEEVED
88	3	NQI	UTSF + 0.4	SLEEVED
88	21	61	UTSF + 12.34	PLUGGED
88	98	43	UTSF + 4.27	SLEEVED
89	4	40	UTSF + 4.61	SLEEVED
		71	UTSF + 8.06	
89	24	43	UTSF + 5.21	SLEEVED
90	3	56	UTSF + 4.27	SLEEVED
90	8	69	UTSF + 8.7	SLEEVED
90	9	41	UTSF + 3.47	SLEEVED
90	25	43	UTSF + 8.41	SLEEVED
90	35	73	15 + 200	SLEEVED
91	3	50	UTSF + 2.98	SLEEVED
92	4	77	UTSF + 3.69	SLEEVED
92	24	46	UTSF + 5.45	SLEEVED
92	27	72	UTSF + 19.51	SLEEVED
93	28	NQI	UTSF + 17.27	SLEEVED
94	2	58	UTSF + 10.12	SLEEVED
		54	UTSF + 3.5	
		47	UTSF + 0.76	
94	3	72	UTSF + 5.45	SLEEVED
		60	UTSF + 3.85	
94	4	41	UTSF + 4.17	SLEEVED
95	3	40	UTSF + 9.34	SLEEVED
		42	UTSF + 8.84	
96	2	45	UTSF + 4.57	SLEEVED
		42	UTSF + 3.6	
97	1	58	UTSF + 4.04	SLEEVED
		59	UTSF + 1.58	
97	2	57	UTSF + 3.68	SLEEVED
97	4	53	UTSF + 8.32	SLEEVED
97	10	41	1 + 4.43	PLUGGED
97	99	72	UTSF + 0.94	SLEEVED
97	103	42	10 + 23.09	PLUGGED
98	2	50	UTSF + 6.08	SLEEVED
		44	UTSF + 4.28	
		54	UTSF + 2.48	
98	7	NQI	LTPF + 7.99	PLUGGED

TABLE 2

"B" OTSG TUBE DEFECTS
 (>=40% Throughwall Indications)

ROW	COL	% TW	LOCATION	DISPOSITION
99	7	NQI	15 + 38.42	SLEEVED
100	17	NQI	10 + 32.32	PLUGGED
101	54	NQI	13 + 31.46	PLUGGED
102	13	70	UTSF + 13.93	SLEEVED
102	81	NQI	9 + 15.54	PLUGGED
102	93	77	1 + 7.42	PLUGGED
103	2	86	UTSF + 6.43	SLEEVED
103	52	76	13 - 0.25	PLUGGED
104	33	42	UTSF + 14.22	SLEEVED
105	1	NQI	UTSF + 3.44	SLEEVED
105	2	62	UTSF + 4.48	PLUGGED
		44	UTSF + 3.59	
		NQI	LTPF + 22.35	
107	46	75	14 + 27.35	PLUGGED
112	6	NQI	15 + 42.37	SLEEVED
112	22	NQI	UTSF + 16.34	SLEEVED
112	117	NQI	6 + 6.73	PLUGGED
113	28	NQI	UTSF + 15.28	SLEEVED
115	5	41	UTSF + 5.69	SLEEVED
		44	UTSF + 1.28	
116	5	NQI	14 + 1.31	PLUGGED
116	46	NQI	10 + 7.03	PLUGGED
119	3	57	UTSF + 5.33	SLEEVED
119	32	NQI	6 + 0.87	PLUGGED
119	104	65	9 + 0.71	PLUGGED
120	3	45	UTSF + 3.97	SLEEVED
120	4	66	UTSF + 4.13	SLEEVED
		45	UTSF + 3.6	
120	6	38	11 + 4.44	PLUGGED
121	17	40	UTSF + 3.46	SLEEVED
122	2	57	UTSF + 4.84	SLEEVED
122	4	40	UTSF + 5.55	SLEEVED
124	13	NQI	UTSF + 13.53	SLEEVED
124	27	NQI	13 - 3.25	PLUGGED
125	49	68	UTSF - 1.08	PLUGGED
126	49	OBS	UTSF	PLUGGED
127	47	OBS	UTSF	PLUGGED
128	52	NQI	LTSF + 13.27	PLUGGED
128	89	NQI	UTSF + 14.56	SLEEVED
129	88	NQI	UTSF + 10.11	SLEEVED
130	21	NQI	10 + 10.35	PLUGGED
131	4	46	UTSF + 3.62	SLEEVED
133	25	41	9 + 35.51	PLUGGED
134	42	NQI	9 + 10.92	PLUGGED
135	3	NQI	UTSF + 4.53	SLEEVED
135	9	NQI	UTSF + 4.15	SLEEVED
135	12	67	14 + 17.17	PLUGGED
137	13	82	UTSF + 12.86	SLEEVED
137	56	NQI	8 + 13.71	PLUGGED

TABLE 2

"B" OTSG TUBE DEFECTS
 (>=40% Throughwall Indications)

ROW	COL	% TW	LOCATION	DISPOSITION
138	24	NQI	15 + 11.53	SLEEVED
		NQI	15 + 13.39	
139	2	OBS	14	PLUGGED
140	7	56	11 + 29.9	PLUGGED
141	22	40	15 + 24.35	SLEEVED
142	1	NQI	10 + 0.65	PLUGGED
142	63	NQI	1 + 8.44	PLUGGED
147	5	NQI	UTSF + 16.61	SLEEVED
147	8	NQI	UTSF + 6.86	SLEEVED
148	4	NQI	UTSF + 4.26	SLEEVED
149	7	NQI	6 - 0.83	PLUGGED
150	1	NQI	8 + 0.62	PLUGGED

LEGEND:

- UTSF - UPPER TUBESHEET SECONDARY FACE
- LTSF - LOWER TUBESHEET SECONDARY FACE
- UTPF - UPPER TUBESHEET PRIMARY FACE
- LTPF - LOWER TUBESHEET PRIMARY FACE
- NQI - NON-QUANTIFIABLE INDICATION
- OBS - OBSTRUCTED TUBE
- % TW - % THROUGHWALL DEGRADATION
- UTSF + X.X - DEFECT LOCATED X.X INCHES ABOVE
THE UPPER TUBESHEET SECONDARY FACE
- 12 + X.X - DEFECT LOCATED X.X INCHES ABOVE THE
12th TUBE SUPPORT PLATE

TABLE 3

"A" OTSG TUBE DEGRADATION
(20-39% Throughwall Indications)

ROW	TUBE	% TW	LOCATION	DISPOSITION (IF ANY)
4	5	35	6 + 35.44	
4	28	20	15 + 21.05	
5	20	20	7 + 25.15	
6	27	26	10 + 1.32	
6	44	28	5 + 29.75	
7	1	20	LTPF + 3.69	
7	6	28	UTSF + 16.75	
7	52	37	15 + 40.16	
8	27	28	3 + 23.39	
8	39	37	UTSF + 7.01	
9	32	37	UTSF + 7.82	
9	38	23	15 + 24.58	
9	60	32	15 + 0.86	
10	50	27	UTSF + 7.88	
11	30	28	UTSF + 7.09	
12	24	31	UTSF + 6.27	
12	40	38	UTSF + 6.94	
12	70	20	10 + 0.67	
13	25	38	UTSF + 6.94	
14	26	31	UTSF + 8.53	
16	27	20	UTSF + 16.13	
20	8	24	15 + 24.98	
20	57	27	12 + 4.19	
22	50	39	LTSF + 21.22	
23	63	23	13 + 18.23	
24	95	27	UTSF + 14.75	PLUGGED
		27	UTSF + 13.28	
25	51	27	1 + 3.85	
26	55	25	UTSF + 7.01	
26	95	36	UTSF + 16.08	
27	31	28	UTSF + 4.85	
		34	UTSF + 5.76	
27	100	38	7 + 0.53	
29	5	23	UTSF + 6.16	
29	49	25	15 + 31.27	
		25	15 + 29.42	
29	53	23	UTSF + 3.77	
29	67	34	UTSF + 15.82	
29	84	22	4 + 33.72	
31	106	24	UTSF + 11.97	
32	11	29	13 + 15.9	
32	94	38	UTSF + 7.75	
33	101	24	UTSF + 13.42	
		30	UTSF + 14.24	

TABLE 3

"A" OTSG TUBE DEGRADATION
(20-39% Throughwall Indications)

ROW	TUBE	% TW	LOCATION	DISPOSITION (IF ANY)
36	104	32	UTSF + 8.34	PLUGGED
37	70	29	UTSF + 14.58	
38	10	35	UTSF + 3.63	
38	15	34	UTSF + 7.23	
39	11	35	10 + 16.45	
39	47	37	UTSF + 5.45	
39	89	25	4 + 26.67	
		36	4 + 10.46	
40	36	21	UTSF + 4.32	
40	50	26	15 + 6.13	
41	3	35	UTSF + 11.76	
42	101	21	12 + 33.15	
43	22	34	UTSF + 7.62	PLUGGED
43	107	32	UTSF + 8.32	
43	116	33	UTSF + 5.69	SLEEVED
44	108	23	UTSF + 9.87	
45	3	21	UTSF + 8.09	
45	119	38	UTSF + 9.97	
46	87	32	3 + 16.14	
48	110	24	6 + 27.72	
49	54	30	11 + 30.8	
51	20	21	UTSF + 17.01	PLUGGED
51	21	38	UTSF + 10.62	
51	37	39	17 + 17.3	
51	95	29	12 + 11.1	
51	116	30	UTSF + 4.94	
51	118	33	UTSF + 3.93	PLUGGED
51	119	22	UTSF + 8.36	
52	52	23	UTSF + 18.03	
53	109	27	UTSF + 8.8	
53	115	37	UTSF + 16.74	
55	12	31	UTSF + 15.41	
55	123	29	UTSF + 10.5	
56	124	31	UTSF + 10.31	
56	125	37	UTSF + 7.77	
57	12	29	UTSF + 5.27	
57	120	25	2 + 19.4	
57	127	35	UTSF + 10.55	PLUGGED
		38	UTSF + 9.25	
59	8	23	UTSF + 10.39	
60	2	34	UTSF + 7.38	
60	121	21	9 + 5.48	
60	124	34	UTSF + 9.82	
61	11	22	UTSF + 9.07	
61	40	38	UTSF + 6.74	
61	111	27	14 + 2.11	

TABLE 3

"A" OTSG TUBE DEGRADATION
(20-39% Throughwall Indication)

ROW	TUBE	% TW	LOCATION	DISPOSITION (IF ANY)
		39	UTSF + 4.05	
62	7	27	UTSF + 8.89	PLUGGED
		39	UTSF + 7.57	
64	1	26	15 + 0.96	SLEEVED
65	73	27	2 + 12.04	
65	77	37	6 + 0.52	
65	80	22	10 + 26.88	
65	122	23	LTSF + 23.33	
66	123	29	UTSF + 7.65	
67	120	24	UTSF + 4.33	
68	16	36	UTSF + 12.08	
68	105	26	LTPF + 14.8	
		36	LTPF + 12.93	
69	9	37	UTSF + 6.62	SLEEVED
69	10	38	UTSF + 7.44	
69	16	20	UTSF + 2.98	
69	30	33	UTSF + 11.5	
69	40	22	UTSF + 18.74	
		38	UTSF + 9.62	
69	54	25	UTSF + 14.24	
69	74	20	UTSF + 19	
69	106	21	UTSF + 14.63	PLUGGED
69	117	20	UTSF + 5.88	
70	14	32	UTSF + 5.32	SLEEVED
70	21	20	UTSF + 8.62	
70	26	31	UTSF + 6.66	
70	32	27	UTSF + 5.98	SLEEVED
72	13	34	UTSF + 4.73	SLEEVED
72	22	20	UTSF + 0.53	SLEEVED
72	106	33	UTSF + 12.14	
73	9	32	UTSF + 7.67	SLEEVED
73	124	34	LTSF + 40.16	
74	64	35	UTSF + 0.76	
74	112	21	1 + 12.3	
74	121	38	15 + 5.47	
75	111	28	14 + 7.15	
77	88	26	UTSF + 10.96	
77	100	38	4 + 17.47	
79	5	33	UTSF + 4.08	
80	15	33	UTSF + 6.72	SLEEVED
80	62	35	UTSF + 15.65	
81	24	31	UTSF + 17.66	PLUGGED
81	56	32	UTSF + 10.78	
82	31	29	UTSF + 16.77	
83	27	20	UTSF + 10.68	PLUGGED
83	85	20	8 - 1.06	

TABLE 3

"A" OTSG TUBE CORROSION
(20-39% Throughwall Corrosion Indications)

ROW	TUBE	% TW	LOCATION	DISPOSITION (IF ANY)
83	108	22	5 + 14.8	
84	35	39	UTSF + 12.31	
84	46	35	UTSF + 18.2	PLUGGED
85	13	29	UTSF + 7.17	
86	110	21	LTSF + 21.3	
86	130	24	UTSF + 3.32	
87	79	36	1 + 31.32	
89	52	37	UTSF + 18.74	
92	119	30	UTSF + 6.13	
93	1	20	UTSF + 1.52	SLEEVED
94	18	35	UTSF + 9.95	
95	54	24	UTSF + 14.87	
96	54	23	UTSF + 10.99	
97	53	31	UTSF + 11.32	
		34	LTPF + 7.22	
98	7	31	UTSF + 16.67	
98	122	35	UTSF + 10.47	
99	60	22	5 + 0.47	
99	123	29	UTSF + 9.38	
100	16	23	LTSF + 30.29	
101	26	22	10 + 20.15	
102	95	35	14 + 0.35	
102	116	25	6 + 7.31	
		28	4 + 12.95	
		28	4 + 23.18	
		33	8 + 5.95	
104	15	33	UTSF + 7.78	
		33	UTSF + 10.89	
104	50	28	3 + 30.92	
105	3	27	UTSF + 13.14	
		38	UTSF + 8.55	
105	9	38	UTSF + 5.1	
105	21	30	15 + 31	
109	28	23	7 + 21.91	
110	11	36	15 + 20.83	
110	47	39	UTSF + 17.63	
110	68	25	2 + 25.45	
110	112	30	UTSF + 11.15	PLUGGED
111	107	32	UTSF + 5.95	
112	38	33	UTSF + 0.85	
114	44	22	UTSF + 5.5	
114	94	29	UTSF + 3.26	
114	106	30	UTSF + 4.61	
		36	UTSF + 3.44	
115	112	31	UTSF + 10.43	SLEEVED
116	106	24	UTSF + 6.31	

TABLE 3

"A" OTSG TUBE DEGRADATION
(20-39% Throughwall Indications)

ROW	TUBE	% TW	LOCATION	DISPOSITION (IF ANY)
117	13	23	UTSF + 7.68	
117	14	34	12 + 25.61	PLUGGED
117	15	33	3 + 25.97	
117	99	24	UTSF + 3.53	
117	106	38	UTSF + 4.89	SLEEVED
118	14	38	8 + 0.8	
118	53	35	LTPF + 4.01	
118	63	27	3 + 6.52	
119	34	22	UTSF + 17.08	
120	96	21	UTSF 17.35	
		26	UTSF 16.22	
120	99	36	UTSF + 17.99	
120	106	26	UTSF 3.94	
121	105	32	UTSF + 5.17	SLEEVED
122	87	23	UTSF 17.47	
122	101	26	UTSF 10.16	
123	9	22	UTSF 7.47	
123	47	25	UTSF 14.65	
123	61	21	UTSF 9.16	
124	12	34	UTSF + 11.06	
126	94	24	UTSF 7.07	
126	98	31	UTSF + 9.18	PLUGGED
127	49	25	9 4.72	
127	87	33	3 + 4.49	PLUGGED
128	89	21	15 8.23	
130	3	22	UTSF 10.61	
130	54	39	2 + 34.64	
131	58	21	15 0.84	
134	31	29	UTSF 8.06	
135	53	26	LTSF 10.69	
136	2	28	UTSF 6.54	
136	34	36	5 + 2.56	
137	5	30	LTPF + 7.2	
137	34	35	5 + 2.46	
138	31	39	UTSF + 4.87	
138	72	26	UTSF 6.99	
139	21	25	UTSF 8.81	SLEEVED
139	23	26	UTSF 4.8	SLEEVED
139	31	30	UTSF + 5.76	
139	34	34	UTSF + 5.53	
140	29	32	UTSF + 5.21	
142	44	39	11 + 29.47	
144	26	20	2 21.83	
		20	6 22.01	
		23	2 34.18	
		25	2 19.92	

TABLE 3

"A" OTSG TUBE DEGRADATION
(20-39# Throughwall Indications)

ROW	TUBE	% TW	LOCATION	DISPOSITION (IF ANY)
		34	2 + 27.82	
145	24	31	UTSF + 6.71	
146	48	16	UTSF 7.76	
147	19	39	LTSF + 3.3	
147	42	32	UTSF + 11.16	PLUGGED
148	6	33	UTSF + 6.9	
148		33	UTSF + 8.39	PLUGGED

LEGEND:

UTSF - UPPER TUBESHEET SECONDARY FACE
 LTSF - LOWER TUBESHEET SECONDARY FACE
 UTPF - UPPER TUBESHEET PRIMARY FACE
 LTPF - LOWER TUBESHEET PRIMARY FACE
 NQI - NON-QUANTIFIABLE INDICATION
 % TW - % THROUGHWALL DEGRADATION
 UTSF + X.X - DEFECT LOCATED X.X INCHES ABOVE
 THE UPPER TUBESHEET SECONDARY FACE
 12 + X.X - DEFECT LOCATED X.X INCHES ABOVE THE
 12th TUBE SUPPORT PLATE

TABLE 4

"B" OTSG TUBE DEGRADATION
(20-39% Throughwall Indications)

		% TW	LOCATION	DISPOSITION (IF ANY)
	4	27	11 + 0.65	
	41	26	11 + 0.65	
	3	39	9 - 0.81	
16		24	UTSF + 13.8	
18	1	25	3 - 0.69	
26	8	23	UTSF + 5.57	
31	12	35	15 + 30.46	
34	2	34	UTSF + 2.49	SLEEVED
42	4	31	8 + 0.31	
44	116	23	LTPF + 9.32	
45	44	31	3 + 7.87	
47	9	37	5 - 0.62	
50	93	38	12 + 27.51	
51	2	38	UTSF + 4.12	SLEEVED
53	4	20	UTSF + 5.64	
56	121	31	4 + 36.48	
58	87		UTSF + 6.55	
59	11	26	9 + 6.71	
60	37	20	UTSF + 1.73	
61	3	27	UTSF + 0.3	PLUGGED
62	3	22	UTSF + 4.02	SLEEVED
62	4	30	UTSF + 5.43	
62	75	27	LTPF + 11.77	
63	11	36	UTSF + 5.5	SLEEVED
		39	UTSF + 4.99	
63	50	24	6 + 4.89	
65	2	28	UTSF + 3.53	SLEEVED
		35	UTSF + 3.83	
65	7	23	UTSF + 6.06	
66	24	38	9 - 0.76	SLEEVED
66	51	27	LTPF + 7.64	
67	6	32	UTSF + 7.65	SLEEVED
67	13	30	UTSF + 10.19	
67	14	21	15 + 5.39	
68	15	23	15 + 8.67	
68	69	11	LTPF + 22.23	
69	2	22	UTSF + 3.34	SLEEVED
69	11	25	UTSF + 5.38	
69	26	36	UTSF + 7.91	
70	16	32	UTSF + 4.36	SLEEVED
70	19	36	7 + 3.1	
70	27	38	UTSF + 4.64	
70	36	27	UTSF + 6.4	SLEEVED
71	18	22	5 + 12	
71	31	38	UTSF + 3.23	SLEEVED
71	34	25	UTSF + 5.53	SLEEVED

TABLE 4

"B" OTSG TUBE DEGRADATION
(20-39% Throughwall Indications)

ROW	COL	% TW	LOCATION	DISPOSITION (IF ANY)
71	58	38	UTSF + 5.42	SLEEVED
72	2	24	UTSF + 6.93	SLEEVED
		32	UTSF + 6.05	
72		24	UTSF + 4.43	SLEEVED
72	42	36	5 + 9	SLEEVED
72	14	38	UTSF + 2.99	
72	25	28	UTSF + 4.03	SLEEVED
		35	UTSF + 5.49	
72	29	39	UTSF + 2.68	
73	11	31	UTSF + 5.16	SLEEVED
		38	UTSF + 5.8	
73	12	25	UTSF + 4.81	SLEEVED
73	23	20	UTSF + 3.26	SLEEVED
73	28	29	UTSF + 4.24	SLEEVED
73	30	31	UTSF + 10.94	
73	31	33	10 - 0.83	
73	32	21	15 + 43.89	SLEEVED
73	57	29	7 + 12	SLEEVED
73	58	35	UTSF + 6.09	SLEEVED
75	44	37	UTSF + 2.69	
75	46	34	UTSF + 4.2	SLEEVED
76	122	20	LTPF + 21.59	
77	57	37	UTSF + 5.37	
78	71	37	UTSF + 5.93	SLEEVED
78	10	20	UTSF + 7.67	SLEEVED
78	22	27	UTSF + 4.28	SLEEVED
78	24	32	4 - 0.71	SLEEVED
78	26	24	UTSF + 4.01	SLEEVED
78	27	38	UTSF + 3.07	SLEEVED
78	37	38	UTSF + 7.67	
78	58	30	UTSF + 3.11	
79	3	27	UTSF + 6.83	SLEEVED
79	7	22	8 + 0.6	
79	14	23	UTSF + 3.97	SLEEVED
79	18	24	UTSF + 4.47	SLEEVED
79	26	27	UTSF + 3.27	SLEEVED
79	53	33	UTSF + 5.31	
80	18	31	UTSF + 5.89	
80	34	21	UTSF + 8.07	SLEEVED
80	54	29	UTSF + 7.4	SLEEVED
80	111	23	2 + 0.45	
81	13	34	UTSF + 4.63	
81	69	39	UTSF + 1.34	SLEEVED
82	10	35	UTSF + 3.01	SLEEVED
82	17	30	UTSF + 1.37	
82	18	26	UTPF - 1.28	SLEEVED
82	33	34	UTSF + 4.45	SLEEVED

TABLE 4

"B" OTSG TUBE DEGRADATION
(20-39% Throughwall Indications)

ROW	COL	% TW	LOCATION	DISPOSITION (ANY)
82	56	39	UTSF + 7.26	
82	68	28	UTSF + 9.37	SLEEVED
83	17	21	UTSF + 2.59	
84	14	37	LTPF + 18.4	SLEEVED
84	22	20	UTSF + 4.53	SLEEVED
84	24	27	UTSF + 0.29	SLEEVED
84	30	38	UTSF + 3.56	
85	19	34	UTSF + 19.94	
85	23	39	UTSF + 5.29	SLEEVED
85	24	21	UTSF + 2.67	SLEEVED
86	25	37	UTSF + 5.6	
89	4	24	UTSF + 6.95	SLEEVED
		30	UTSF + 5.74	
		34	UTSF + 7.77	
89	10	34	UTSF + 3.04	
90	1	34	UTSF + 4.29	SLEEVED
90	38	22	UTSF + 15.18	
91	3	35	UTSF + 2.05	SLEEVED
91	112	27	8 + 7	
94	2	24	UTSF + 7.44	SLEEVED
95	3	26	UTSF + 6.96	SLEEVED
		36	UTSF + 5.01	
96	2	37	UTSF + 3.13	SLEEVED
96	3	29	UTSF + 0.64	
96	8	30	UTSF + 5.62	
96	17	28	13 + 23.99	
96	89	26	12 + 19.33	
98	2	25	UTSF + 4.78	SLEEVED
100	11	32	UTSF + 2.61	
102	9	23	UTSF + 5.36	
103	19	34	UTSF + 4.22	
105	22	30	8 + 17.15	
106	17	35	UTSF + 5.04	
106	24	21	UTSF + 13.43	
107	1	22	LTSF + 26.45	
111	20	37	LTSF + 2.17	
116	19	29	3 + 5.85	
117	4	26	UTSF + 4.91	
117	98	29	LTSF + 20.13	
118	2	28	8 + 0.68	
120	4	39	UTSF - 0.17	SLEEVED
120	30	21	4 + 27.09	
122	88	21	12 + 11.63	
123	2	23	14 + 2.22	
128	2	36	UTSF + 4.81	
129	1	32	4 + 20.98	
133	25	28	9 + 33.75	PLUGGED

TABLE 4

"B" OTSG TUBE DEGRADATION
 (20-39% Throughwall Indications)

ROW	COL	% TW	LOCATION	DISPOSITION (IF ANY)
141	20	29	LTPF + 6.02	
141	23	25	15 + 7.73	
144	18	34	UTSF + 4.64	
144	49	25	11 + 33.89	
149	1	29	8 + 0.61	

LEGEND:

UTSF - UPPER TUBESHEET SECONDARY FACE
 LTSF - LOWER TUBESHEET SECONDARY FACE
 UTPF - UPPER TUBESHEET PRIMARY FACE
 LTPF - LOWER TUBESHEET PRIMARY FACE
 NQI - NON-QUANTIFIABLE INDICATION
 % TW - % THROUGHWALL DEGRADATION
 UTSF + X.X - DEFECT LOCATED X.X INCHES ABOVE
 THE UPPER TUBESHEET SECONDARY
 12 + X.X - DEFECT LOCATED X.X INCHES ABOVE
 12th TUBE SUPPORT PLATE

TABLE 5

"A" OTSG PREVENTIVE SLEEVED TUBES

<u>ROW</u>	<u>TUBE</u>	<u>ROW</u>	<u>TUBE</u>
66	7	75	30
70	14	75	33
71	6	75	35
71	7	75	38
71	8	75	43
71	9	75	55
72	9	75	58
72	13	75	63
73	1	77	28
73	3	77	29
73	5	77	30
73	7	77	31
73	8	77	32
73	11	77	33
73	12	77	35
73	15	77	44
73	19	78	8
73	21	78	9
73	27	78	10
74	9	78	11
74	10	78	12
74	11	78	18
74	12	78	19
74	13	78	20
74	14	78	21
74	15	78	22
74	16	78	23
74	17	78	24
74	18	78	33
74	19	83	12
74	20	84	08
74	21	84	10
74	22		
74	23		
74	24		
74	25		
74	26		
74	27		
74	28		
74	29		
74	31		
75	28		
75	29		

TABLE 6

"8" OTSG PREVENTIVE SLEEVED TUBES

<u>ROW</u>	<u>TUBE</u>	<u>ROW</u>	<u>TUBE</u>
61	2	74	22
64	1	74	23
64	3	74	24
65	1	74	25
66	1	74	27
66	3	74	28
66	4	74	29
67	3	75	29
67	4	75	30
67	5	75	31
67	6	75	32
68	1	75	33
68	3	75	34
68	4	75	35
68	6	75	45
68	7	77	29
69	1	77	30
69	5	77	31
69	7	77	32
69	8	77	33
69	9	77	34
70	8	77	35
70	9	78	10
71	6	78	13
71	7	78	15
72	1	78	18
72	4	78	19
72	8	78	20
72	9	78	22
72	10	78	23
73	1	78	24
73	3	78	25
73	23	78	27
74	10	78	28
74	11	78	29
74	13	79	1
74	15	79	2
74	16	79	4
74	17	79	5
74	18	79	13
74	19	79	17
74	21	79	18

TABLE 6

"B" OTSG PREVENTIVE SLEEVED TUBES

<u>ROW</u>	<u>TUBE</u>
79	29
80	4
80	6
81	1
81	7
81	8
81	9
82	1
82	4
82	5
82	7
82	8
82	9
82	10
83	1
83	4
83	5
83	6
84	3
84	4
84	5
84	7
85	1
85	4
85	6
86	1
86	4
86	5
87	4
88	1
88	4
89	1
89	3
90	1

TABLE 7

SUMMARY OF TUBES THAT HAD PLUGS REPLACED

As a summary, the following tubes had plugs replaced during 1R10:

<u>Row - Tube</u>	<u>OTSG</u>	<u>Hot/Cold Leg</u>	<u>Heat Number</u>	<u>Disposition</u>
59 - 2	A	Hot Leg	NX2960	690 Sleeve
67 - 23	A	Hot Leg	NX2960	690 Sleeve
77 - 9	A	Hot Leg	W945-1	690 Rolled Plug
79 - 5	A	Hot Leg	NX2960	690 Sleeve
79 - 11	A	Hot Leg	W945-1	690 Rolled Plug
95 - 13	A	Hot Leg	NX2960	690 Sleeve
95 - 128	A	Hot Leg	W945-1	690 Rolled Plug
97 - 126	A	Hot Leg	W945-1	690 Rolled Plug
98 - 127	A	Hot Leg	W945-1	690 Rolled Plug
149 - 34	A	Hot Leg	W945-1	690 Rolled Plug