

Duke Power Company  
McGuire Nuclear Generation Department  
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Huntersville, NC 28078-8985

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**DUKE POWER**

September 23, 1994

U. S. Nuclear Regulatory Commission  
Document Control Desk  
Washington, D.C. 20555

Subject: McGuire Nuclear Station  
Unit 1 Steam Generators  
August 1994 EOC-9 Refueling Outage  
NRC Inspection Reports:  
F\*, 15-Day and 12-Month

Pursuant to Technical Specifications 3/4.4.5.5, part a, b and c, the following information is submitted:

- a. The following information is submitted regarding F\* tubes: (The attached lists identify the F\* tubes, their location, and the size of degradation.)

<u>Steam Generator</u>	<u>Attachment</u>
A	1
B	2
C	3
D	4

- b. The following quantities of tubes were removed from service or repaired: (The tubes are identified in the attached lists.)

<u>Steam Generator</u>	<u>Attachment</u>
A	5
B	6
C	7
D	8

- c. The following quantity of tubes were inspected from either side of the generator:

<u>Steam Generator</u>	<u>Attachment</u>
A	3983
B	4070
C	4147
D	3957

300066  
9409300028 940923  
PDR ADGCK 05000369  
PDR

JEK

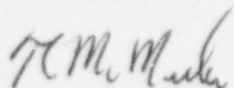
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- d. The following information is submitted concerning tube indications of imperfections. (The attached lists identify the tubes with imperfections, their locations, and their size.)

<u>Steam Generator</u>	<u>Attachment</u>
A	9
B	10
C	11
D	12

Questions or problems should be directed to Kay Crane, Regulatory Compliance at (704) 875-4306.

Very truly yours,



T. C. McMeekin, Vice President  
McGuire Nuclear Station

Attachments



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cc: Mr. Victor Nerses, Project Manager  
Office of Nuclear Reactor Regulation  
U. S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Mr. S. D. Ebnetter, Regional Administrator  
U. S. Nuclear Regulatory Commission  
Region II  
101 Marietta Street, NW - Suite 2900  
Atlanta, Georgia 30323

Mr. George Maxwell  
Senior Resident Inspector  
McGuire Nuclear Site

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ATTACHMENT #1 - F\*  
 F\* QUERY

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1
Bobbin	4	93	IDI	77	9.44	P 1	78	TE-HL	+11.86
Bobbin			IDI	94	24.23	P 1	54	TE-HL	+16.84
Bobbin	5	62	IDI	84	6.04	P 1	74	TE-HL	+15.72
Bobbin	5	108	IDI	84	4.20	P 1	79	TE-HL	+15.72
Bobbin	6	59	IDI	99	2.33	P 1	27	TE-HL	+10.45
Bobbin	9	63	IDI	52	5.27	P 1	99	TE-HL	+16.83
H/L Tubesheet			SAI		0.79	1	28	TTS-HL	-4.08
Bobbin	10	25	IDI	93	6.71	P 1	39	TE-HL	+17.03
H/L Tubesheet			MAI		1.21	1	25	TTS-HL	-4.28
H/L Tubesheet	12	24	MAI		1.09	1	36	TTS-HL	-4.52
Bobbin	13	46	IDI	61	21.02	P 1	19	TE-HL	+8.96
Bobbin			IDI	99	26.85	P 1	32	TE-HL	+13.79
Bobbin	13	48	IDI	86	10.39	P 1	55	TE-HL	+2.38
H/L Tubesheet	13	50	VOL		0.53	1	137	TTS-HL	-3.02
Bobbin	15	28	IDI	66	28.33	P 1	23	TE-HL	+3.93
Bobbin			IDI	97	31.68	P 1	34	TE-HL	+8.66
Bobbin	15	68	IDI	94	18.42	P 1	43	TE-HL	+1.52
Bobbin	16	84	IDI	58	12.83	P 1	18	TE-HL	+3.73
Bobbin	16	104	NQI		11.67	P 1	164	TE-HL	+3.45
Bobbin	18	92	NQI		7.41	P 1	160	TE-HL	+13.87
Bobbin	19	105	NQI		6.39	P 1	182	TE-HL	+7.34
Bobbin	20	86	ODI	10	3.72	P 1	137	TE-HL	+13.09
Bobbin	21	27	IDI	88	1.81	P 1	49	TE-HL	+10.21
H/L Tubesheet	22	86	MAI		1.59	1	25	TTS-HL	-3.69
Bobbin	26	46	IDI	57	4.59	P 1	95	TE-HL	+11.16
Bobbin	26	64	IDI	30	5.99	P 1	113	TE-HL	+14.15
Bobbin	26	82	IDI	87	18.04	P 1	49	TE-HL	+16.05
Bobbin	26	84	IDI	90	17.93	P 1	43	TE-HL	+14.98
Bobbin			IDI	94	46.99	P 1	37	TE-HL	+14.01
Bobbin	27	53	IDI	94	8.32	P 1	44	TE-HL	+4.49
Bobbin	29	65	NQI		3.48	P 1	49	TE-HL	+10.87
Bobbin	29	80	IDI	79	11.11	P 1	70	TE-HL	+13.13
Bobbin	35	42	NQI		5.40	P 1	12	TE-HL	+6.43
H/L Tubesheet	36	36	VOL		0.61	1	103	TTS-HL	-3.86
Bobbin	37	29	NQI		20.30	P 1	176	TE-HL	+9.38
Bobbin	37	78	IDI	41	10.09	P 1	12	TE-HL	+13.26
Bobbin	47	30	IDI	94	13.87	P 1	31	TE-HL	+8.38

Total Indications Found = 37  
 Total Tubes Found = 31  
 Total Tubes in Input File = 31

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ATTACHMENT #2 - F\*  
 F\* QUERY

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1	
Bobbin	3	1	IDI	96	16.98	P 1	34	TE-HL	+8.77	8TH TSP
Bobbin	3	39	IDI	48	5.40	P 1	106	TE-HL	+5.11	8TH TSP
Bobbin	3	47	IDI	99	15.48	P 1	38	TE-HL	+8.00	8TH TSP
Bobbin	3	95	IDI	10	3.07	P 1	144	TE-HL	+5.34	8TH TSP
Bobbin			IDI	55	10.20	P 1	22	TE-HL	+5.99	8TH TSP
Bobbin	4	1	IDI	94	24.87	P 1	47	TE-HL	+9.20	8TH TSP
Bobbin	5	27	NQI		7.87	P 1	149	TE-HL	+15.68	8TH TSP
Bobbin	5	101	IDI	41	12.80	P 1	15	TE-HL	+16.10	8TH TSP
Bobbin			IDI	54	11.11	P 1	20	TE-HL	+12.35	8TH TSP
Bobbin			IDI	70	7.27	P 1	26	TE-HL	+9.10	8TH TSP
Bobbin			IDI	70	11.40	P 1	26	TE-HL	+8.17	8TH TSP
Bobbin	5	108	IDI	97	3.40	P 1	35	TE-HL	+12.34	8TH TSP
Bobbin	6	34	IDI	88	13.55	P 1	45	TE-HL	+11.47	F/L
Bobbin	7	2	IDI	74	15.23	P 1	25	TE-HL	+9.53	F/L
Bobbin			IDI	82	22.37	P 1	28	TE-HL	+2.92	F/L
Bobbin	7	23	IDI	44	10.36	P 1	15	TE-HL	+17.29	F/L
Bobbin	7	29	IDI	73	21.00	P 1	22	TE-HL	+10.67	F/L
Bobbin	7	42	IDI	47	9.81	P 1	16	TE-HL	+17.22	F/L
Bobbin	8	46	IDI	76	13.61	P 1	26	TE-HL	+16.21	F/L
Bobbin	8	56	IDI	41	15.12	P 1	12	TE-HL	+14.31	F/L
Bobbin	9	2	NQI		8.23	P 1	145	TE-HL	+11.31	F/L
Bobbin	9	3	IDI	73	16.79	P 1	67	TE-HL	+7.47	F/L
Bobbin	9	100	IDI	34	7.45	P 1	11	TE-HL	+12.36	F/L
H/L Tubesheet	10	14	SAI		0.49	1	37	TTS-HL	-2.54	TTS-HL
Bobbin	10	21	IDI	62	10.80	P 1	21	TE-HL	+4.81	F/L
Bobbin	10	50	IDI	47	11.27	P 1	16	TE-HL	+15.01	F/L
Bobbin	11	30	IDI	88	13.32	P 1	50	TE-HL	+6.40	F/L
Bobbin	11	52	IDI	87	15.76	P 1	51	TE-HL	+11.32	F/L
H/L Tubesheet	11	64	SAI		0.72	1	25	TTS-HL	-3.57	TTS-HL
H/L Tubesheet	11	85	SAI		0.61	1	40	TTS-HL	-3.30	TTS-HL
Bobbin	11	86	IDI	83	34.28	P 1	51	TE-HL	+17.88	F/L
H/L Tubesheet	11	102	MAI		2.40	1	39	TTS-HL	-3.77	TTS-HL
Bobbin	11	112	IDI	50	20.87	P 1	17	TE-HL	+3.30	F/L
Bobbin	12	18	IDI	74	10.98	P 1	65	TE-HL	+12.02	F/L
Bobbin	12	29	IDI	82	26.24	P 1	28	TE-HL	+3.10	F/L
Bobbin	12	72	IDI	44	11.91	P 1	15	TE-HL	+5.64	F/L
H/L Tubesheet	12	84	SAI		1.01	1	33	TTS-HL	-3.18	TTS-HL
Bobbin	13	47	IDI	82	16.17	P 1	55	TE-HL	+4.37	F/L
Bobbin	14	41	IDI	76	7.66	P 1	64	TE-HL	+14.02	F/L
Bobbin	14	42	IDI	41	9.54	P 1	105	TE-HL	+17.16	F/L
H/L Tubesheet	14	78	MAI		3.38	1	27	TTS-HL	-3.15	TTS-HL
Bobbin	15	15	IDI	53	3.58	P 1	91	TE-HL	+13.94	F/L
Bobbin	15	20	IDI	1	6.58	P 1	157	TE-HL	+6.36	F/L
Bobbin			IDI	9	5.72	P 1	147	TE-HL	+11.84	F/L
Bobbin			IDI	52	8.29	P 1	94	TE-HL	+5.41	F/L
Bobbin	15	32	IDI	64	7.78	P 1	78	TE-HL	+17.07	F/L
H/L Tubesheet			SAI		6.07	1	44	TTS-HL	-4.22	TTS-HL
Bobbin	16	38	IDI	94	58.62	P 1	42	TE-HL	+17.33	F/L
Bobbin	16	44	IDI	60	5.00	P 1	21	TE-HL	+6.07	F/L
Bobbin	17	26	ODI	40	7.22	P 1	106	TE-HL	+13.74	F/L
Bobbin	17	38	NQI		8.47	P 1	160	TE-HL	+13.66	F/L
Bobbin			NQI		11.77	P 1	160	TE-HL	+13.94	F/L
Bobbin	17	68	IDI	33	3.66	P 1	117	TE-HL	+4.51	F/L
Bobbin	17	70	NQI		19.42	P 1	162	TE-HL	+7.94	F/L
Bobbin	17	80	IDI	25	20.46	P 1	128	TE-HL	+1.83	F/L
Bobbin	17	96	NQI		2.81	P 1	55	TE-HL	+6.74	F/L
Bobbin	17	101	IDI	63	10.07	P 1	22	TE-HL	+8.43	F/L
Bobbin	18	37	NQI		9.74	P 1	164	TE-HL	+10.06	F/L
Bobbin	18	40	IDI	75	12.01	P 1	67	TE-HL	+9.01	F/L
Bobbin	19	31	NQI		8.73	P 1	147	TE-HL	+14.98	F/L
Bobbin	19	32	IDI	75	9.57	P 1	58	TE-HL	+16.88	F/L
H/L Tubesheet			SAI		11.27	1	27	TTS-HL	-4.34	TTS-HL
Bobbin	20	32	IDI	37	9.34	P 1	104	TE-HL	+6.64	F/L
Bobbin	20	61	NQI		12.37	P 1	161	TE-HL	+11.27	F/L
Bobbin	21	10	NQI		4.22	P 1	160	TE-HL	+12.19	F/L



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ATTACHMENT #2 - F\*  
 F\* QUERY

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1
Bobbin	21	11	IDI	1	5.58	P 1	152	TE-HL	+15.06
Bobbin			IDI	26	2.16	P 1	119	TE-HL	+16.99
Bobbin	21	12	IDI	28	5.16	P 1	116	TE-HL	+14.09
Bobbin	21	30	IDI	39	6.97	P 1	106	TE-HL	+14.04
Bobbin			IDI	97	14.02	P 1	34	TE-HL	+3.78
Bobbin			IDI	98	44.01	P 1	37	TE-HL	+2.78
Bobbin	21	31	IDI	76	10.17	P 1	57	TE-HL	+14.83
Bobbin	21	37	IDI	45	16.24	P 1	13	TE-HL	+1.85
Bobbin	21	42	IDI	60	8.13	P 1	76	TE-HL	+17.95
H/L Tubesheet			MAI		5.66	1	27	TTS-HL	-3.41
Bobbin	21	64	NQI		9.73	P 1	163	TE-HL	+8.30
Bobbin	22	10	IDI	53	5.40	P 1	84	TE-HL	+9.04
Bobbin	22	18	IDI	19	2.63	P 1	128	TE-HL	+16.86
Bobbin			IDI	54	6.89	P 1	83	TE-HL	+15.85
Bobbin			IDI	95	26.00	P 1	35	TE-HL	+5.74
Bobbin	22	35	NQI		18.96	P 1	177	TE-HL	+4.34
Bobbin	22	36	IDI	46	14.42	P 1	16	TE-HL	+3.74
Bobbin	22	42	NQI		8.78	P 1	160	TE-HL	+4.49
Bobbin	22	52	IDI	64	8.58	P 1	76	TE-HL	+16.90
Bobbin	23	19	IDI	64	11.75	P 1	70	TE-HL	+16.02
Bobbin	23	20	IDI	1	5.06	P 1	142	TE-HL	+14.96
Bobbin			IDI	50	10.90	P 1	13	TE-HL	+3.93
Bobbin			IDI	60	6.28	P 1	75	TE-HL	+10.21
Bobbin	23	26	IDI	66	9.69	P 1	68	TE-HL	+14.04
Bobbin	23	34	NQI		36.93	P 1	38	TE-HL	+2.77
Bobbin	23	36	IDI	90	4.26	P 1	39	TE-HL	+1.76
Bobbin	23	39	IDI	1	5.14	P 1	142	TE-HL	+14.13
Bobbin	23	41	IDI	78	20.21	P 1	53	TE-HL	+15.04
Bobbin			IDI	99	21.37	P 1	27	TE-HL	+1.82
Bobbin	23	42	IDI	27	6.58	P 1	121	TE-HL	+15.09
Bobbin	23	44	IDI	2	5.91	P 1	154	TE-HL	+5.35
Bobbin	23	45	NQI		9.84	P 1	160	TE-HL	+16.93
Bobbin			IDI	9	5.57	P 1	145	TE-HL	+15.02
Bobbin	23	48	IDI	23	6.51	P 1	126	TE-HL	+13.13
Bobbin	24	16	IDI	68	7.43	P 1	72	TE-HL	+10.31
Bobbin	24	25	IDI	81	17.30	P 1	56	TE-HL	+17.86
H/L Tubesheet			MAI		14.51	1	30	TTS-HL	-5.28
Bobbin	24	28	IDI	94	21.93	P 1	31	TE-HL	+9.48
Bobbin	24	49	NQI		6.43	P 1	168	TE-HL	+15.12
Bobbin	24	50	IDI	78	13.93	P 1	60	TE-HL	+16.06
Bobbin	24	52	NQI		4.94	P 1	160	TE-HL	+16.01
Bobbin	25	33	IDI	31	8.74	P 1	113	TE-HL	+9.28
Bobbin	25	34	IDI	32	5.12	P 1	112	TE-HL	+6.38
Bobbin			IDI	41	4.79	P 1	102	TE-HL	+3.43
Bobbin			IDI	41	7.56	P 1	102	TE-HL	+10.26
Bobbin	25	42	NQI		9.39	P 1	140	TE-HL	+5.33
Bobbin	25	44	NQI		8.75	P 1	155	TE-HL	+4.43
Bobbin	25	50	NQI		4.99	P 1	147	TE-HL	+8.27
Bobbin			IDI	58	8.33	P 1	83	TE-HL	+9.25
Bobbin	25	92	NQI		13.26	P 1	27	TE-HL	+13.99
Bobbin	26	36	IDI	33	5.55	P 1	111	TE-HL	+4.36
H/L Tubesheet	26	80	SAI		3.47	1	46	TTS-HL	-3.82
Bobbin	27	16	IDI	89	63.39	P 1	48	TE-HL	+11.09
Bobbin	27	42	NQI		7.97	P 1	159	TE-HL	+8.80
Bobbin			ODI	6	7.51	P 1	136	TE-HL	+13.97
Bobbin	27	66	IDI	67	10.14	P 1	71	TE-HL	+16.41
Bobbin			IDI	72	8.16	P 1	65	TE-HL	+12.46
H/L Tubesheet			MAI		13.29	1	29	TTS-HL	-4.87
H/L Tubesheet	27	70	MAI		0.51	1	32	TTS-HL	-4.11
Bobbin	27	106	NQI		39.54	P 1	186	TE-HL	+3.04
Bobbin	28	90	IDI	66	2.88	P 1	73	TE-HL	+13.97
Bobbin	28	100	IDI	69	12.81	P 1	69	TE-HL	+11.53
Bobbin	29	28	IDI	9	5.29	P 1	141	TE-HL	+16.83
H/L Tubesheet	30	77	MAI		1.23	1	35	TTS-HL	-4.05
Bobbin	31	56	IDI	89	14.81	P 1	42	TE-HL	+15.66

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ATTACHMENT #2 - F\*  
 F\* QUERY

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1
Bobbin	31	59	IDI	75	10.23	P 1	66	TE-HL	+11.00
Bobbin	31	60	IDI	24	4.42	P 1	126	TE-HL	+15.06
Bobbin	31	66	IDI	4	5.45	P 1	142	TE-HL	+8.10
Bobbin	31	68	NQI		7.06	P 1	156	TE-HL	+12.25
Bobbin	31	72	NQI		4.76	P 1	161	TE-HL	+15.98
Bobbin			NQI		15.87	P 1	146	TE-HL	+13.38
Bobbin	31	73	IDI	6	5.45	P 1	140	TE-HL	+10.48
Bobbin	32	56	IDI	72	8.85	P 1	63	TE-HL	+18.05
H/L Tubesheet			SAI		8.74	1	26	TTS-HL	-3.61
Bobbin	32	64	NQI		7.59	P 1	163	TE-HL	+16.32
Bobbin	32	103	IDI	63	7.76	P 1	25	TE-HL	+7.32
Bobbin	33	16	IDI	43	6.02	P 1	97	TE-HL	+8.99
Bobbin	33	66	IDI	83	21.45	P 1	33	TE-HL	+6.13
Bobbin	34	24	IDI	96	20.08	P 1	39	TE-HL	+1.46
Bobbin	34	45	IDI	91	7.99	P 1	31	TE-HL	+1.40
Bobbin	34	57	IDI	2	6.63	P 1	151	TE-HL	+13.86
Bobbin	34	64	IDI	2	11.54	P 1	159	TE-HL	+11.51
Bobbin	35	35	NQI		8.16	P 1	158	TE-HL	+3.53
Bobbin	35	39	IDI	40	8.26	P 1	107	TE-HL	+13.98
Bobbin	35	99	IDI	67	34.43	P 1	24	TE-HL	+6.45
H/L Tubesheet	36	31	MAI		0.68	1	31	TTS-HL	-3.04
Bobbin	36	100	IDI	44	23.24	P 1	15	TE-HL	+4.34
Bobbin	37	57	IDI	9	14.37	P 1	144	TE-HL	+14.06
Bobbin	37	85	IDI	86	3.98	P 1	31	TE-HL	+8.16
Bobbin	38	30	IDI	87	32.28	P 1	51	TE-HL	+6.33
Bobbin	38	75	IDI	26	5.40	P 1	122	TE-HL	+6.47
Bobbin	40	88	IDI	13	6.99	P 1	136	TE-HL	+16.92
H/L Tubesheet			MAI		1.76	1	56	TTS-HL	-4.67
Bobbin	42	77	IDI	72	4.84	P 1	70	TE-HL	+14.03
Bobbin	43	88	IDI	38	3.96	P 1	111	TE-HL	+14.46
Bobbin	43	89	NQI		12.21	P 1	22	TE-HL	+16.75
H/L Tubesheet			MAI		3.24	1	26	TTS-HL	-4.73
Bobbin	44	64	IDI	74	0.64	P 1	68	TE-HL	+15.07
Bobbin	44	83	IDI	8	1.59	P 1	144	TE-HL	+9.34
Bobbin	46	28	IDI	97	10.78	P 1	34	TE-HL	+7.78
H/L Tubesheet	47	57	MAI		1.00	1	28	TTS-HL	-4.90

Total Indications Found = 166  
 Total Tubes Found = 135  
 Total Tubes in Input File = 135

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ATTACHMENT #3 - F\*  
 F\* QUERY

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1
Bobbin	4	54	IDI	35	10.29	P 1	13	TE-HL	+8.18
Bobbin	5	56	IDI	39	11.60	P 1	22	TE-HL	+16.07
Bobbin	5	94	IDI	61	17.88	P 1	23	TE-HL	+6.07
Bobbin	7	94	IDI	46	12.91	P 1	16	TE-HL	+13.36
Bobbin			IDI	83	10.30	P 1	69	TE-HL	+15.10
Bobbin	8	105	IDI	41	14.41	P 1	16	TE-HL	+6.56
Bobbin	9	31	IDI	41	1.17	P 1	103	TE-HL	+1.56
Bobbin	9	99	IDI	76	11.70	P 1	25	TE-HL	+5.79
Bobbin	13	47	NQI		3.62	P 1	148	TE-HL	+15.04
Bobbin	14	61	IDI	82	16.70	P 1	27	TE-HL	+6.23
Bobbin	14	69	IDI	79	13.77	P 1	26	TE-HL	+7.51
Bobbin	14	98	IDI	54	9.92	P 1	14	TE-HL	+14.01
Bobbin	17	55	NQI		1.93	P 1	134	TE-HL	+12.53
Bobbin	17	61	IDI	74	7.16	P 1	79	TE-HL	+13.66
Bobbin			IDI	80	8.57	P 1	28	TE-HL	+14.08
Bobbin	19	66	NQI		1.56	P 1	155	TE-HL	+14.63
Bobbin	20	64	IDI	42	15.34	P 1	13	TE-HL	+8.43
Bobbin	22	19	IDI	95	5.83	P 1	45	TE-HL	+10.14
Bobbin	24	82	IDI	57	8.46	P 1	20	TE-HL	+3.35
Bobbin	25	7	NQI		3.36	P 1	147	TE-HL	+11.11
Bobbin	27	31	NQI		1.58	P 1	58	TE-HL	+19.56
Bobbin	28	25	NQI		3.00	P 1	159	TE-HL	+11.43
Bobbin	32	27	NQI		7.54	P 1	16	TE-HL	+19.63
Bobbin	32	57	IDI	67	4.82	P 1	24	TE-HL	+3.01
Bobbin	36	55	NQI		6.47	P 1	13	TE-HL	+12.79
Bobbin	41	41	NQI		2.06	P 1	40	TE-HL	+15.79

Total Indications Found = 26  
 Total Tubes Found = 24  
 Total Tubes in Input File = 24



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ATTACHMENT #4 - F\*  
 F\* QUERY

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1	
Bobbin	9	15	IDI	87	6.56	P 1	27	TE-CL	+15.41	F/L
H/L Tubesheet	9	18	SAI		0.92	1	13	TTS-HL	-3.97	TTS-HL
Bobbin	9	24	NQI		3.39	P 1	93	TE-HL	+16.18	F/L
Bobbin	9	70	IDI	87	5.65	P 1	34	TE-HL	+9.87	F/L
Bobbin	9	81	IDI	73	10.02	P 1	76	TE-HL	+7.00	F/L
Bobbin			IDI	84	6.28	P 1	63	TE-HL	+16.14	F/L
Bobbin	9	85	IDI	59	12.72	P 1	23	TE-HL	+10.61	F/L
Bobbin	9	98	NQI		3.55	P 1	85	TE-HL	+15.16	F/L
Bobbin	10	85	IDI	79	21.43	P 1	31	TE-HL	+11.75	F/L
Bobbin	10	87	IDI	82	5.35	P 1	65	TE-HL	+14.85	F/L
Bobbin	11	2	IDI	93	2.77	P 1	40	TE-HL	+12.73	F/L
Bobbin	11	13	IDI	79	14.56	P 1	23	TE-CL	+17.11	F/L
Bobbin	11	17	IDI	38	17.30	P 1	11	TE-HL	+11.04	F/L
Bobbin	11	72	IDI	78	16.12	P 1	61	TE-HL	+13.45	F/L
Bobbin	11	84	IDI	76	17.08	P 1	64	TE-HL	+13.44	F/L
Bobbin			IDI	85	7.91	P 1	52	TE-HL	+5.64	F/L
Bobbin			IDI	89	24.14	P 1	47	TE-HL	+10.50	F/L
Bobbin	11	85	IDI	93	17.64	P 1	28	TE-HL	+9.61	F/L
Bobbin	11	89	IDI	100	3.81	P 1	30	TE-HL	+13.84	F/L
Bobbin	11	96	IDI	93	9.19	P 1	41	TE-HL	+16.91	F/L
H/L Tubesheet			MAI		6.52	1	30	TTS-HL	-4.08	TTS-HL
Bobbin	11	103	IDI	70	3.57	P 1	71	TE-HL	+14.33	F/L
Bobbin	12	30	IDI	60	2.61	P 1	82	TE-HL	+16.60	F/L
H/L Tubesheet			MAI		2.38	1	29	TTS-HL	-2.86	TTS-HL
Bobbin	13	11	IDI	55	14.66	P 1	16	TE-HL	+11.76	F/L
Bobbin			IDI	86	14.65	P 1	51	TE-HL	+13.08	F/L
Bobbin	13	27	IDI	91	17.57	P 1	43	TE-HL	+15.94	F/L
Bobbin	13	64	IDI	68	3.72	P 1	23	TE-HL	+11.57	F/L
Bobbin	13	65	IDI	76	14.25	P 1	26	TE-HL	+8.20	F/L
Bobbin	13	66	IDI	35	17.59	P 1	12	TE-HL	+13.31	F/L
Bobbin	13	67	IDI	53	20.51	P 1	18	TE-HL	+4.68	F/L
Bobbin	13	72	IDI	58	4.19	P 1	89	TE-HL	+12.31	F/L
Bobbin	13	83	IDI	96	14.32	P 1	42	TE-HL	+10.02	F/L
H/L Tubesheet	13	87	MAI		0.96	1	17	TTS-HL	-4.52	TTS-HL
Bobbin	13	89	IDI	95	4.78	P 1	44	TE-HL	+15.28	F/L
H/L Tubesheet	13	98	MAI		0.72	1	23	TTS-HL	-4.36	TTS-HL
Bobbin	14	38	IDI	1	4.39	P 1	141	TE-HL	+13.68	F/L
Bobbin	14	48	IDI	44	5.93	P 1	110	TE-HL	+6.22	F/L
Bobbin	14	65	NQI		5.05	P 1	76	TE-HL	+6.58	F/L
Bobbin	14	72	IDI	62	13.54	P 1	16	TE-HL	+14.27	F/L
H/L Tubesheet	14	91	MAI		0.91	1	28	TTS-HL	-5.00	TTS-HL
Bobbin	14	94	IDI	43	10.80	P 1	10	TE-HL	+14.51	F/L
Bobbin	15	38	IDI	94	43.70	P 1	49	TE-HL	+15.89	F/L
Bobbin	15	59	IDI	94	57.96	P 1	37	TE-HL	+15.44	F/L
Bobbin	15	61	IDI	1	2.89	P 1	138	TE-HL	+3.19	F/L
Bobbin			IDI	2	3.29	P 1	127	TE-HL	+7.95	F/L
Bobbin			IDI	56	3.57	P 1	84	TE-HL	+11.76	F/L
Bobbin	15	64	IDI	25	2.16	P 1	111	TE-HL	+17.08	F/L
H/L Tubesheet			MAI		2.96	1	34	TTS-HL	-3.60	TTS-HL
Bobbin	15	85	IDI	61	8.75	P 1	17	TE-HL	+11.71	F/L
Bobbin	16	11	IDI	91	56.53	P 1	54	TE-HL	+14.62	F/L
Bobbin	16	13	IDI	91	38.90	P 1	54	TE-HL	+12.71	F/L
Bobbin	16	17	IDI	75	17.83	P 1	72	TE-HL	+10.42	F/L
Bobbin	16	21	IDI	97	26.77	P 1	44	TE-HL	+18.71	F/L
H/L Tubesheet			MAI		12.08	1	29	TTS-HL	-4.24	TTS-HL
Bobbin	16	41	IDI	86	5.54	P 1	61	TE-HL	+13.96	F/L
Bobbin	16	47	IDI	90	4.53	P 1	55	TE-HL	+7.36	F/L
Bobbin	16	97	IDI	57	4.09	P 1	20	TE-HL	+9.53	F/L
Bobbin			IDI	60	2.32	P 1	21	TE-HL	+10.54	F/L
Bobbin	17	12	IDI	92	3.80	P 1	47	TE-HL	+17.70	F/L
H/L Tubesheet			MAI		2.36	1	19	TTS-HL	-3.86	TTS-HL
Bobbin	17	15	IDI	90	19.93	P 1	49	TE-HL	+15.73	F/L
Bobbin	17	24	IDI	86	4.88	P 1	56	TE-HL	+13.90	F/L
Bobbin			IDI	88	6.84	P 1	30	TE-HL	+13.52	F/L
H/L Tubesheet	17	67	MAI		0.70	1	18	TTS-HL	-2.70	TTS-HL

ATTACHMENT #4 - F\*

F\* QUERY

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1
H/L Tubesheet	17	81	SAI		2.04	1	23	TTS-HL	-3.53
Bobbin	17	85	IDI	32	9.89	P 1	9	TE-HL	+15.31
Bobbin			IDI	95	3.11	P 1	36	TE-HL	+15.53
Bobbin	17	90	IDI	77	4.64	P 1	61	TE-HL	+15.39
Bobbin	17	94	IDI	57	12.22	P 1	16	TE-HL	+11.48
Bobbin	18	4	IDI	98	6.81	P 1	37	TE-HL	+10.35
Bobbin	18	16	IDI	94	17.76	P 1	44	TE-HL	+14.82
Bobbin	18	32	NQI		6.40	P 1	154	TE-HL	+6.37
Bobbin	18	34	IDI	88	18.46	P 1	53	TE-HL	+12.46
Bobbin	18	59	IDI	2	10.54	P 1	132	TE-HL	+7.06
Bobbin	18	60	IDI	90	10.03	P 1	46	TE-HL	+10.80
Bobbin	18	80	IDI	13	17.49	P 1	4	TE-HL	+11.81
Bobbin	18	89	IDI	80	4.27	P 1	60	TE-HL	+12.52
Bobbin	18	96	NQI		7.32	P 1	185	TE-HL	+17.12
Bobbin			IDI	47	2.54	P 1	14	TE-HL	+12.38
Bobbin			IDI	73	2.11	P 1	22	TE-HL	+9.52
Bobbin			IDI	95	6.51	P 1	38	TE-HL	+14.28
Bobbin	19	5	NQI		4.26	P 1	166	TE-HL	+10.82
Bobbin	19	22	IDI	47	3.15	P 1	99	TE-HL	+16.84
H/L Tubesheet			MAI		3.69	1	18	TTS-HL	-3.69
Bobbin	19	23	IDI	57	9.17	P 1	30	TE-HL	+10.35
Bobbin	19	52	IDI	9	3.27	P 1	133	TE-HL	+9.40
Bobbin	19	87	IDI	16	4.48	P 1	129	TE-HL	+12.71
Bobbin	20	24	IDI	83	6.36	P 1	29	TE-HL	+8.48
Bobbin	20	38	IDI	85	9.38	P 1	58	TE-HL	+10.55
Bobbin	20	86	IDI	84	7.19	P 1	32	TE-HL	+1.98
Bobbin	20	90	IDI	96	8.90	P 1	46	TE-HL	+14.44
Bobbin	20	92	IDI	98	11.65	P 1	42	TE-HL	+11.52
Bobbin	21	5	IDI	89	18.47	P 1	31	TE-HL	+0.70
Bobbin	21	34	IDI	85	16.58	P 1	57	TE-HL	+3.08
Bobbin	21	43	IDI	60	25.51	P 1	21	TE-HL	+9.23
Bobbin	22	10	IDI	95	32.34	P 1	44	TE-HL	+16.63
H/L Tubesheet			MAI		14.72	1	28	TTS-HL	-4.26
Bobbin	22	13	IDI	80	23.36	P 1	28	TE-HL	+0.74
Bobbin	22	30	IDI	96	5.99	P 1	27	TE-HL	+6.06
Bobbin	22	38	IDI	93	80.58	P 1	39	TE-HL	+17.79
Bobbin	23	11	IDI	78	2.40	P 1	61	TE-HL	+16.56
Bobbin	23	56	IDI	89	3.23	P 1	45	TE-HL	+12.10
Bobbin	23	70	IDI	75	37.20	P 1	30	TE-HL	+7.57
Bobbin			IDI	80	7.48	P 1	32	TE-HL	+5.87
Bobbin	23	81	IDI	70	8.89	P 1	28	TE-HL	+11.20
Bobbin	23	83	IDI	58	13.81	P 1	23	TE-HL	+2.80
Bobbin	23	92	IDI	61	12.92	P 1	17	TE-HL	+7.52
Bobbin	24	12	IDI	85	2.51	P 1	51	TE-CL	+13.35
Bobbin			IDI	89	4.29	P 1	46	TE-CL	+16.97
Bobbin	24	19	IDI	85	10.51	P 1	51	TE-HL	+17.59
H/L Tubesheet			MAI		6.44	1	33	TTS-HL	-3.41
Bobbin	24	20	IDI	79	4.11	P 1	59	TE-HL	+16.00
Bobbin	24	22	IDI	93	1.38	P 1	26	TE-HL	+15.79
Bobbin	24	23	IDI	69	8.30	P 1	72	TE-HL	+16.77
H/L Tubesheet			MAI		7.39	1	24	TTS-HL	-4.27
Bobbin	24	26	IDI	43	18.46	P 1	12	TE-HL	+4.79
Bobbin	25	44	IDI	21	2.46	P 1	129	TE-HL	+7.76
Bobbin	25	54	IDI	61	18.23	P 1	21	TE-HL	+12.08
Bobbin	26	17	IDI	41	21.71	P 1	15	TE-HL	+11.69
Bobbin	26	40	IDI	88	7.84	P 1	28	TE-HL	+16.42
Bobbin	26	66	IDI	79	9.29	P 1	22	TE-HL	+10.47
Bobbin	27	17	NQI		2.50	P 1	136	TE-HL	+10.90
Bobbin	27	18	IDI	86	2.78	P 1	48	TE-HL	+16.58
H/L Tubesheet			SAI		1.30	1	48	TTS-HL	-4.24
Bobbin	27	30	IDI	32	13.01	P 1	9	TE-HL	+10.59
Bobbin	27	35	IDI	82	1.99	P 1	54	TE-HL	+16.54
Bobbin	27	36	IDI	36	9.44	P 1	10	TE-HL	+8.24
Bobbin	27	69	IDI	74	33.83	P 1	25	TE-HL	+3.12
Bobbin	27	82	IDI	71	6.22	P 1	24	TE-HL	+11.37

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ATTACHMENT #4 - F\*  
 F\* QUERY

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1
Bobbin	28	15	IDI	39	3.20	P 1	11	TE-HL	+9.73
Bobbin	28	24	IDI	79	2.06	P 1	22	TE-HL	+13.55
Bobbin	28	26	IDI	43	8.31	P 1	12	TE-HL	+10.38
Bobbin	28	70	IDI	94	42.03	P 1	39	TE-HL	+4.69
H/L Tubesheet			MAI		1.14	1	55	TTS-HL	-3.05
Bobbin	28	75	IDI	47	8.48	P 1	16	TE-HL	+4.19
Bobbin	28	81	IDI	53	10.20	P 1	18	TE-HL	+7.23
Bobbin	28	85	IDI	100	6.79	P 1	34	TE-HL	+9.93
Bobbin	29	11	NQI		2.15	P 1	137	TE-HL	+17.42
H/L Tubesheet			MAI		2.26	1	17	TTS-HL	-3.64
Bobbin	29	20	IDI	24	1.21	P 1	112	TE-HL	+16.85
H/L Tubesheet			SAI		0.76	1	50	TTS-HL	-4.14
H/L Tubesheet	29	21	SAI		0.83	1	24	TTS-HL	-4.45
H/L Tubesheet	29	23	SAI		0.99	1	22	TTS-HL	-3.65
Bobbin	29	34	IDI	85	8.14	P 1	50	TE-HL	+16.44
Bobbin	29	36	IDI	25	5.68	P 1	7	TE-HL	+14.50
Bobbin	29	43	IDI	93	2.30	P 1	39	TE-HL	+17.41
H/L Tubesheet			MAI		2.67	1	35	TTS-HL	-3.51
Bobbin	29	44	IDI	39	7.11	P 1	11	TE-HL	+15.37
Bobbin			IDI	43	10.90	P 1	12	TE-HL	+4.55
Bobbin			IDI	50	12.63	P 1	14	TE-HL	+1.86
Bobbin	29	45	IDI	46	9.98	P 1	13	TE-HL	+7.24
Bobbin	29	46	IDI	64	8.19	P 1	18	TE-HL	+12.49
Bobbin	29	47	IDI	43	10.18	P 1	12	TE-HL	+13.62
Bobbin	29	49	IDI	20	6.26	P 1	115	TE-HL	+16.95
Bobbin	29	54	IDI	93	3.07	P 1	39	TE-HL	+10.53
Bobbin	29	65	IDI	91	2.15	P 1	42	TE-HL	+8.29
Bobbin	29	66	IDI	33	12.03	P 1	9	TE-HL	+10.47
Bobbin			IDI	89	10.70	P 1	24	TE-HL	+12.36
H/L Tubesheet			MAI		0.37	1	33	TTS-HL	-3.41
Bobbin	29	67	IDI	99	21.10	P 1	29	TE-HL	+10.68
Bobbin	29	75	ODI	81	9.53	P 1	22	TE-HL	+2.17
Bobbin	29	77	NQI		3.13	P 1	157	TE-HL	+10.73
Bobbin	30	39	IDI	94	11.04	P 1	33	TE-HL	+2.97
Bobbin	30	40	IDI	17	5.00	P 1	6	TE-HL	+9.68
Bobbin	30	61	IDI	86	4.84	P 1	50	TE-HL	+7.92
Bobbin			IDI	89	9.85	P 1	24	TE-HL	+6.00
Bobbin	30	62	IDI	70	2.36	P 1	70	TE-HL	+16.80
H/L Tubesheet			MAI		2.08	1	30	TTS-HL	-3.85
Bobbin	30	64	IDI	86	4.56	P 1	49	TE-HL	+6.46
Bobbin	30	66	IDI	56	1.68	P 1	85	TE-HL	+14.53
Bobbin	30	68	IDI	91	6.94	P 1	51	TE-HL	+11.81
Bobbin	30	69	IDI	70	5.55	P 1	19	TE-HL	+1.98
Bobbin			IDI	92	6.63	P 1	40	TE-HL	+7.56
Bobbin	30	70	IDI	81	14.29	P 1	22	TE-HL	+3.08
Bobbin	30	76	IDI	52	5.35	P 1	14	TE-HL	+13.71
Bobbin			IDI	95	7.55	P 1	36	TE-HL	+5.85
Bobbin	30	77	IDI	59	23.72	P 1	20	TE-HL	+12.72
Bobbin	30	80	IDI	82	6.66	P 1	55	TE-HL	+13.89
Bobbin	30	100	IDI	56	0.95	P 1	84	TE-HL	+14.95
Bobbin	31	14	IDI	99	11.09	P 1	37	TE-HL	+12.56
Bobbin	31	38	IDI	94	70.52	P 1	44	TE-HL	+15.25
H/L Tubesheet	31	42	SAI		0.73	1	19	TTS-HL	-2.51
Bobbin	31	70	IDI	88	18.77	P 1	30	TE-HL	+3.48
Bobbin	31	100	IDI	97	5.17	P 1	34	TE-HL	+11.37
Bobbin	32	22	NQI		2.81	P 1	132	TE-HL	+8.75
Bobbin			IDI	5	1.29	P 1	126	TE-CL	+15.28
Bobbin	32	35	IDI	39	9.16	P 1	12	TE-HL	+15.38
Bobbin	32	43	IDI	55	1.43	P 1	17	TE-HL	+5.80
Bobbin			IDI	71	8.83	P 1	22	TE-HL	+7.37
Bobbin	32	62	IDI	100	5.91	P 1	34	TE-HL	+5.63
Bobbin	33	20	IDI	92	9.88	P 1	37	TE-HL	+9.51
Bobbin	33	33	IDI	91	4.77	P 1	43	TE-HL	+17.45
H/L Tubesheet			MAI		3.40	1	21	TTS-HL	-3.60
H/L Tubesheet	33	54	SAI		0.95	1	18	TTS-HL	-3.19



ATTACHMENT #4 - F\*  
 F\* QUERY

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1	
Bobbin	34	15	IDI	28	1.88	P 1	119	TE-HL	+9.79	F/L
Bobbin	34	37	NQI		7.59	P 1	166	TE-HL	+7.71	F/L
Bobbin	34	73	IDI	85	15.73	P 1	53	TE-HL	+13.41	F/L
Bobbin	34	75	IDI	72	2.85	P 1	68	TE-HL	+13.40	F/L
Bobbin	34	81	IDI	94	9.05	P 1	42	TE-HL	+8.75	F/L
Bobbin	35	17	NQI		3.85	P 1	25	TE-HL	+13.68	F/L
Bobbin	35	29	IDI	98	4.97	P 1	28	TE-HL	+13.51	F/L
Bobbin	35	38	NQI		2.93	P 1	39	TE-HL	+16.41	F/L
Bobbin	35	58	IDI	71	9.86	P 1	22	TE-HL	+14.19	F/L
Bobbin	36	29	IDI	69	0.70	P 1	77	TE-HL	+6.62	F/L
Bobbin	36	80	NQI		4.78	P 1	155	TE-HL	+16.42	F/L
Bobbin	37	26	IDI	61	16.22	P 1	20	TE-HL	+11.40	F/L
Bobbin	37	86	IDI	68	12.80	P 1	21	TE-HL	+12.71	F/L
Bobbin	38	24	IDI	73	11.41	P 1	24	TE-HL	+13.60	F/L
Bobbin	38	53	IDI	94	11.04	P 1	31	TE-HL	+11.55	F/L
Bobbin	38	63	IDI	78	9.98	P 1	64	TE-HL	+13.11	F/L
Bobbin	38	66	IDI	90	8.29	P 1	48	TE-HL	+12.12	F/L
Bobbin	39	34	IDI	53	7.23	P 1	18	TE-HL	+8.44	F/L
Bobbin			IDI	87	10.40	P 1	54	TE-HL	+17.73	F/L
H/L Tubesheet			MAI		3.84	1	33	TTS-HL	-3.86	TTS-HL
Bobbin	39	52	IDI	92	18.33	P 1	46	TE-HL	+12.79	F/L
Bobbin	39	67	IDI	76	6.38	P 1	68	TE-HL	+13.70	F/L
Bobbin	39	72	IDI	81	1.94	P 1	62	TE-HL	+15.37	F/L
Bobbin	39	75	IDI	70	1.96	P 1	76	TE-HL	+11.70	F/L
Bobbin			IDI	93	7.85	P 1	46	TE-HL	+11.24	F/L
Bobbin	39	84	IDI	94	6.95	P 1	32	TE-HL	+11.87	F/L
Bobbin	40	38	NQI		2.76	P 1	145	TE-HL	+7.14	F/L
Bobbin	40	52	IDI	80	7.94	P 1	62	TE-HL	+16.33	F/L
H/L Tubesheet			SAI		3.12	1	53	TTS-HL	-4.36	TTS-HL
Bobbin	40	61	NQI		1.03	P 1	140	TE-HL	+9.76	F/L
Bobbin	40	62	IDI	90	6.72	P 1	50	TE-HL	+12.14	F/L
Bobbin	40	75	IDI	93	15.61	P 1	44	TE-HL	+8.93	F/L
Bobbin	41	53	IDI	76	4.84	P 1	64	TE-HL	+15.53	F/L
Bobbin	42	25	IDI	60	11.50	P 1	18	TE-HL	+16.61	F/L
Bobbin	42	51	IDI	98	10.51	P 1	33	TE-HL	+14.70	F/L
H/L Tubesheet	42	70	MAI		3.38	1	17	TTS-HL	-3.58	TTS-HL
Bobbin	43	71	IDI	53	13.21	P 1	17	TE-HL	+5.01	F/L
Bobbin			IDI	86	6.67	P 1	53	TE-HL	+6.15	F/L
Bobbin	44	33	NQI		3.28	P 1	139	TE-HL	+9.88	F/L
Bobbin	44	37	IDI	92	17.86	P 1	36	TE-HL	+15.50	F/L
Bobbin	44	54	IDI	29	4.37	P 1	110	TE-HL	+11.12	F/L
Bobbin	44	90	IDI	83	2.68	P 1	58	TE-HL	+9.22	F/L
Bobbin	45	60	IDI	40	4.21	P 1	107	TE-HL	+5.57	F/L
Bobbin	45	61	IDI	12	9.37	P 1	4	TE-HL	+13.24	F/L
Bobbin	45	67	IDI	95	7.18	P 1	42	TE-HL	+15.38	F/L
Bobbin	46	38	IDI	93	2.10	P 1	26	TE-HL	+16.36	F/L
Bobbin	46	48	IDI	95	18.97	P 1	35	TE-HL	+5.15	F/L
Bobbin	47	35	NQI		5.15	P 1	145	TE-HL	+14.53	F/L
H/L Tubesheet			SAI		0.89	1	16	TTS-HL	-3.81	TTS-HL
Bobbin	47	42	IDI	95	1.47	P 1	35	TE-HL	+2.60	F/L
Bobbin			IDI	99	44.56	P 1	29	TE-HL	+1.62	F/L
H/L Tubesheet	48	30	SAI		1.92	1	28	TTS-HL	-3.69	TTS-HL
Bobbin	48	52	IDI	86	4.51	P 1	51	TE-HL	+16.32	F/L
Bobbin	49	36	IDI	56	11.88	P 1	14	TE-HL	+13.54	F/L
Bobbin	49	40	NQI		1.04	P 1	44	TE-HL	+17.22	F/L
Bobbin	49	43	IDI	30	2.60	P 1	113	TE-HL	+15.33	F/L
H/L Tubesheet	49	56	SAI		1.25	1	10	TTS-HL	-3.09	TTS-HL

Total Indications Found = 317  
 Total Tubes Found = 257  
 Total Tubes in Input File = 257

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ATTACHMENT #4 - F\*  
 F\* QUERY

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1
Bobbin	2	29	IDI	45	13.21	P 1	18	TE-HL	+5.46
Bobbin	2	39	IDI	96	5.55	P 1	51	TE-HL	+10.71
Bobbin	2	61	IDI	70	3.70	P 1	87	TE-HL	+13.63
Bobbin			IDI	93	0.92	P 1	50	TE-HL	+17.76
Bobbin			IDI	95	12.91	P 1	45	TE-HL	+8.60
Bobbin	2	62	NQI		4.15	P 1	150	TE-HL	+13.35
Bobbin	2	76	IDI	58	5.87	P 1	19	TE-HL	+15.21
Bobbin	2	80	IDI	55	13.64	P 1	18	TE-HL	+12.10
Bobbin	2	85	IDI	91	9.18	P 1	54	TE-HL	+10.00
Bobbin	3	27	NQI		2.45	P 1	134	TE-HL	+17.51
H/L Tubesheet			SAI		2.64	1	32	TTS-HL	-4.07
Bobbin	3	36	IDI	92	5.28	P 1	50	TE-HL	+16.49
Bobbin	3	40	IDI	46	16.00	P 1	16	TE-HL	+16.21
Bobbin	3	110	IDI	82	3.15	P 1	27	TE-HL	+7.80
Bobbin	4	33	IDI	64	8.87	P 1	21	TE-HL	+11.03
Bobbin	4	41	NQI		4.95	P 1	150	TE-HL	+8.26
Bobbin	4	66	IDI	76	2.73	P 1	77	TE-HL	+6.42
Bobbin	4	68	IDI	85	3.22	P 1	28	TE-HL	+11.23
Bobbin	4	78	IDI	95	3.63	P 1	45	TE-HL	+12.28
Bobbin	4	84	IDI	68	5.48	P 1	88	TE-HL	+10.25
Bobbin	4	94	IDI	36	19.22	P 1	12	TE-HL	+12.20
H/L Tubesheet	4	97	SAI		1.26	1	39	TTS-HL	-4.07
Bobbin	4	100	IDI	20	4.76	P 1	121	TE-HL	+4.96
Bobbin	5	4	IDI	58	13.82	P 1	19	TE-HL	+15.48
Bobbin	5	7	IDI	91	6.66	P 1	54	TE-HL	+11.88
Bobbin	5	31	IDI	55	15.90	P 1	18	TE-HL	+3.14
Bobbin			IDI	74	3.63	P 1	80	TE-HL	+13.33
Bobbin	5	44	IDI	55	9.30	P 1	18	TE-HL	+5.95
Bobbin	5	61	IDI	85	4.86	P 1	64	TE-HL	+14.32
Bobbin	5	67	IDI	99	5.12	P 1	34	TE-HL	+12.97
Bobbin	5	68	IDI	88	10.63	P 1	29	TE-HL	+9.98
Bobbin	5	94	IDI	97	2.38	P 1	32	TE-HL	+7.79
Bobbin	5	95	NQI		2.53	P 1	80	TE-HL	+10.21
Bobbin	6	35	NQI		2.58	P 1	110	TE-HL	+10.28
Bobbin			NQI		3.68	P 1	59	TE-HL	+3.02
Bobbin			NQI		7.42	P 1	64	TE-HL	+8.66
H/L Tubesheet			SAI		1.28	1	37	TTS-HL	-2.71
Bobbin	6	68	IDI	90	11.01	P 1	28	TE-HL	+17.21
H/L Tubesheet			MAI		5.68	1	20	TTS-HL	-4.20
Bobbin	6	70	IDI	29	12.52	P 1	9	TE-HL	+2.73
Bobbin	6	71	IDI	83	5.10	P 1	57	TE-HL	+16.21
H/L Tubesheet			MAI		2.15	1	41	TTS-HL	-5.09
Bobbin	6	74	IDI	58	9.01	P 1	18	TE-HL	+1.88
Bobbin	6	82	IDI	10	6.15	P 1	3	TE-HL	+14.31
Bobbin	6	85	IDI	96	5.65	P 1	38	TE-HL	+11.29
Bobbin	6	86	NQI		4.54	P 1	139	TE-HL	+2.05
Bobbin	6	94	NQI		3.26	P 1	155	TE-HL	+14.51
H/L Tubesheet	7	33	SAI		0.91	1	22	TTS-HL	-4.48
Bobbin	7	60	NQI		7.45	P 1	149	TE-HL	+10.82
Bobbin			NQI		13.06	P 1	166	TE-HL	+9.81
H/L Tubesheet	7	61	SAI		0.90	1	23	TTS-HL	-2.88
Bobbin	7	66	IDI	99	3.51	P 1	35	TE-HL	+7.94
Bobbin	7	87	IDI	30	5.52	P 1	110	TE-HL	+9.80
Bobbin	8	23	IDI	82	36.65	P 1	32	TE-HL	+3.03
Bobbin			IDI	86	5.24	P 1	59	TE-HL	+10.07
Bobbin	8	59	IDI	55	1.55	P 1	82	TE-HL	+5.92
Bobbin	8	63	NQI		8.54	P 1	149	TE-HL	+10.29
Bobbin			IDI	87	5.27	P 1	58	TE-HL	+15.47
Bobbin	8	74	IDI	74	15.46	P 1	29	TE-HL	+5.86
H/L Tubesheet	8	75	SAI		1.30	1	24	TTS-HL	-3.42
Bobbin	8	83	IDI	92	6.35	P 1	36	TE-HL	+13.40
H/L Tubesheet			MAI		0.97	1	33	TTS-HL	-3.97
Bobbin	8	102	IDI	80	4.02	P 1	60	TE-HL	+16.80
H/L Tubesheet			SAI		5.39	1	27	TTS-HL	-4.89
Bobbin	9	5	IDI	88	15.42	P 1	52	TE-HL	+15.15

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ATTACHMENT #4 - F\*  
 F\* QUERY

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1
Bobbin	9	15	IDI	87	6.56	P 1	27	TE-CL	+15.41
H/L Tubesheet	9	18	SAI		0.92	1	13	TTS-HL	-3.97
Bobbin	9	24	NQI		3.39	P 1	93	TE-HL	+16.18
Bobbin	9	70	IDI	87	5.65	P 1	34	TE-HL	+9.87
Bobbin	9	81	IDI	73	10.02	P 1	76	TE-HL	+7.00
Bobbin			IDI	84	6.28	P 1	63	TE-HL	+16.14
Bobbin	9	85	IDI	59	12.72	P 1	23	TE-HL	+10.61
Bobbin	9	98	NQI		3.55	P 1	85	TE-HL	+15.16
Bobbin	10	85	IDI	79	21.43	P 1	31	TE-HL	+11.75
Bobbin	10	87	IDI	82	5.35	P 1	65	TE-HL	+14.85
Bobbin	11	2	IDI	93	2.77	P 1	40	TE-HL	+12.73
Bobbin	11	13	IDI	79	14.56	P 1	23	TE-CL	+17.11
Bobbin	11	17	IDI	38	17.30	P 1	11	TE-HL	+11.04
Bobbin	11	72	IDI	78	16.12	P 1	61	TE-HL	+13.45
Bobbin	11	84	IDI	76	17.08	P 1	64	TE-HL	+13.44
Bobbin			IDI	85	7.91	P 1	52	TE-HL	+5.64
Bobbin			IDI	89	24.14	P 1	47	TE-HL	+10.50
Bobbin	11	85	IDI	93	17.64	P 1	28	TE-HL	+9.61
Bobbin	11	89	IDI	100	3.81	P 1	30	TE-HL	+13.84
Bobbin	11	96	IDI	93	9.19	P 1	41	TE-HL	+16.91
H/L Tubesheet			MAI		6.52	1	30	TTS-HL	-4.08
Bobbin	11	103	IDI	70	3.57	P 1	71	TE-HL	+14.33
Bobbin	12	30	IDI	60	2.61	P 1	82	TE-HL	+16.60
H/L Tubesheet			MAI		2.38	1	29	TTS-HL	-2.86
Bobbin	13	11	IDI	55	14.66	P 1	16	TE-HL	+11.76
Bobbin			IDI	86	14.65	P 1	51	TE-HL	+13.08
Bobbin	13	27	IDI	91	17.57	P 1	43	TE-HL	+15.94
Bobbin	13	64	IDI	68	3.72	P 1	23	TE-HL	+11.57
Bobbin	13	65	IDI	76	14.25	P 1	26	TE-HL	+8.20
Bobbin	13	66	IDI	35	17.59	P 1	12	TE-HL	+13.31
Bobbin	13	67	IDI	53	20.51	P 1	18	TE-HL	+4.68
Bobbin	13	72	IDI	58	4.19	P 1	89	TE-HL	+12.31
Bobbin	13	83	IDI	96	14.32	P 1	42	TE-HL	+10.02
H/L Tubesheet	13	87	MAI		0.96	1	17	TTS-HL	-4.52
Bobbin	13	89	IDI	95	4.78	P 1	44	TE-HL	+15.28
H/L Tubesheet	13	98	MAI		0.72	1	23	TTS-HL	-4.36
Bobbin	14	38	IDI	1	4.39	P 1	141	TE-HL	+13.68
Bobbin	14	48	IDI	44	5.93	P 1	110	TE-HL	+6.22
Bobbin	14	65	NQI		5.05	P 1	76	TE-HL	+6.58
Bobbin	14	72	IDI	62	13.54	P 1	16	TE-HL	+14.27
H/L Tubesheet	14	91	MAI		0.91	1	28	TTS-HL	-5.00
Bobbin	14	94	IDI	43	10.80	P 1	10	TE-HL	+14.51
Bobbin	15	38	IDI	94	43.70	P 1	49	TE-HL	+15.89
Bobbin	15	59	IDI	94	57.96	P 1	37	TE-HL	+15.44
Bobbin	15	61	IDI	1	2.89	P 1	138	TE-HL	+3.19
Bobbin			IDI	2	3.29	P 1	127	TE-HL	+7.95
Bobbin			IDI	56	3.57	P 1	84	TE-HL	+11.76
Bobbin	15	64	IDI	25	2.16	P 1	111	TE-HL	+17.08
H/L Tubesheet			MAI		2.96	1	34	TTS-HL	-3.60
Bobbin	15	85	IDI	61	8.75	P 1	17	TE-HL	+11.71
Bobbin	16	11	IDI	91	56.53	P 1	54	TE-HL	+14.62
Bobbin	16	13	IDI	91	38.90	P 1	54	TE-HL	+12.71
Bobbin	16	17	IDI	75	17.83	P 1	72	TE-HL	+10.42
Bobbin	16	21	IDI	97	26.77	P 1	44	TE-HL	+18.71
H/L Tubesheet			MAI		12.08	1	29	TTS-HL	-4.24
Bobbin	16	41	IDI	86	5.54	P 1	61	TE-HL	+13.96
Bobbin	16	47	IDI	90	4.53	P 1	55	TE-HL	+7.36
Bobbin	16	97	IDI	57	4.09	P 1	20	TE-HL	+9.53
Bobbin			IDI	60	2.32	P 1	21	TE-HL	+10.54
Bobbin	17	12	IDI	92	3.80	P 1	47	TE-HL	+17.70
H/L Tubesheet			MAI		2.36	1	19	TTS-HL	-3.86
Bobbin	17	15	IDI	90	19.93	P 1	49	TE-HL	+15.73
Bobbin	17	24	IDI	86	4.88	P 1	56	TE-HL	+13.90
Bobbin			IDI	88	6.84	P 1	30	TE-HL	+13.52
H/L Tubesheet	17	67	MAI		0.70	1	18	TTS-HL	-2.70



ATTACHMENT #4 - F\*  
 F\* QUERY

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1
H/L Tubesheet	17	81	SAI		2.04	1	23	TTS-HL	-3.53
Bobbin	17	85	IDI	32	9.89	P 1	9	TE-HL	+15.31
Bobbin			IDI	95	3.11	P 1	36	TE-HL	+15.53
Bobbin	17	90	IDI	77	4.64	P 1	61	TE-HL	+15.39
Bobbin	17	94	IDI	57	12.22	P 1	16	TE-HL	+11.48
Bobbin	18	4	IDI	98	6.81	P 1	37	TE-HL	+10.35
Bobbin	18	16	IDI	94	17.76	P 1	44	TE-HL	+14.82
Bobbin	18	32	NQI		6.40	P 1	154	TE-HL	+6.37
Bobbin	18	34	IDI	88	18.46	P 1	53	TE-HL	+12.46
Bobbin	18	59	IDI	2	10.54	P 1	132	TE-HL	+7.06
Bobbin	18	60	IDI	90	10.03	P 1	46	TE-HL	+10.80
Bobbin	18	80	IDI	13	17.49	P 1	4	TE-HL	+11.81
Bobbin	18	89	IDI	80	4.27	P 1	60	TE-HL	+12.52
Bobbin	18	96	NQI		7.32	P 1	185	TE-HL	+17.12
Bobbin			IDI	47	2.54	P 1	14	TE-HL	+12.38
Bobbin			IDI	73	2.11	P 1	22	TE-HL	+9.52
Bobbin			IDI	95	6.51	P 1	33	TE-HL	+14.28
Bobbin	19	5	NQI		4.26	P 1	166	TE-HL	+10.82
Bobbin	19	22	IDI	47	3.15	P 1	99	TE-HL	+16.84
H/L Tubesheet			MAI		3.69	1	18	TTS-HL	-3.69
Bobbin	19	23	IDI	57	9.17	P 1	20	TE-HL	+10.35
Bobbin	19	52	IDI	9	3.27	P 1	133	TE-HL	+9.40
Bobbin	19	87	IDI	16	4.48	P 1	129	TE-HL	+12.71
Bobbin	20	24	IDI	83	6.36	P 1	29	TE-HL	+8.48
Bobbin	20	38	IDI	85	9.38	P 1	58	TE-HL	+10.55
Bobbin	20	86	IDI	84	7.19	P 1	32	TE-HL	+1.98
Bobbin	20	90	IDI	96	8.90	P 1	46	TE-HL	+14.44
Bobbin	20	92	IDI	98	11.65	P 1	42	TE-HL	+11.52
Bobbin	21	5	IDI	89	18.47	P 1	31	TE-HL	+0.70
Bobbin	21	34	IDI	85	16.58	P 1	57	TE-HL	+3.08
Bobbin	21	43	IDI	60	25.51	P 1	21	TE-HL	+9.23
Bobbin	22	10	IDI	95	32.34	P 1	44	TE-HL	+16.63
H/L Tubesheet			MAI		14.72	1	28	TTS-HL	-4.26
Bobbin	22	13	IDI	80	23.36	P 1	28	TE-HL	+0.74
Bobbin	22	30	IDI	96	5.99	P 1	27	TE-HL	+6.06
Bobbin	22	38	IDI	93	80.58	P 1	39	TE-HL	+17.79
Bobbin	23	11	IDI	78	2.40	P 1	61	TE-HL	+16.56
Bobbin	23	56	IDI	89	3.23	P 1	45	TE-HL	+12.10
Bobbin	23	70	IDI	75	37.20	P 1	30	TE-HL	+7.57
Bobbin			IDI	80	7.48	P 1	32	TE-HL	+5.87
Bobbin	23	81	IDI	70	8.89	P 1	28	TE-HL	+11.20
Bobbin	23	83	IDI	58	13.81	P 1	23	TE-HL	+2.80
Bobbin	23	92	IDI	61	12.92	P 1	17	TE-HL	+7.52
Bobbin	24	12	IDI	85	2.51	P 1	51	TE-CL	+13.35
Bobbin			IDI	89	4.29	P 1	46	TE-CL	+16.97
Bobbin	24	19	IDI	85	10.51	P 1	51	TE-HL	+17.59
H/L Tubesheet			MAI		6.44	1	33	TTS-HL	-3.41
Bobbin	24	20	IDI	79	4.11	P 1	59	TE-HL	+16.00
Bobbin	24	22	IDI	93	1.38	P 1	26	TE-HL	+15.79
Bobbin	24	23	IDI	69	8.30	P 1	72	TE-HL	+16.77
H/L Tubesheet			MAI		7.39	1	24	TTS-HL	-4.27
Bobbin	24	26	IDI	43	18.46	P 1	12	TE-HL	+4.79
Bobbin	25	44	IDI	21	2.46	P 1	129	TE-HL	+7.76
Bobbin	25	54	IDI	60	18.23	P 1	21	TE-HL	+12.08
Bobbin	26	17	IDI	47	21.71	P 1	15	TE-HL	+11.69
Bobbin	26	40	IDI	88	7.84	P 1	28	TE-HL	+16.42
Bobbin	26	66	IDI	79	9.29	P 1	22	TE-HL	+10.47
Bobbin	27	17	NQI		2.50	P 1	136	TE-HL	+10.90
Bobbin	27	18	IDI	86	2.78	P 1	48	TE-HL	+16.58
H/L Tubesheet			SAI		1.30	1	48	TTS-HL	-4.24
Bobbin	27	30	IDI	32	13.01	P 1	9	TE-HL	+10.59
Bobbin	27	35	IDI	82	1.99	P 1	54	TE-HL	+16.54
Bobbin	27	36	IDI	36	9.44	P 1	10	TE-HL	+8.24
Bobbin	27	69	IDI	74	33.83	P 1	25	TE-HL	+3.12
Bobbin	27	82	IDI	71	6.22	P 1	24	TE-HL	+11.37

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ATTACHMENT #5 - TUBES PLUGGED  
COUNT ROW COL

1.	2	37
2.	2	64
3.	4	22
4.	4	76
5.	4	78
6.	4	79
7.	5	64
8.	5	90
9.	5	109
10.	5	113
11.	6	60
12.	7	72
13.	7	83
14.	7	91
15.	7	99
16.	7	109
17.	7	112
18.	8	58
19.	9	47
20.	9	56
21.	9	57
22.	9	75
23.	9	79
24.	10	112
25.	11	24
26.	11	39
27.	11	75
28.	11	90
29.	12	66
30.	12	69
31.	12	77
32.	12	87
33.	13	59
34.	14	36
35.	14	107
36.	15	44
37.	15	69
38.	16	77
39.	16	95
40.	16	100
41.	18	87
42.	19	107
43.	20	65
44.	20	84
45.	20	88
46.	20	109

COUNT ROW COL

47.	21	78
48.	21	109
49.	23	61
50.	23	67
51.	25	77
52.	25	85
53.	28	87
54.	28	99
55.	30	84
56.	31	63
57.	31	64
58.	32	60
59.	32	62
60.	32	63
61.	33	82
62.	34	68
63.	35	45
64.	35	64
65.	36	31
66.	37	38
67.	37	60
68.	38	22
69.	38	51
70.	39	53
71.	39	59
72.	39	80
73.	40	67
74.	45	84
75.	45	86
76.	47	63
77.	47	86
78.	48	85
79.	48	86

\*\*\*\*\* BWNT TUBAN II (Version 2.1) 09/21/1994 14:16:30 \*\*\*\*\*  
\*\*\*\*\* McGuire Nuclear Station - Unit One \*\*\*\*\*  
\*\*\*\*\* S/G A \*\*\*\*\*  
\*\*\*\*\* 08/94 RFO \*\*\*\*\*  
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ATTACHMENT #5 - TUBES PLUGGED  
COUNT ROW COL

COUNT ROW COL

Total Data Items Found = 79  
Total Tubes Found = 79



ATTACHMENT #6 - TUBES PLUGGED

COUNT	ROW	COL	COUNT	ROW	COL
1.	2	62	47.	14	59
2.	3	12	48.	15	17
3.	3	62	49.	16	47
4.	3	63	50.	16	57
5.	3	65	51.	17	42
6.	3	85	52.	17	71
7.	4	59	53.	18	102
8.	4	83	54.	20	5
9.	4	108	55.	20	11
10.	5	19	56.	20	48
11.	5	57	57.	21	7
12.	5	63	58.	21	25
13.	6	25	59.	22	22
14.	6	37	60.	22	33
15.	6	43	61.	22	67
16.	6	99	62.	22	75
17.	7	15	63.	23	22
18.	7	22	64.	23	69
19.	7	57	65.	24	41
20.	7	69	66.	24	45
21.	7	106	67.	25	62
22.	8	24	68.	25	74
23.	8	28	69.	25	94
24.	8	39	70.	26	13
25.	9	18	71.	26	19
26.	9	68	72.	26	47
27.	9	69	73.	26	82
28.	9	70	74.	26	87
29.	10	66	75.	26	99
30.	10	67	76.	27	14
31.	10	70	77.	27	63
32.	10	87	78.	28	17
33.	10	98	79.	29	99
34.	11	14	80.	31	67
35.	11	63	81.	31	96
36.	12	6	82.	33	12
37.	12	8	83.	33	67
38.	12	11	84.	34	102
39.	12	32	85.	35	20
40.	12	67	86.	36	79
41.	13	5	87.	37	66
42.	13	11	88.	39	60
43.	13	19	89.	40	51
44.	13	106	90.	40	76
45.	14	8	91.	40	87
46.	14	30	92.	41	48

ATTACHMENT #6 - TUBES PLUGGED

COUNT ROW COL

COUNT ROW COL

93.	41	70
94.	41	91
95.	42	33
96.	42	48
97.	42	56
98.	42	57
99.	42	60
100.	42	67
101.	42	76
102.	43	37
103.	43	74
104.	44	37
105.	44	45
106.	44	91
107.	45	75
108.	48	37
109.	48	76
110.	49	32
111.	49	38
112.	49	56
113.	49	57

Total Data Items Found = 113

Total Tubes Found = 113

ATTACHMENT #7 - TUBES PLUGGED

COUNT ROW COL			COUNT ROW COL		
1.	2	47	47.	16	62
2.	2	62	48.	16	65
3.	2	64	49.	17	67
4.	2	70	50.	17	69
5.	2	93	51.	18	50
6.	2	104	52.	18	99
7.	3	58	53.	19	33
8.	3	81	54.	20	81
9.	3	95	55.	21	48
10.	4	84	56.	22	55
11.	4	98	57.	22	83
12.	4	111	58.	23	68
13.	5	53	59.	23	83
14.	5	108	60.	23	92
15.	6	64	61.	23	104
16.	6	72	62.	24	9
17.	6	74	63.	25	59
18.	6	76	64.	25	72
19.	6	101	65.	25	74
20.	6	112	66.	28	51
21.	7	38	67.	29	67
22.	7	51	68.	30	72
23.	7	65	69.	30	86
24.	7	96	70.	31	59
25.	8	48	71.	31	86
26.	10	31	72.	31	99
27.	10	76	73.	32	12
28.	10	113	74.	32	54
29.	11	47	75.	32	71
30.	11	56	76.	33	98
31.	11	61	77.	34	93
32.	11	89	78.	35	51
33.	12	60	79.	35	94
34.	12	97	80.	36	33
35.	13	41	81.	36	65
36.	13	56	82.	36	67
37.	13	95	83.	36	68
38.	13	105	84.	37	29
39.	14	59	85.	37	55
40.	14	60	86.	38	79
41.	14	65	87.	39	53
42.	14	77	88.	40	47
43.	15	75	89.	40	96
44.	15	108	90.	41	79
45.	15	109	91.	41	93
46.	16	59	92.	44	75



ATTACHMENT #7 - TUBES PLUGGED

COUNT ROW COL

COUNT ROW COL

93.	44	82
94.	46	83
95.	46	84
96.	48	83
97.	49	50
98.	49	51
99.	49	54
100.	49	55
101.	49	72

Total Data Items Found = 101

Total Tubes Found = 101

ATTACHMENT #8 - TUBES PLUGGED

COUNT	ROW	COL	COUNT	ROW	COL
1.	2	18	47.	14	81
2.	2	56	48.	15	39
3.	3	38	49.	16	14
4.	4	23	50.	16	19
5.	4	34	51.	16	34
6.	4	49	52.	16	67
7.	4	87	53.	16	80
8.	4	92	54.	16	99
9.	4	98	55.	17	57
10.	5	27	56.	17	62
11.	5	29	57.	17	88
12.	5	46	58.	18	11
13.	5	66	59.	18	33
14.	5	83	60.	18	79
15.	5	87	61.	19	62
16.	6	9	62.	20	82
17.	6	22	63.	20	83
18.	7	24	64.	20	97
19.	7	38	65.	21	14
20.	7	80	66.	21	15
21.	7	84	67.	21	61
22.	8	4	68.	21	75
23.	8	31	69.	22	6
24.	8	66	70.	22	83
25.	8	67	71.	23	6
26.	8	69	72.	23	21
27.	8	89	73.	23	48
28.	8	98	74.	25	106
29.	9	12	75.	27	29
30.	9	16	76.	27	37
31.	9	76	77.	27	48
32.	10	79	78.	27	78
33.	10	113	79.	27	95
34.	11	5	80.	28	9
35.	11	62	81.	28	47
36.	11	78	82.	29	88
37.	12	49	83.	31	32
38.	12	61	84.	31	34
39.	12	65	85.	32	38
40.	12	80	86.	32	44
41.	13	78	87.	32	55
42.	13	80	88.	33	58
43.	14	16	89.	34	29
44.	14	53	90.	35	57
45.	14	76	91.	35	63
46.	14	80	92.	36	36

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BWNT TUBAN II (Version 2.1) 09/21/1994 14:40:53  
McGuire Nuclear Station - Unit One  
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ATTACHMENT #8 - TUBES PLUGGED

COUNT ROW COL

COUNT ROW COL

93.	36	38
94.	36	72
95.	37	30
96.	37	60
97.	37	67
98.	37	81
99.	38	46
100.	38	65
101.	38	82
102.	39	18
103.	39	19
104.	39	33
105.	39	35
106.	39	39
107.	39	43
108.	39	45
109.	39	46
110.	39	57
111.	39	70
112.	40	53
113.	40	70
114.	41	51
115.	42	47
116.	42	54
117.	42	81
118.	43	34
119.	43	39
120.	43	55
121.	45	84
122.	46	40
123.	46	77
124.	47	32
125.	49	44
126.	49	69
127.	49	70
128.	49	83

Total Data Items Found = 128

Total Tubes Found = 128



ATTACHMENT #9 - INDICATIONS OF IMPERFECTIONS  
 INDICATIONS OF IMPERFECTIONS

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1
Bobbin	2	3	NQI		0.88	3	104	8TH TSP	-1.30
Bobbin			NQI		1.09	3	124	8TH TSP	-0.48
Bobbin			NQI		1.73	3	80	8TH TSP	+0.51
Bobbin	2	8	NQI		0.51	3	124	9TH TSP	+36.04
Bobbin			ODI	2	0.75	3	143	15TH TSP	+15.92
Bobbin			ODI	9	0.43	3	138	15TH TSP	+18.93
C/L Special I			VOL		0.58	1	146	8TH TSP	-9.76
C/L Special I			VOL		0.64	1	105	15TH TSP	+15.92
C/L Special I			VOL		0.79	1	98	15TH TSP	+11.37
Bobbin	2	17	NQI		0.68	3	97	3RD TSP	+20.24
Bobbin			NQI		0.55	3	145	20TH TSP	+1.67
H/L Special I			VOL		0.92	1	133	3RD TSP	+20.35
C/L Special I			VOL		0.89	1	168	20TH TSP	+1.67
Bobbin	2	36	ODI	34	1.21	3	115	2ND TSP	+39.15
H/L Special I			VOL		1.30	1	121	2ND TSP	+39.15
U-Bend	2	37	VOL		0.80	1	91	7TH TSP	+3.78
H/L Tubesheet	2	64	MAI		0.82	1	8	TTS-HL	+0.00
Bobbin	2	66	ODI	24	0.88	3	127	8TH TSP	-1.19
Bobbin	2	100	NQI		0.92	3	107	9TH TSP	+42.23
Bobbin	2	102	ODI	11	1.95	P 1	142	1ST TSP	+0.00
Bobbin	3	91	ODI	13	0.52	3	135	3RD TSP	+9.77
Bobbin	4	22	NQI		4.36	3	13	16TH TSP	+8.00
C/L Special I			NQI		3.66	1	9	16TH TSP	+8.65
Bobbin	4	23	NQI		0.80	P 1	43	1ST TSP	+0.03
Bobbin	4	42	ODI	15	0.61	3	143	2ND TSP	+2.25
H/L Special I			VOL		0.50	1	134	2ND TSP	+2.25
Bobbin	4	76	IDI	57	2.81	P 1	100	TE-HL	+10.79
H/L Tubesheet			SAI		1.24	1	23	TTS-HL	+0.03
Bobbin	4	78	NQI		0.44	P 1	82	4TH TSP	-0.07
Bobbin			IDI	89	23.60	P 1	55	TE-HL	+12.79
H/L Special I			SAI		0.51	1	36	4TH TSP	+0.02
H/L Tubesheet	4	79	SAI		1.31	1	21	TTS-HL	-0.14
Bobbin	4	93	IDI	77	9.44	P 1	78	TE-HL	+11.86
Bobbin			IDI	94	24.23	P 1	54	TE-HL	+16.84
Bobbin	4	109	NQI		0.49	P 1	41	3RD TSP	-0.03
Bobbin	5	25	ODI	24	0.64	3	129	3RD TSP	+33.66
Bobbin	5	28	ODI	13	2.37	P 2	0	17TH TSP	+0.38
Bobbin	5	30	ODI	21	0.25	P 1	140	2ND TSP	-0.05
Bobbin	5	62	IDI	84	6.04	P 1	74	TE-HL	+15.72
H/L Tubesheet	5	64	SAI		1.06	1	21	TTS-HL	-0.21
H/L Tubesheet	5	90	SAI		0.78	1	15	TTS-HL	-0.01
Bobbin	5	99	NQI		0.31	3	80	8TH TSP	+6.20
Bobbin	5	108	IDI	84	4.20	P 1	79	TE-HL	+15.72
H/L Tubesheet	5	109	SAI		0.55	1	49	TTS-HL	-0.14
H/L Tubesheet	5	113	SAI		1.11	1	11	TTS-HL	-0.11
Bobbin	6	56	ODI	15	0.67	3	133	4TH TSP	+26.97
H/L Special I			VOL		1.13	1	160	4TH TSP	+26.79
Bobbin	6	58	ODI	10	0.69	3	137	6TH TSP	+34.49
H/L Special I			VOL		0.29	1	118	7TH TSP	-8.16
Bobbin	6	59	NQI		0.61	3	123	19TH TSP	-0.88
Bobbin			IDI	99	2.33	P 1	27	TE-HL	+10.45
Bobbin	6	60	IDI	95	2.96	P 1	35	TE-HL	+16.91
H/L Tubesheet			SAI		0.33	1	28	TTS-HL	-0.06
Bobbin	6	69	NQI		0.47	3	34	12TH TSP	+12.90
C/L Special I			VOL		0.91	1	106	11TH TSP	-9.28
Bobbin	7	10	NQI		0.70	P 1	47	4TH TSP	+0.12
H/L Tubesheet	7	72	SCI		0.36	1	46	TTS-HL	-0.13
H/L Tubesheet	7	83	SAI		1.23	1	23	TTS-HL	-0.05
H/L Tubesheet	7	91	SAI		0.72	1	33	TTS-HL	-0.02
H/L Tubesheet	7	99	SAI		0.50	1	38	TTS-HL	-0.08
H/L Tubesheet	7	109	MAI		0.83	1	32	TTS-HL	-0.04
H/L Tubesheet	7	112	SAI		0.80	1	25	TTS-HL	+0.09
Bobbin	8	22	NQI		0.55	3	136	17TH TSP	-1.11
Bobbin	8	39	ODI	11	2.35	4	138	5TH TSP	+12.60
H/L Special I			VOL		0.65	1	91	5TH TSP	+11.24 to +12.88

ATTACHMENT #9 - INDICATIONS OF IMPERFECTIONS

INDICATIONS OF IMPERFECTIONS

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1	
H/L Tubesheet	8	58	SAI		0.25	1	35	TTS-HL	+0.09	TTS-CL
Bobbin	9	4	ADI		4.94	6	83	TTS-CL	+14.86	F/L
C/L Special I			VOL		0.69	1	118	TTS-CL	+15.57	TTS-CL
Bobbin	9	17	ADI		4.45	6	81	4TH TSP	+37.40	F/L
H/L Special I			VOL		1.29	1	143	4TH TSP	+34.00	5TH TSP
H/L Special I			VOL		1.84	1	133	4TH TSP	+37.40	5TH TSP
Bobbin	9	24	NQI		0.92	3	142	3RD TSP	+1.29	F/L
Bobbin	9	27	NQI		0.85	3	134	1ST TSP	+14.89	F/L
Bobbin	9	42	ADI		1.00	6	81	20TH TSP	-1.42	F/L
Bobbin	9	47	NQI		0.30	P 1	65	2ND TSP	+0.07	F/L
H/L Tubesheet			MAI		1.30	1	17	TTS-HL	-0.16	TTS-HL
H/L Tubesheet	9	56	SAI		0.55	1	19	TTS-HL	-0.04	TTS-HL
H/L Tubesheet	9	57	SAI		1.10	1	32	TTS-HL	-0.07	TTS-HL
Bobbin	9	59	NQI		0.48	3	54	10TH TSP	+23.80	F/L
Bobbin			NQI		0.33	3	83	10TH TSP	+23.91	TTS-HL
C/L Special I			VOL		0.33	1	94	10TH TSP	+23.01	10TH TSP
Bobbin	9	63	IDI	52	5.27	P 1	99	TE-HL	+16.83	F/L
H/L Tubesheet			SAI		0.79	1	28	TTS-HL	-4.08	TTS-HL
H/L Tubesheet	9	75	SAI		0.70	1	12	TTS-HL	-0.08	TTS-HL
H/L Tubesheet	9	79	SAI		0.93	1	29	TTS-HL	+0.00	TTS-HL
Bobbin	10	3	NQI		0.86	3	139	10TH TSP	+12.46	F/L
Bobbin			ODI	12	0.60	3	134	10TH TSP	+26.88	F/L
Bobbin			ODI	25	0.60	3	124	10TH TSP	+31.27	F/L
C/L Special I	10	9	VOL		0.39	1	98	20TH TSP	+8.35	20TH TSP
Bobbin	10	12	NQI		0.49	3	135	12TH TSP	+18.36	F/L
Bobbin			NQI		0.52	3	86	10TH TSP	+9.49	F/L
Bobbin			NQI		0.67	3	153	12TH TSP	+17.60	F/L
C/L Special I			VOL		0.28	1	69	10TH TSP	+10.30	10TH TSP
Bobbin	10	14	ODI	11	0.54	3	135	1ST TSP	+12.97	F/L
Bobbin			ODI	22	0.78	3	126	1ST TSP	+7.51	F/L
Bobbin	10	23	NQI		0.56	3	38	TTS-CL	+3.89	F/L
Bobbin	10	25	IDI	93	6.71	P 1	39	TE-HL	+17.03	F/L
H/L Tubesheet			MAI		1.21	1	25	TTS-HL	-4.28	TTS-HL
Bobbin	10	34	ODI	7	0.87	3	138	1ST TSP	+13.89	F/L
Bobbin	10	36	NQI		0.46	3	111	6TH TSP	+1.59	F/L
Bobbin			ODI	13	0.92	3	133	TTS-HL	+11.31	F/L
Bobbin	10	38	NQI		0.35	3	92	5TH TSP	+37.06	F/L
Bobbin	10	39	ODI	20	0.63	3	128	3RD TSP	+28.13	F/L
Bobbin	10	40	NQI		0.58	3	41	17TH TSP	+3.53	F/L
Bobbin	10	87	NQI		1.02	3	133	7TH TSP	+25.56	F/L
H/L Special I	10	88	VOL		1.85	1	143	1ST TSP	+20.75	2ND TSP
H/L Tubesheet	10	112	SAI		1.35	1	14	TTS-HL	-0.06	TTS-HL
H/L Special I	11	24	MAI		0.99	1	29	TTS-HL	-5.69	TTS-HL
C/L Special I	11	39	NQI		0.96	1	28	11TH TSP	-3.76	11TH TSP
Bobbin	11	75	NQI		0.77	3	43	1AVB	-3.19	F/L
U-Bend			VOL		0.32	1	27	1AVB	-3.17	7TH TSP
H/L Tubesheet	11	90	SAI		0.49	1	66	TTS-HL	-0.17	TTS-HL
Bobbin	11	92	NQI		0.34	3	61	5TH TSP	+41.72	F/L
Bobbin	11	94	ADI		3.92	6	71	20TH TSP	+4.02	F/L
C/L Special I			VOL		0.77	1	145	20TH TSP	+3.54	20TH TSP
Bobbin	12	5	NQI		0.27	3	104	TTS-HL	+18.80	F/L
Bobbin	12	20	NQI		0.38	3	108	5TH TSP	+8.62	F/L
H/L Tubesheet	12	24	MAI		1.09	1	36	TTS-HL	-4.52	TTS-HL
U-Bend	12	66	NQI		0.30	1	45	7TH TSP	+5.90	7TH TSP
U-Bend	12	69	NQI		0.49	1	42	7TH TSP	+5.76	7TH TSP
U-Bend	12	70	VOL		0.40	1	46	7TH TSP	+5.93	7TH TSP
U-Bend	12	71	VOL		0.52	1	115	7TH TSP	-2.01	7TH TSP
Bobbin	12	77	NQI		11.69	3	12	TTS-CL	+0.77	F/L
Bobbin			IDI	50	5.94	P 1	16	TE-CL	+18.67	F/L
H/L Tubesheet	12	87	MAI		0.88	1	34	TTS-HL	+0.17	TTS-HL
Bobbin	12	97	NQI		0.21	P 1	82	5TH TSP	-0.02	F/L
H/L Special I			VOL		0.37	1	123	5TH TSP	+0.00	5TH TSP
Bobbin	13	46	IDI	61	21.02	P 1	19	TE-HL	+8.96	F/L
Bobbin			IDI	99	26.85	P 1	32	TE-HL	+13.79	F/L
Bobbin	13	48	IDI	86	10.39	P 1	55	TE-HL	+2.38	F/L

ATTACHMENT #9 - INDICATIONS OF IMPERFECTIONS

INDICATIONS OF IMPERFECTIONS

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1	
H/L Tubesheet	13	50	VOL		0.53	1	137	TTS-HL	-3.02	TTS-HL
H/L Tubesheet	13	59	MAI		0.96	1	21	TTS-HL	-0.06	TTS-HL
H/L Tubesheet	14	36	SAI		0.65	1	40	TTS-HL	-0.02	TTS-HL
Bobbin	14	61	NQI		0.23	3	104	3RD TSP	+30.92	F/L
Bobbin	14	63	ODI	22	0.68	3	127	10TH TSP	+29.83	F/L
C/L Special I			VOL		0.38	1	85	9TH TSP	-13.60	9TH TSP
Bobbin	14	68	NQI		0.61	3	94	17TH TSP	+14.03	F/L
Bobbin			ODI	7	0.94	3	139	2ND TSP	+8.25	F/L
H/L Special I			VOL		1.29	1	128	2ND TSP	+7.72	2ND TSP
C/L Special I			VOL		0.33	1	108	16TH TSP	-8.23	16TH TSP
Bobbin	14	72	ODI	27	0.36	3	123	13TH TSP	+1.85	F/L
Bobbin	14	75	ADI		2.61	6	65	11TH TSP	+41.71	F/L
Bobbin	14	84	NQI		0.72	3	119	TTS-CL	+25.32	F/L
C/L Special I			VOL		1.99	1	153	20TH TSP	-3.39	20TH TSP
H/L Tubesheet	14	107	SAI		0.58	1	49	TTS-HL	-0.05	TTS-HL
Bobbin	14	110	ODI	5	0.67	3	141	2ND TSP	+30.44	F/L
Bobbin	15	28	IDI	66	28.33	P 1	23	TE-HL	+3.93	F/L
Bobbin			IDI	97	31.68	P 1	34	TE-HL	+8.66	F/L
Bobbin	15	32	ADI		4.18	6	66	17TH TSP	+4.72	F/L
C/L Special I			VOL		0.48	1	128	17TH TSP	+4.85	17TH TSP
Bobbin	15	38	ODI	10	0.31	P 1	135	17TH TSP	-0.05	F/L
Bobbin	15	44	ODI	28	0.61	P 1	123	2ND TSP	-0.03	F/L
H/L Special I			SAI		0.72	1	37	2ND TSP	-0.08	2ND TSP
Bobbin	15	50	ADI		3.15	6	78	4TH TSP	+19.27	F/L
Bobbin			ADI		3.84	6	59	1ST TSP	+8.69	F/L
H/L Special I			VOL		0.51	1	80	4TH TSP	+19.27	4TH TSP
H/L Special I			VOL		0.52	1	141	1ST TSP	+8.69	1ST TSP
Bobbin	15	55	ADI		10.01	6	76	9TH TSP	+33.35	F/L
C/L Special I			VOL		1.49	1	97	8TH TSP	-10.10	8TH TSP
Bobbin	15	56	WAR	14	0.71	P 4	0	4AVB	+0.00	F/L
Bobbin	15	63	NQI		1.12	5	73	11TH TSP	+30.76	F/L
C/L Special I			VOL		0.50	1	100	10TH TSP	-13.10	10TH TSP
Bobbin	15	68	IDI	94	18.42	P 1	43	TE-HL	+1.52	F/L
Bobbin	15	69	WAR	21	1.03	P 4	0	1AVB	+0.00	F/L
H/L Tubesheet			MAI		0.41	1	30	TTS-HL	-0.33	TTS-HL
H/L Special I	16	77	NQI		1.21	1	17	1ST TSP	-8.96	1ST TSP
Bobbin	16	84	IDI	58	12.83	P 1	18	TE-HL	+3.73	F/L
Bobbin	16	95	NQI		15.83	P 1	163	TE-HL	+10.35	F/L
H/L Tubesheet			SAI		1.45	1	20	TTS-HL	+0.13	TTS-HL
H/L Tubesheet	16	100	SAI		0.94	1	20	TTS-HL	-0.02	TTS-HL
Bobbin	16	104	NQI		11.67	P 1	164	TE-HL	+3.45	F/L
C/L Special I	16	107	VOL		0.78	1	157	9TH TSP	+1.21	9TH TSP
Bobbin	17	33	NQI		6.11	3	14	1AVB	+6.90	F/L
Bobbin	17	82	ADI		5.48	6	86	17TH TSP	+5.69	F/L
C/L Special I			VOL		1.09	1	107	17TH TSP	+4.90	17TH TSP
Bobbin	17	87	ADI		2.16	6	74	11TH TSP	+39.46	F/L
Bobbin	17	89	ODI	12	2.38	4	138	10TH TSP	+26.55	F/L
Bobbin	17	93	NQI		0.37	P 1	153	16TH TSP	+0.00	F/L
H/L Tubesheet	18	87	SAI		0.50	1	29	TTS-HL	-0.20	TTS-HL
Bobbin	18	92	NQI		7.41	P 1	160	TE-HL	+13.87	F/L
Bobbin	19	27	WAR	26	1.72	P 4	0	1AVB	+0.00	F/L
Bobbin	19	32	ODI	13	1.14	3	134	6TH TSP	+33.67	F/L
H/L Special I			VOL		1.40	1	139	7TH TSP	-9.97	7TH TSP
Bobbin	19	48	ADI		2.96	6	80	TTS-CL	+17.57	F/L
C/L Special I			VOL		0.44	1	126	TTS-CL	+17.57	20TH TSP
C/L Special I			VOL		0.51	1	97	20TH TSP	-13.00	20TH TSP
Bobbin	19	85	ODI	28	0.46	3	121	1ST TSP	+6.27	F/L
H/L Special I			VOL		1.35	1	168	1ST TSP	+5.40	1ST TSP
Bobbin	19	105	NQI		6.39	P 1	182	TE-HL	+7.34	F/L
Bobbin	20	17	ADI		2.26	6	64	6TH TSP	+36.24	F/L
Bobbin	20	37	NQI		0.54	3	125	TTS-CL	+0.58	F/L
Bobbin	20	40	NQI		0.44	3	113	4TH TSP	+25.86	F/L
H/L Special I			VOL		0.23	1	40	5TH TSP	-16.64	5TH TSP
H/L Tubesheet	20	65	SAI		0.50	1	28	TTS-HL	-0.10	TTS-HL
Bobbin	20	84	NQI		11.65	P 1	150	TE-HL	+4.44	F/L



ATTACHMENT #9 - INDICATIONS OF IMPERFECTIONS

INDICATIONS OF IMPERFECTIONS

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1	
H/L Tubesheet			MAI		1.04	1	25	TTS-HL	-3.31	TTS-HL
H/L Tubesheet			SAI		0.31	1	58	TTS-HL	+0.10	TTS-HL
Bobbin	20	86	ODI	10	3.72	P 1	137	TE-HL	+13.09	F/L
H/L Tubesheet	20	88	SAI		1.37	1	31	TTS-HL	+0.00	TTS-HL
Bobbin	20	91	ADI		3.23	6	73	10TH TSP	+34.73	F/L
C/L Special I			VOL		1.18	1	152	9TH TSP	-8.72	9TH TSP
Bobbin	20	94	ODI	34	0.51	3	118	TTS-CL	+20.52	F/L
Bobbin	20	97	ODI	6	0.49	3	139	2ND TSP	+38.77	F/L
H/L Special I			VOL		0.18	1	107	3RD TSP	-8.53	3RD TSP
H/L Special I			VOL		0.30	1	102	3RD TSP	-5.23	3RD TSP
Bobbin	20	109	ADI		2.79	6	73	6TH TSP	+38.23	F/L
H/L Tubesheet			SAI		0.85	1	27	TTS-HL	-0.12	TTS-HL
H/L Special I			VOL		0.36	1	99	7TH TSP	-5.50	7TH TSP
Bobbin	21	27	IDI	88	1.81	P 1	49	TE-HL	+10.21	F/L
Bobbin	21	54	NQI		0.39	3	104	9TH TSP	+12.67	F/L
Bobbin			ODI	17	0.33	3	133	9TH TSP	+19.35	F/L
C/L Special I			VOL		0.46	1	109	9TH TSP	+17.44	9TH TSP
C/L Special I			VOL		2.08	1	146	9TH TSP	+14.13	9TH TSP
Bobbin	21	78	IDI	61	9.07	P 1	95	TE-HL	+14.02	F/L
H/L Special I			MAI		7.58	1	29	TTS-HL	-7.18	TTS-HL
Bobbin	21	95	ODI	27	0.71	3	120	1ST TSP	+12.65	F/L
H/L Special I			VOL		0.62	1	156	1ST TSP	+14.02	1ST TSP
H/L Tubesheet	21	109	SAI		0.76	1	38	TTS-HL	+0.00	TTS-HL
Bobbin	22	29	NQI		0.33	P 1	151	16TH TSP	-0.03	F/L
Bobbin	22	33	ODI	24	1.12	3	126	6TH TSP	+6.78	F/L
H/L Special I			VOL		1.32	1	141	6TH TSP	+6.78	7TH TSP
Bobbin	22	86	ODI	14	2.77	4	131	2ND TSP	+29.35	F/L
H/L Tubesheet			MAI		1.59	1	25	TTS-HL	-3.69	TTS-HL
H/L Special I			VOL		0.56	1	79	3RD TSP	-15.94	3RD TSP
Bobbin	22	92	NQI		0.46	3	99	3RD TSP	+33.96	F/L
H/L Special I			VOL		1.58	1	164	3RD TSP	+33.96	4TH TSP
Bobbin	23	12	ODI	21	0.29	3	129	1ST TSP	+2.72	F/L
Bobbin	23	16	NQI		0.53	3	83	11TH TSP	+19.15	F/L
C/L Special I			VOL		0.71	1	109	11TH TSP	+20.60	11TH TSP
Bobbin	23	36	ODI	26	0.39	3	125	16TH TSP	+8.69	F/L
C/L Special I			VOL		0.74	1	110	16TH TSP	+9.67	16TH TSP
Bobbin	23	52	NQI		0.93	3	38	11TH TSP	+12.11	F/L
Bobbin	23	61	ADI		4.85	6	61	10TH TSP	+13.69	F/L
Bobbin			ADI		6.76	6	65	10TH TSP	+26.28	F/L
Bobbin			ADI		9.65	6	75	10TH TSP	+10.87	F/L
C/L Special I			VOL		0.76	1	92	10TH TSP	+12.70	10TH TSP
C/L Special I			VOL		1.17	1	131	10TH TSP	+26.28	10TH TSP
C/L Special I			VOL		1.54	1	76	10TH TSP	+10.87	10TH TSP
Bobbin	23	64	WAR	9	0.41	P 4	0	LAVE	+0.00	F/L
H/L Tubesheet	23	67	MAI		1.46	1	21	TTS-HL	-0.07	TTS-HL
Bobbin	23	84	ADI		2.77	6	71	16TH TSP	+7.34	F/L
Bobbin	23	85	ADI		2.56	6	74	4TH TSP	+32.16	F/L
H/L Special I			VOL		0.35	1	113	5TH TSP	-9.19	5TH TSP
Bobbin	23	88	NQI		0.79	3	54	1ST TSP	+6.86	F/L
Bobbin	23	99	ADI		2.22	6	60	6TH TSP	+35.42	F/L
H/L Special I			VOL		0.33	1	132	6TH TSP	+35.42	7TH TSP
Bobbin	24	37	NQI		2.06	3	10	9TH TSP	+30.96	F/L
Bobbin			NQI		2.28	3	10	9TH TSP	+24.87	F/L
Bobbin			NQI		3.21	3	10	9TH TSP	+12.59	F/L
Bobbin			NQI		4.33	3	13	9TH TSP	+15.48	F/L
Bobbin			NQI		6.50	3	16	9TH TSP	+17.53	F/L
Bobbin			NQI		7.39	3	17	9TH TSP	+35.55	F/L
Bobbin			NQI		7.59	3	16	9TH TSP	+22.58	F/L
Bobbin			NQI		8.04	3	14	9TH TSP	+26.24	F/L
Bobbin			NQI		12.91	3	20	9TH TSP	+28.45	F/L
Bobbin			NQI		13.57	3	18	9TH TSP	+19.97	F/L
Bobbin			NQI		16.32	3	20	9TH TSP	+32.89	F/L
Bobbin			NQI		0.96	3	14	17TH TSP	+3.03	F/L
Bobbin			NQI		1.20	3	10	10TH TSP	+9.02	F/L
Bobbin			NQI		1.91	3	10	13TH TSP	+3.32	F/L

ATTACHMENT #9 - INDICATIONS OF IMPERFECTIONS

INDICATIONS OF IMPERFECTIONS

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1	
Bobbin			NQI		1.92	3	12	17TH TSP	-0.73	F/L
Bobbin			NQI		2.24	3	12	18TH TSP	+3.52	F/L
Bobbin			NQI		2.41	3	9	19TH TSP	+5.37	F/L
Bobbin			NQI		2.69	3	12	10TH TSP	+23.90	F/L
Bobbin			NQI		2.82	3	11	10TH TSP	+13.87	F/L
Bobbin			NQI		3.48	3	12	10TH TSP	+15.85	F/L
Bobbin			NQI		6.22	3	14	10TH TSP	+18.96	F/L
Bobbin			NQI		7.00	3	14	10TH TSP	+19.13	F/L
Bobbin			NQI		7.77	3	16	19TH TSP	+6.44	F/L
Bobbin			NQI		8.42	3	14	10TH TSP	+21.34	F/L
Bobbin	24	41	ODI	6	0.57	P 1	144	16TH TSP	+0.07	F/L
Bobbin	24	49	NQI		0.19	3	115	TTS-CL	+27.04	F/L
Bobbin	25	7	NQI		0.52	3	58	1ST TSP	+19.70	F/L
Bobbin	25	36	ADI		13.42	6	97	9TH TSP	+21.26	F/L
C/L Special I			VOL		1.26	1	106	9TH TSP	+22.96	8TH TSP
Bobbin	25	60	ADI		2.51	6	77	19TH TSP	+1.79	F/L
Bobbin	25	73	NQI		0.43	3	108	1ST TSP	+4.97	F/L
H/L Special I			VOL		0.89	1	99	1ST TSP	+3.95	1ST TSP
H/L Tubesheet	25	77	SAI		1.54	1	6	TTS-HL	-0.14	TTS-HL
Bobbin	25	85	IDI	55	7.19	P 1	90	TE-HL	+17.07	F/L
H/L Special I			SAI		8.50	1	25	TE-HL	+17.07	TTS-HL
Bobbin	26	37	ADI		7.46	6	81	9TH TSP	+1.60	F/L
C/L Special I			VOL		1.01	1	102	9TH TSP	+2.46	9TH TSP
Bobbin	26	46	IDI	57	4.59	P 1	95	TE-HL	+11.16	F/L
Bobbin	26	64	IDI	30	5.99	P 1	113	TE-HL	+14.15	F/L
Bobbin	26	82	IDI	87	18.04	P 1	49	TE-HL	+16.05	F/L
Bobbin	26	84	IDI	90	17.93	P 1	43	TE-HL	+14.98	F/L
Bobbin			IDI	94	46.99	P 1	37	TE-HL	+14.01	F/L
Bobbin	27	53	IDI	94	8.32	P 1	44	TE-HL	+4.49	F/L
Bobbin	28	43	WAR	5	0.90	P 2	0	2AVB	+0.00	F/L
Bobbin	28	81	WAR	10	0.56	P 4	0	3AVB	+0.00	F/L
Bobbin			WAR	15	0.77	P 4	0	1AVB	+0.00	F/L
H/L Tubesheet	28	87	VOL		1.42	1	164	TTS-HL	-0.05	TTS-HL
Bobbin	28	94	ADI		4.27	6	75	4TH TSP	+24.74	F/L
H/L Special I			VOL		0.99	1	142	4TH TSP	+5.70	4TH TSP
H/L Special I			VOL		1.09	1	111	4TH TSP	+24.74	4TH TSP
H/L Tubesheet	28	99	SAI		1.16	1	25	TTS-HL	+0.00	TTS-HL
Bobbin	29	52	WAR	4	0.75	P 2	0	2AVB	+0.00	F/L
Bobbin	29	65	NQI		3.48	P 1	49	TE-HL	+10.87	F/L
Bobbin	29	80	ODI	10	1.02	3	137	2ND TSP	+24.37	F/L
Bobbin			IDI	79	11.11	P 1	70	TE-HL	+13.13	F/L
H/L Special I			VOL		0.77	1	125	2ND TSP	+24.10	2ND TSP
Bobbin	30	41	WAR	15	0.75	P 4	0	3AVB	+0.00	F/L
Bobbin	30	59	WAR	5	0.41	P 4	0	1AVB	+0.00	F/L
Bobbin	30	72	WAR	25	1.37	P 4	0	3AVB	+0.00	F/L
Bobbin	30	73	NQI		2.42	P 1	43	TE-CL	+14.94	F/L
H/L Tubesheet	30	84	MAI		0.75	1	23	TTS-HL	-0.16	TTS-HL
H/L Special I	30	88	VOL		0.79	1	131	7TH TSP	+1.04	7TH TSP
Bobbin	30	97	NQI		0.66	3	45	TTS-HL	+15.08	F/L
H/L Special I			VOL		0.90	1	112	TTS-HL	+13.49	TTS-HL
Bobbin	31	41	WAR	29	1.91	P 4	0	2AVB	+0.00	F/L
Bobbin	31	44	WAR	30	2.07	P 4	0	3AVB	+0.00	F/L
H/L Tubesheet	31	63	SAI		0.47	1	7	TTS-HL	-0.08	TTS-HL
H/L Tubesheet	31	64	MAI		0.86	1	18	TTS-HL	-0.03	TTS-HL
Bobbin	31	87	ODI	16	0.48	3	132	17TH TSP	+3.14	F/L
Bobbin	32	19	WAR	20	1.07	P 4	0	2AVB	+0.00	F/L
Bobbin			WAR	23	1.36	P 4	0	3AVB	+0.00	F/L
Bobbin	32	48	ODI	15	1.60	3	134	5TH TSP	+10.84	F/L
H/L Special I			VOL		1.18	1	150	5TH TSP	+11.99	5TH TSP
H/L Tubesheet	32	60	SAI		0.63	1	51	TTS-HL	+0.15	TTS-HL
H/L Tubesheet	32	62	SAI		0.92	1	20	TTS-HL	-0.07	TTS-HL
H/L Tubesheet	32	63	SCI		2.00	1	31	TTS-HL	+0.04	TTS-HL
Bobbin	32	92	ADI		2.93	6	69	2ND TSP	+24.79	F/L
Bobbin	33	27	NQI		0.56	3	110	9TH TSP	+35.06	F/L
Bobbin			NQI		0.39	3	63	19TH TSP	+3.11	F/L



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ATTACHMENT #9 - INDICATIONS OF IMPERFECTIONS

INDICATIONS OF IMPERFECTIONS

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1
C/L Special I					VOL			1.00 1 146 8TH TSP	-8.80 8TH TSP
C/L Special I					VOL			0.37 1 102 19TH TSP	+3.33 19TH TSP
H/L Tubesheet	33	82	SAI		0.67	1	12	TTS-HL	-0.11 TTS-HL
Bobbin	34	48	WAR	13	0.69	P 4	0	3AVB	+0.00 F/L
Bobbin	34	53	WAR	19	1.10	P 4	0	1AVB	+0.00 F/L
U-Bend	34	55	VOL		1.70	1	157	7TH TSP	+18.14 7TH TSP
Bobbin	34	56	WAR	18	1.05	P 4	0	1AVB	+0.00 F/L
Bobbin	34	68	IDI	63	24.41	P 1	92	TE-HL	+18.65 F/L
H/L Tubesheet			MAI		8.17	1	42	TTS-HL	-4.53 TTS-HL
H/L Special I			MAI		5.82	1	19	TE-HL	+16.97 TTS-HL
Bobbin	34	81	ODI	6	0.91	4	139	9TH TSP	+19.43 F/L
Bobbin	34	95	NQI		0.44	3	35	9TH TSP	+16.54 F/L
Bobbin			ODI	6	1.41	3	139	17TH TSP	+15.07 F/L
C/L Special I					VOL			0.65 1 97 9TH TSP	+16.35 9TH TSP
C/L Special I					VOL			0.80 1 67 17TH TSP	+14.86 17TH TSP
Bobbin	35	15	WAR	12	0.63	P 4	0	1AVB	+0.00 F/L
U-Bend	35	18	VOL		1.30	1	28	7TH TSP	+2.41 7TH TSP
U-Bend	35	19	VOL		0.60	1	141	8TH TSP	+1.59 8TH TSP
Bobbin	35	20	ADI		2.35	6	62	20TH TSP	+2.73 F/L
U-Bend					VOL			1.10 1 42 7TH TSP	+1.58 7TH TSP
U-Bend	35	24	VOL		0.73	1	15	7TH TSP	+1.66 7TH TSP
Bobbin	35	41	ODI	14	0.62	3	133	6TH TSP	+20.45 F/L
H/L Special I					VOL			0.38 1 93 6TH TSP	+21.10 6TH TSP
Bobbin	35	42	NQI		5.40	P 1	12	TE-HL	+6.43 F/L
H/L Tubesheet	35	45	SAI		0.43	1	42	TTS-HL	-0.09 TTS-HL
Bobbin	35	64	NQI		2.25	3	163	8TH TSP	+1.09 F/L
U-Bend					NQI			0.46 1 47 8TH TSP	+1.50 8TH TSP
Bobbin	35	99	NQI		0.50	3	59	20TH TSP	+6.24 F/L
Bobbin	36	25	ODI	6	1.05	3	139	17TH TSP	+5.12 F/L
C/L Special I					VOL			0.47 1 110 17TH TSP	+5.15 17TH TSP
Bobbin	36	31	ODI	40	0.75	3	112	11TH TSP	-1.41 F/L
C/L Special I					VOL			0.85 1 22 11TH TSP	-1.33 11TH TSP
Bobbin	36	34	ODI	1	1.43	3	142	2ND TSP	+39.07 F/L
Bobbin			ODI	23	2.11	4	126	3RD TSP	+11.32 F/L
H/L Special I					VOL			0.93 1 105 3RD TSP	+11.56 4TH TSP
H/L Special I					VOL			1.84 1 140 3RD TSP	-4.48 3RD TSP
H/L Tubesheet	36	36	VOL		0.61	1	103	TTS-HL	-3.86 TTS-HL
Bobbin	36	70	ADI		2.19	6	56	1ST TSP	+20.80 F/L
Bobbin			ODI	3	1.05	3	144	TTS-HL	+10.33 F/L
Bobbin	36	76	NQI		0.42	3	111	TTS-CL	+17.93 F/L
Bobbin	36	80	ADI		2.98	6	78	6TH TSP	+8.95 F/L
H/L Special I					VOL			0.31 1 76 6TH TSP	+8.19 6TH TSP
Bobbin	36	87	ODI	15	1.44	3	135	4TH TSP	+38.33 F/L
H/L Special I					VOL			1.61 1 118 4TH TSP	+39.00 5TH TSP
Bobbin	36	89	NQI		1.00	3	120	TTS-HL	+2.12 F/L
H/L Special I					VOL			0.63 1 100 TTS-HL	+1.90 TTS-HL
Bobbin	36	95	NQI		0.49	3	27	19TH TSP	+4.72 F/L
Bobbin	36	98	ODI	12	1.21	3	137	TTS-CL	+10.15 F/L
C/L Special I					VOL			0.49 1 111 TTS-CL	+11.35 TTS-CL
Bobbin	37	16	WAR	13	0.75	P 4	0	4AVB	+0.00 F/L
Bobbin			WAR	24	1.52	P 4	0	3AVB	+0.00 F/L
Bobbin			WAR	27	1.89	P 4	0	2AVB	+0.00 F/L
Bobbin	37	24	WAR	20	1.18	P 4	0	3AVB	+0.00 F/L
Bobbin	37	29	NQI		20.30	P 1	176	TE-HL	+9.38 F/L
Bobbin	37	31	ODI	6	0.32	P 1	137	17TH TSP	+0.00 F/L
U-Bend	37	36	VOL		0.75	1	30	7TH TSP	+9.63 7TH TSP
H/L Tubesheet	37	38	VOL		0.42	1	122	TTS-HL	-0.11 TTS-HL
H/L Special I	37	60	SAI		0.29	1	52	1ST TSP	-0.02 1ST TSP
Bobbin	37	78	IDI	41	10.09	P 1	12	TE-HL	+13.26 F/L
Bobbin	37	81	ADI		3.21	6	112	TTS-HL	+9.20 F/L
Bobbin			ADI		5.74	6	90	TTS-HL	+12.93 F/L
H/L Special I					VOL			0.72 1 93 TTS-HL	+8.55 TTS-HL
H/L Special I					VOL			1.30 1 109 TTS-HL	+11.75 TTS-HL
Bobbin	37	94	NQI		0.74	3	36	12TH TSP	+17.93 F/L
H/L Special I	38	22	SAI		0.50	1	92	1ST TSP	+0.00 1ST TSP



ATTACHMENT #9 - INDICATIONS OF IMPERFECTIONS

INDICATIONS OF IMPERFECTIONS

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1	
Bobbin	38	40	ADI		2.41	6	63	10TH TSP	+17.43	F/L
Bobbin			ADI		2.60	6	69	10TH TSP	+13.84	F/L
Bobbin			ADI		2.81	6	57	10TH TSP	+10.36	F/L
C/L Special I			VOL		0.27	1	111	10TH TSP	+17.02	10TH TSP
C/L Special I			VOL		0.31	1	123	10TH TSP	+10.56	10TH TSP
C/L Special I			VOL		0.35	1	115	10TH TSP	+13.36	10TH TSP
C/L Special I			VOL		0.40	1	132	10TH TSP	+14.87	10TH TSP
Bobbin	38	47	WAR	23	1.03	P 4	0	2AVB	+0.00	F/L
Bobbin			WAR	23	1.09	P 4	0	1AVB	+0.00	F/L
Bobbin	38	51	NQI		1.10	3	150	8TH TSP	+1.23	F/L
U-Bend			VOL		0.32	1	40	8TH TSP	+1.19	8TH TSP
Bobbin			WAR	21	0.90	P 4	0	1AVB	+0.00	F/L
Bobbin	38	61	NQI		5.34	3	12	15TH TSP	-1.06	F/L
Bobbin	38	82	WAR	9	0.42	P 4	0	1AVB	+0.00	F/L
Bobbin	38	83	NQI		0.29	3	141	6TH TSP	+9.92	F/L
H/L Special I			VOL		0.50	1	104	6TH TSP	+9.04	6TH TSP
Bobbin	38	97	NQI		0.52	3	120	3RD TSP	+36.20	F/L
H/L Special I			VOL		1.05	1	133	3RD TSP	+36.48	4TH TSP
Bobbin	39	34	NQI		0.42	3	137	TTS-CL	+1.33	F/L
Bobbin	39	53	ODI	49	0.48	3	104	5TH TSP	+31.58	F/L
H/L Special I			VOL		0.22	1	72	6TH TSP	-13.27	6TH TSP
U-Bend	39	59	NQI		2.03	1	21	2AVB	+7.21	2AVB
Bobbin	39	75	ADI		0.91	6	73	13TH TSP	+8.18	F/L
Bobbin			NQI		0.36	3	111	14TH TSP	+5.57	F/L
H/L Tubesheet	39	80	MAI		0.91	1	23	TTS-HL	+0.00	TTS-HL
Bobbin	39	87	NQI		0.52	3	93	16TH TSP	+6.31	F/L
Bobbin			NQI		0.85	3	71	15TH TSP	+8.00	F/L
Bobbin	39	91	NQI		0.71	3	130	17TH TSP	+16.88	F/L
C/L Special I			VOL		0.46	1	138	16TH TSP	-6.16	16TH TSP
Bobbin	39	94	NQI		0.65	3	131	9TH TSP	+27.03	F/L
Bobbin			NQI		0.63	3	125	10TH TSP	+40.10	F/L
C/L Special I			VOL		0.48	1	43	9TH TSP	+27.04	9TH TSP
C/L Special I			VOL		0.50	1	108	9TH TSP	+9.29	9TH TSP
C/L Special I			VOL		1.09	1	144	9TH TSP	-3.99	9TH TSP
Bobbin	40	23	NQI		0.46	3	90	6TH TSP	+13.00	F/L
H/L Special I			VOL		1.04	1	127	6TH TSP	+13.40	6TH TSP
Bobbin	40	27	WAR	16	0.87	P 4	0	1AVB	+0.00	F/L
Bobbin	40	50	NQI		0.41	3	23	12TH TSP	+10.40	F/L
C/L Special I			VOL		0.80	1	103	12TH TSP	+10.40	12TH TSP
Bobbin	40	51	WAR	30	2.24	P 4	0	1AVB	+0.00	F/L
Bobbin	40	67	ODI	29	0.37	3	122	11TH TSP	+6.67	F/L
C/L Special I			VOL		0.38	1	125	11TH TSP	+7.50	11TH TSP
Bobbin	40	69	ADI		3.01	6	33	5TH TSP	+40.50	F/L
Bobbin	40	72	ADI		2.81	6	50	4TH TSP	+32.54	F/L
H/L Special I			VOL		0.51	1	96	5TH TSP	-9.75	5TH TSP
Bobbin	40	76	ADI		2.27	6	65	10TH TSP	+21.43	F/L
C/L Special I			VOL		1.81	1	166	10TH TSP	+23.36	10TH TSP
Bobbin	40	79	ODI	12	0.97	4	144	6TH TSP	+34.02	F/L
H/L Special I			VOL		0.76	1	153	7TH TSP	-8.81	7TH TSP
Bobbin	40	80	ADI		2.42	6	77	5TH TSP	+20.38	F/L
Bobbin			WAR	12	0.55	P 4	0	2AVB	+0.00	F/L
H/L Special I			VOL		0.41	1	117	5TH TSP	+19.06	5TH TSP
Bobbin	40	84	ADI		5.92	6	32	1AVB	+11.32	F/L
U-Bend			VOL		0.69	1	127	2AVB	+1.86	7TH TSP
U-Bend			VOL		0.93	1	121	1AVB	+11.32	7TH TSP
Bobbin	40	86	NQI		0.42	3	116	14TH TSP	+3.33	F/L
Bobbin			WAR	12	0.55	P 4	0	1AVB	+0.00	F/L
Bobbin			WAR	23	1.34	P 4	0	3AVB	+0.00	F/L
Bobbin			WAR	25	1.49	P 4	0	2AVB	+0.00	F/L
Bobbin	40	87	ADI		5.12	6	52	TTS-CL	+7.49	F/L
Bobbin			ADI		3.50	6	39	2ND TSP	+37.92	F/L
Bobbin			ADI		4.32	6	50	3RD TSP	+10.18	F/L
Bobbin			NQI		0.62	3	47	3RD TSP	+13.47	F/L
Bobbin			NQI		0.47	3	111	12TH TSP	+5.33	F/L
Bobbin			NQI		0.60	3	46	16TH TSP	+6.71	F/L

ATTACHMENT #9 - INDICATIONS OF IMPERFECTIONS

INDICATIONS OF IMPERFECTIONS

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1
Bobbin			NQI		0.61	3	63	16TH TSP	+6.40
H/L Special I			VOL		0.47	1	93	3RD TSP	+12.61
H/L Special I			VOL		0.67	1	59	3RD TSP	+9.88
C/L Special I			VOL		0.67	1	73	TTS-CL	+6.24 to +8.30
Bobbin	41	22	WAR	13	0.65	P 4	0	1AVB	+0.00
Bobbin	41	43	NQI		0.52	3	45	TTS-CL	+17.29
Bobbin	41	44	WAR	22	1.36	P 4	0	2AVB	+0.00
Bobbin	41	51	NQI		0.62	3	27	1AVB	+16.63
Bobbin	41	54	WAR	13	0.64	P 4	0	1AVB	+0.00
Bobbin			WAR	27	1.81	P 4	0	2AVB	+0.00
Bobbin	41	56	NQI		1.77	3	16	4AVB	-9.82
U-Bend			VOL		5.41	1	12	4AVB	-9.18
Bobbin	41	59	WAR	17	0.79	P 4	0	2AVB	+0.00
Bobbin			WAR	34	2.36	P 4	0	1AVB	+0.00
Bobbin	41	61	WAR	15	0.65	P 4	0	1AVB	+0.00
Bobbin	41	74	NQI		0.27	P 1	55	1ST TSP	+0.13
Bobbin			NQI		0.58	P 1	155	2ND TSP	+0.13
Bobbin	41	76	NQI		0.36	P 1	145	5TH TSP	+0.10
Bobbin	41	77	ODI	31	0.34	P 1	113	3RD TSP	+0.10
Bobbin	42	24	WAR	19	1.02	P 4	0	2AVB	+0.00
Bobbin	42	39	NQI		0.41	P 1	30	1ST TSP	+0.00
Bobbin	42	42	WAR	11	0.56	P 4	0	1AVB	+0.00
Bobbin	42	43	WAR	12	0.63	P 4	0	2AVB	+0.00
Bobbin			WAR	13	0.67	P 4	0	1AVB	+0.00
Bobbin			WAR	19	1.02	P 4	0	3AVB	+0.00
Bobbin	42	51	WAR	15	0.75	P 4	0	1AVB	+0.00
Bobbin	42	52	NQI		1.36	3	23	TTS-CL	+6.50
Bobbin	42	57	NQI		2.38	3	18	TTS-CL	+20.69
Bobbin			WAR	18	0.98	P 4	0	1AVB	+0.00
Bobbin	42	68	NQI		0.51	P 1	150	2ND TSP	+0.08
Bobbin	42	74	NQI		8.39	3	170	7TH TSP	+18.42
U-Bend			VOL		4.71	1	161	7TH TSP	+18.42
Bobbin	42	76	ODI	29	0.58	3	122	3RD TSP	+32.47
Bobbin	43	32	NQI		1.28	3	39	4TH TSP	+22.87
H/L Special I			VOL		1.09	1	120	4TH TSP	+23.43
Bobbin	43	40	WAR	15	0.76	P 4	0	1AVB	+0.00
Bobbin	43	41	WAR	19	1.02	P 4	0	1AVB	+0.00
Bobbin	43	46	WAR	16	0.86	P 4	0	1AVB	+0.00
Bobbin	43	51	WAR	14	0.72	P 4	0	1AVB	+0.00
Bobbin	43	56	WAR	19	1.06	P 4	0	1AVB	+0.00
Bobbin	43	57	WAR	19	1.05	P 4	0	1AVB	+0.00
Bobbin	43	58	ADI		3.46	6	61	17TH TSP	+16.65
C/L Special I			VOL		1.02	1	122	16TH TSP	-6.21
Bobbin	43	61	ADI		2.23	6	58	14TH TSP	+14.11
Bobbin	43	68	ODI	23	0.40	P 1	117	1ST TSP	+0.00
Bobbin	43	74	NQI		0.19	P 1	152	5TH TSP	+0.00
Bobbin	43	87	ADI		8.99	6	71	9TH TSP	+7.14
C/L Special I			VOL		0.95	1	151	9TH TSP	+6.59
Bobbin	44	28	ODI	7	1.54	4	130	2ND TSP	+13.73
Bobbin	44	35	NQI		0.42	P 1	90	3RD TSP	+0.00
Bobbin	44	48	ODI	22	0.45	3	126	17TH TSP	+10.62
Bobbin	45	77	ADI		4.77	6	95	15TH TSP	-1.54
C/L Special I			VOL		0.84	1	116	15TH TSP	-2.12
H/L Tubesheet	45	84	SAI		1.53	1	16	TTS-HL	-0.01
Bobbin	45	88	ODI	21	0.69	3	127	TTS-HL	+0.82
Bobbin	46	31	ODI	10	1.83	4	129	9TH TSP	+33.98
C/L Special I			VOL		0.83	1	125	8TH TSP	-10.25
Bobbin	46	47	ODI	21	0.32	3	126	TTS-CL	+22.56
C/L Special I			VOL		0.94	1	158	20TH TSP	-5.86
Bobbin	46	59	WAR	6	0.96	P 2	0	16TH TSP	+0.00
Bobbin	46	78	ODI	6	1.76	4	149	11TH TSP	+3.64
Bobbin			ODI	7	0.86	3	136	11TH TSP	+3.05
C/L Special I			VOL		0.66	1	110	11TH TSP	+3.46
Bobbin	46	87	ADI		2.40	6	63	5TH TSP	+12.01
H/L Special I			VOL		1.55	1	119	5TH TSP	+12.27

ATTACHMENT #9 - INDICATIONS OF IMPERFECTIONS

INDICATIONS OF IMPERFECTIONS									
TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1
Bobbin	47	30	IDI	94	13.87	P 1	31	TE-HL	+8.38
Bobbin	47	56	NQI		0.36	3	90	TTS-HL	+17.02
Bobbin			WAR	9	1.73	P 2	0	14TH TSP	+0.00
Bobbin			WAR	26	5.89	P 2	0	16TH TSP	+0.00
H/L Special I			VOL		0.51	1	59	TTS-HL	+16.78
Bobbin	47	58	WAR	15	2.62	P 2	0	14TH TSP	+0.00
Bobbin	47	59	WAR	5	0.73	P 2	0	12TH TSP	+0.00
Bobbin			WAR	5	0.76	P 2	0	17TH TSP	+0.00
Bobbin			WAR	10	1.64	P 2	0	16TH TSP	+0.00
Bobbin			WAR	14	2.50	P 2	0	14TH TSP	+0.00
Bobbin	47	60	WAR	5	0.83	P 2	0	17TH TSP	+0.00
Bobbin			WAR	7	1.20	P 2	0	14TH TSP	+0.00
Bobbin			WAR	14	2.55	P 2	0	16TH TSP	+0.00
H/L Tubesheet	47	63	MAI		1.42	1	9	TTS-HL	-3.49
Bobbin	47	77	WAR	8	1.40	P 2	0	16TH TSP	+0.00
H/L Tubesheet	47	86	SAI		0.48	1	17	TTS-HL	-0.88
Bobbin	48	37	WAR	4	0.78	P 2	0	16TH TSP	+0.00
Bobbin	48	38	WAR	11	2.02	P 2	0	16TH TSP	+0.00
Bobbin	48	41	WAR	12	2.21	P 2	0	16TH TSP	+0.00
Bobbin	48	53	WAR	8	1.56	P 2	0	17TH TSP	+0.00
Bobbin	48	54	WAR	23	4.93	P 2	0	16TH TSP	+0.00
Bobbin	48	55	WAR	12	2.32	P 2	0	16TH TSP	+0.00
Bobbin	48	56	WAR	7	1.27	P 2	0	17TH TSP	+0.00
Bobbin			WAR	14	2.70	P 2	0	16TH TSP	+0.00
Bobbin			WAR	15	2.91	P 2	0	12TH TSP	+0.00
Bobbin			WAR	23	5.05	P 2	0	14TH TSP	+0.00
Bobbin	48	59	WAR	7	1.18	P 2	0	16TH TSP	+0.00
Bobbin	48	62	WAR	26	5.42	P 2	0	16TH TSP	+0.00
H/L Tubesheet	48	85	VOL		0.42	1	155	TTS-HL	-0.22
H/L Tubesheet	48	86	SAI		0.64	1	157	TTS-HL	-0.05
Bobbin	49	35	WAR	7	1.17	P 2	0	16TH TSP	+0.00
Bobbin	49	37	WAR	10	1.87	P 2	0	16TH TSP	+0.00
Bobbin	49	38	WAR	17	3.36	P 2	0	16TH TSP	+0.00
Bobbin	49	40	WAR	15	2.98	P 2	0	17TH TSP	+0.00
Bobbin			WAR	18	3.65	P 2	0	16TH TSP	+0.00
Bobbin	49	41	WAR	3	0.58	P 2	0	14TH TSP	+0.00
Bobbin			WAR	14	2.72	P 2	0	16TH TSP	+0.00
Bobbin	49	42	WAR	23	4.90	P 2	0	16TH TSP	+0.00
Bobbin	49	43	WAR	14	2.74	P 2	0	16TH TSP	+0.00
Bobbin			WAR	14	2.84	P 2	0	17TH TSP	+0.00
Bobbin			WAR	17	3.35	P 2	0	15TH TSP	+0.00
Bobbin	49	45	WAR	3	0.58	P 2	0	14TH TSP	+0.00
Bobbin			WAR	6	0.96	P 2	0	15TH TSP	+0.00
Bobbin			WAR	6	1.03	P 2	0	16TH TSP	+0.00
Bobbin	49	46	NQI		0.37	3	102	4TH TSP	+19.57
Bobbin			NQI		0.66	3	95	3RD TSP	+23.50
H/L Special I			VOL		1.09	1	131	3RD TSP	+23.56
H/L Special I			VOL		1.19	1	132	4TH TSP	+19.91
Bobbin	49	50	WAR	18	3.81	P 2	0	16TH TSP	+0.00
Bobbin	49	53	WAR	12	2.23	P 2	0	14TH TSP	+0.00
Bobbin			WAR	15	2.87	P 2	0	12TH TSP	+0.00
Bobbin			WAR	19	3.82	P 2	0	17TH TSP	+0.00
Bobbin			WAR	19	4.00	P 2	0	19TH TSP	+0.00
Bobbin			WAR	22	4.86	P 2	0	16TH TSP	+0.00
Bobbin	49	57	WAR	6	1.08	P 2	0	12TH TSP	+0.00
Bobbin			WAR	14	2.83	P 2	0	17TH TSP	+0.00
Bobbin			WAR	15	2.99	P 2	0	14TH TSP	+0.00
Bobbin			WAR	17	3.33	P 2	0	16TH TSP	+0.00
Bobbin	49	64	WAR	10	1.77	P 2	0	16TH TSP	+0.00
Bobbin			WAR	12	2.01	P 2	0	17TH TSP	+0.00
U-Bend	49	72	VOL		1.56	1	19	4AVE	+0.00
Bobbin	49	74	WAR	24	4.81	P 2	0	16TH TSP	+0.00
Bobbin	49	77	WAR	10	1.73	P 2	0	16TH TSP	+0.00
Bobbin	49	80	NQI		2.03	P 1	31	TE-CL	+17.14



ATTACHMENT #9 - INDICATIONS OF IMPERFECTIONS

INDICATIONS OF IMPERFECTIONS

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1
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Total Indications Found = 584  
Total Tubes Found = 347

ATTACHMENT #10 - INDICATIONS OF IMPERFECTIONS

INDICATIONS OF IMPERFECTIONS

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1
Bobbin	2	22	ADI		2.75	6	59	9TH TSP	+13.78
Bobbin			NQI		0.59	3	132	18TH TSP	+1.51
C/L Special I			VOL		0.43	1	112	9TH TSP	+12.71
C/L Special I			VOL		0.34	1	123	18TH TSP	+1.66
Bobbin	2	25	ODI	8	0.69	3	146	10TH TSP	+30.50
C/L Special I			VOL		0.94	1	135	9TH TSP	-12.77
Bobbin	2	27	ODI	20	0.70	3	129	13TH TSP	+4.59
C/L Special I			VOL		0.28	1	105	13TH TSP	+4.95
Bobbin	2	52	ADI		2.09	6	74	12TH TSP	+7.84
C/L Special I			VOL		0.65	1	55	12TH TSP	+6.86
Bobbin	2	54	NQI		0.26	3	49	TTS-CL	+18.54
C/L Special I			VOL		0.56	1	71	TTS-CL	+18.32
Bobbin	2	61	NQI		0.86	3	147	15TH TSP	-1.29
C/L Special I			VOL		0.33	1	151	15TH TSP	-1.20
H/L Tubesheet	2	62	SAI		0.47	1	20	TTS-HL	+0.04
Bobbin	3	1	IDI	96	16.98	P 1	34	TE-HL	+8.77
U-Bend	3	12	NQI		3.37	1	14	8TH TSP	+1.06
Bobbin			NQI		0.50	3	45	20TH TSP	+7.99
Bobbin	3	39	IDI	48	5.40	P 1	106	TE-HL	+5.11
Bobbin	3	47	ADI		2.68	6	84	14TH TSP	+3.33
Bobbin			IDI	99	15.48	P 1	38	TE-HL	+8.00
C/L Special I			VOL		0.71	1	154	14TH TSP	+1.31 to +3.55
H/L Tubesheet	3	62	SAI		0.64	1	48	TTS-HL	-0.10
H/L Tubesheet	3	63	SAI		0.67	1	35	TTS-HL	-1.35
Bobbin	3	65	ODI	39	1.08	P 1	114	1ST TSP	+0.05
H/L Special I			SAI		1.06	1	63	1ST TSP	+0.06
U-Bend	3	85	VOL		2.64	1	160	8TH TSP	+3.73
Bobbin	3	93	ODI	18	4.89	3	7	4TH TSP	+37.44
Bobbin	3	95	IDI	10	3.07	P 1	144	TE-HL	+5.34
Bobbin			IDI	55	10.20	P 1	22	TE-HL	+5.99
Bobbin	4	1	IDI	94	24.87	P 1	47	TE-HL	+9.20
Bobbin	4	4	ADI		5.14	6	68	3RD TSP	+6.39
H/L Special I			VOL		0.41	1	113	3RD TSP	+5.67
Bobbin	4	6	ODI	2	0.61	3	153	9TH TSP	+18.38
Bobbin	4	14	NQI		0.49	3	90	16TH TSP	+1.83
C/L Special I			VOL		0.26	1	70	15TH TSP	-8.76
Bobbin	4	16	ODI	7	0.60	3	147	9TH TSP	+16.46
C/L Special I			VOL		0.56	1	31	9TH TSP	+16.90
Bobbin	4	40	ODI	37	0.38	3	108	TTS-CL	+3.59
H/L Tubesheet	4	59	SAI		0.60	1	35	TTS-HL	-0.11
Bobbin	4	77	NQI		0.56	P 1	133	2ND TSP	-0.05
Bobbin	4	83	NQI		0.44	P 1	101	2ND TSP	+0.02
Bobbin			NQI		0.58	P 1	48	1ST TSP	-0.11
H/L Special I			SAI		0.44	1	45	2ND TSP	+0.04
H/L Tubesheet	4	108	SAI		0.87	1	14	TTS-HL	-2.14
Bobbin	5	9	NQI		0.74	P 1	33	12TH TSP	+0.45
H/L Tubesheet	5	19	MAI		0.64	1	34	TTS-HL	-1.52
Bobbin	5	27	NQI		7.87	P 1	149	TE-HL	+15.68
H/L Tubesheet	5	57	SAI		0.63	1	172	TTS-HL	-0.02
Bobbin	5	101	IDI	41	12.80	P 1	15	TE-HL	+16.10
Bobbin			IDI	54	11.11	P 1	20	TE-HL	+12.35
Bobbin			IDI	70	7.27	P 1	26	TE-HL	+9.10
Bobbin			IDI	70	11.40	P 1	26	TE-HL	+8.17
Bobbin	5	108	IDI	97	3.40	P 1	35	TE-HL	+12.34
Bobbin	6	4	NQI		0.10	P 1	130	2ND TSP	+0.07
Bobbin	6	11	NQI		0.26	P 1	82	1ST TSP	+0.00
H/L Tubesheet	6	25	MAI		0.77	1	15	TTS-HL	+0.07
Bobbin	6	27	NQI		0.40	3	95	11TH TSP	+33.62
Bobbin	6	32	ODI	9	0.83	3	143	3RD TSP	+40.92
H/L Special I			VOL		0.58	1	89	3RD TSP	+40.90
H/L Special I			VOL		0.86	1	113	4TH TSP	-0.34
Bobbin	6	34	IDI	88	13.55	P 1	45	TE-HL	+11.47
H/L Tubesheet	6	37	SAI		0.82	1	9	TTS-HL	+0.00
H/L Tubesheet	6	43	SAI		0.31	1	53	TTS-HL	+0.00
H/L Tubesheet	6	99	SAI		0.78	1	33	TTS-HL	-3.09

ATTACHMENT #10 - INDICATIONS OF IMPERFECTIONS

INDICATIONS OF IMPERFECTIONS

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1
Bobbin	7	2	IDI	74	15.23	P	1	25 TE-HL	+9.53 F/L
Bobbin			IDI	82	22.37	P	1	28 TE-HL	+2.92 F/L
Bobbin	7	4	NQI		2.73	P	1	198 TE-CL	+11.97 F/L
H/L Tubesheet	7	15	NQI		0.59	1		168 TTS-HL	+0.10 TTS-HL
Bobbin	7	22	IDI	26	10.89	P	1	9 TE-HL	+18.23 F/L
H/L Special I			MAI		1.06	1		27 TE-HL	+18.52 TTS-HL
H/L Special I			SAI		3.34	1		28 TE-HL	+0.58 TTS-HL
Bobbin	7	23	IDI	44	10.36	P	1	15 TE-HL	+17.29 F/L
Bobbin	7	29	IDI	73	21.00	P	1	22 TE-HL	+10.67 F/L
Bobbin	7	42	IDI	47	9.81	P	1	16 TE-HL	+17.22 F/L
H/L Tubesheet	7	57	SCI		0.94	1		156 TTS-HL	-0.13 TTS-HL
Bobbin	7	69	NQI		0.58	P	1	72 2ND TSP	+0.04 F/L
H/L Special I			SAI		0.90	1		59 2ND TSP	-0.02 2ND TSP
Bobbin	7	106	ODI	7	0.83	3		146 3RD TSP	+20.67 F/L
Bobbin			ODI	18	0.29	P	1	124 2ND TSP	-0.09 F/L
H/L Special I			MAI		0.37	1		39 2ND TSP	-0.14 2ND TSP
H/L Special I			VOL		0.53	1		97 3RD TSP	+19.53 3RD TSP
Bobbin	8	22	ODI	18	1.49	3		134 17TH TSP	+16.04 F/L
C/L Special I			VOL		0.82	1		115 16TH TSP	-6.05 16TH TSP
H/L Tubesheet	8	24	SAI		0.50	1		30 TTS-HL	+0.14 TTS-HL
H/L Tubesheet	8	28	SAI		0.85	1		30 TTS-HL	+0.13 TTS-HL
H/L Tubesheet	8	39	SAI		0.29	1		29 TTS-HL	+0.14 TTS-HL
Bobbin	8	46	IDI	76	13.61	P	1	26 TE-HL	+16.21 F/L
Bobbin	8	56	IDI	41	15.12	P	1	12 TE-HL	+14.31 F/L
Bobbin	8	60	ODI	14	0.48	3		138 2ND TSP	+31.36 F/L
H/L Special I			VOL		0.28	1		112 2ND TSP	+31.52 3RD TSP
H/L Special I	8	74	VOL		1.34	1		139 5TH TSP	+21.08 5TH TSP
Bobbin	9	2	NQI		8.23	P	1	145 TE-HL	+11.31 F/L
Bobbin	9	3	IDI	73	16.79	P	1	67 TE-HL	+7.47 F/L
Bobbin	9	4	ODI	17	1.09	4		124 TTS-CL	+11.58 F/L
Bobbin	9	6	ODI	19	0.40	P	1	126 1ST TSP	+0.02 F/L
H/L Tubesheet	9	18	VOL		0.66	1		156 TTS-HL	+0.06 TTS-HL
Bobbin	9	68	ODI	40	0.23	P	1	103 2ND TSP	-0.02 F/L
H/L Special I			SAI		0.79	1		58 2ND TSP	-0.08 2ND TSP
Bobbin	9	69	ODI	56	0.59	P	1	84 2ND TSP	+0.04 F/L
H/L Special I			SAI		0.64	1		60 2ND TSP	+0.00 2ND TSP
H/L Tubesheet	9	70	SAI		1.42	1		14 TTS-HL	+0.10 TTS-HL
Bobbin	9	76	NQI		0.46	P	1	137 3RD TSP	+0.09 F/L
Bobbin	9	79	NQI		0.61	P	1	150 3RD TSP	+0.05 F/L
Bobbin	9	96	ODI	32	0.75	3		113 9TH TSP	+6.30 F/L
C/L Special I			VOL		0.81	1		118 9TH TSP	+6.36 9TH TSP
Bobbin	9	100	IDI	34	7.45	P	1	11 TE-HL	+12.36 F/L
H/L Tubesheet	10	14	SAI		0.49	1		37 TTS-HL	-2.54 TTS-HL
Bobbin	10	21	IDI	62	10.80	P	1	21 TE-HL	+4.81 F/L
Bobbin	10	27	ADI		2.51	6		44 10TH TSP	+13.38 F/L
Bobbin	10	31	NQI		0.96	P	1	40 12TH TSP	-0.15 F/L
Bobbin	10	43	ODI	31	0.81	3		116 10TH TSP	+28.60 F/L
C/L Special I			VOL		1.39	1		99 9TH TSP	-15.41 9TH TSP
Bobbin	10	50	ODI	14	0.50	3		139 12TH TSP	+4.46 F/L
Bobbin			IDI	47	11.27	P	1	16 TE-HL	+15.01 F/L
Bobbin	10	66	ODI	52	0.48	P	1	88 2ND TSP	+0.04 F/L
H/L Special I			SAI		0.67	1		72 2ND TSP	-0.07 2ND TSP
Bobbin	10	67	ODI	74	0.24	P	1	62 2ND TSP	+0.00 F/L
H/L Special I			SAI		0.35	1		145 2ND TSP	+0.00 2ND TSP
Bobbin	10	70	ODI	55	0.40	P	1	85 4TH TSP	+0.04 F/L
Bobbin			ODI	70	0.63	P	1	67 2ND TSP	+0.09 F/L
H/L Special I			SAI		1.23	1		36 2ND TSP	-0.04 2ND TSP
H/L Tubesheet	10	87	SAI		0.69	1		34 TTS-HL	-0.06 TTS-HL
Bobbin	10	98	ODI	56	0.35	P	1	84 2ND TSP	+0.13 F/L
H/L Special I			SAI		0.25	1		74 2ND TSP	+0.06 2ND TSP
Bobbin	11	8	NQI		0.58	3		122 17TH TSP	+15.60 F/L
C/L Special I			VOL		0.46	1		106 16TH TSP	-6.40 16TH TSP
Bobbin	11	14	NQI		0.33	3		99 17TH TSP	+19.34 F/L
Bobbin			ODI	41	0.47	3		103 16TH TSP	+5.60 F/L
C/L Special I			VOL		0.22	1		149 16TH TSP	+5.73 16TH TSP



ATTACHMENT #10 - INDICATIONS OF IMPERFECTIONS

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1	
Bobbin	11	15	ODI	28	1.36	4	112	10TH TSP	+31.38	F/L
C/L Special I			VOL		0.42	1	111	9TH TSP	-13.06	9TH TSP
Bobbin	11	25	ADI		2.36	6	83	9TH TSP	+33.52	F/L
C/L Special I			VOL		0.33	1	115	9TH TSP	+33.58	9TH TSP
Bobbin	11	30	IDI	88	13.32	P 1	50	TE-HL	+6.40	F/L
Bobbin	11	52	IDI	87	15.76	P 1	51	TE-HL	+11.32	F/L
H/L Tubesheet	11	63	SCI		0.41	1	149	TTS-HL	-0.15	TTS-HL
H/L Tubesheet	11	64	SAI		0.72	1	25	TTS-HL	-3.57	TTS-HL
H/L Tubesheet	11	85	SAI		0.61	1	40	TTS-HL	-3.30	TTS-HL
Bobbin	11	86	IDI	83	34.28	P 1	51	TE-HL	+17.88	F/L
Bobbin	11	94	ODI	3	0.69	3	154	4TH TSP	+32.23	F/L
Bobbin			ODI	4	0.69	3	153	4TH TSP	+39.46	F/L
Bobbin			ODI	8	0.41	3	146	4TH TSP	+34.25	F/L
Bobbin			ODI	16	0.32	3	135	4TH TSP	+38.75	F/L
H/L Special I			VOL		0.51	1	117	5TH TSP	-3.27	5TH TSP
H/L Special I			VOL		0.51	1	143	5TH TSP	-11.50	5TH TSP
H/L Special I			VOL		0.82	1	166	5TH TSP	-9.88	5TH TSP
H/L Special I			VOL		0.87	1	161	5TH TSP	-4.86	5TH TSP
H/L Tubesheet	11	102	MAI		2.40	1	39	TTS-HL	-3.77	TTS-HL
Bobbin	11	106	ODI	2	0.76	3	156	9TH TSP	+4.78	F/L
C/L Special I			VOL		0.23	1	98	9TH TSP	+4.98	9TH TSP
Bobbin	11	112	IDI	50	20.87	P 1	17	TE-HL	+3.30	F/L
Bobbin	12	6	ODI	9	0.87	3	146	3RD TSP	+11.66	F/L
Bobbin			ODI	30	0.56	P 1	117	2ND TSP	-0.07	F/L
H/L Tubesheet			SAI		0.83	1	16	TTS-HL	-0.04	TTS-HL
H/L Special I			SAI		0.70	1	89	2ND TSP	+0.00	2ND TSP
Bobbin	12	8	NQI		0.31	P 1	69	5TH TSP	+0.04	F/L
H/L Special I			SAI		0.27	1	135	5TH TSP	-0.01	5TH TSP
Bobbin	12	10	ODI	10	1.21	3	144	6TH TSP	+2.56	F/L
H/L Special I			VOL		1.45	1	132	6TH TSP	+2.25	6TH TSP
Bobbin	12	11	ODI	38	0.51	3	107	TTS-CL	+12.67	F/L
Bobbin			ODI	42	0.42	3	102	TTS-CL	+12.42	F/L
C/L Special I			SAI		0.22	1	108	TTS-CL	+12.52	TTS-CL
C/L Special I			SAI		0.33	1	63	TTS-CL	+12.73	TTS-CL
Bobbin	12	12	NQI		0.44	P 1	43	1ST TSP	-0.04	F/L
Bobbin			ODI	23	0.36	P 1	128	3RD TSP	+0.11	F/L
Bobbin	12	17	NQI		0.57	3	82	3RD TSP	+6.06	F/L
H/L Special I			VOL		1.55	1	192	3RD TSP	+6.07	3RD TSP
Bobbin	12	18	IDI	74	10.98	P 1	65	TE-HL	+12.02	F/L
Bobbin	12	29	IDI	82	26.24	P 1	28	TE-HL	+3.10	F/L
H/L Tubesheet	12	32	SAI		0.61	1	25	TTS-HL	+0.01	TTS-HL
Bobbin	12	48	NQI		0.20	P 1	111	15TH TSP	-0.11	F/L
Bobbin	12	67	NQI		5.01	P 1	27	TE-HL	+16.91	F/L
Bobbin			ODI	29	0.47	P 1	119	1ST TSP	-0.13	F/L
H/L Special I			SAI		4.27	1	33	TTS-HL	-4.63	TTS-HL
H/L Special I			SAI		0.29	1	112	1ST TSP	-0.21	1ST TSP
Bobbin	12	72	IDI	44	11.91	P 1	15	TE-HL	+5.64	F/L
H/L Tubesheet	12	84	SAI		1.01	1	33	TTS-HL	-3.18	TTS-HL
Bobbin	13	5	ODI	16	0.48	P 1	137	2ND TSP	+0.12	F/L
H/L Special I			SAI		0.43	1	41	2ND TSP	+0.02	2ND TSP
Bobbin	13	11	ODI	67	0.57	P 1	73	1ST TSP	+0.02	F/L
H/L Special I			SAI		0.97	1	28	1ST TSP	+0.01	1ST TSP
H/L Tubesheet	13	19	MAI		0.60	P 2	16	TTS-HL	-0.03	TTS-HL
Bobbin	13	37	ODI	26	0.64	3	122	18TH TSP	+3.95	F/L
C/L Special I			VOL		0.44	1	97	18TH TSP	+3.94	17TH TSP
Bobbin	13	47	IDI	82	16.17	P 1	55	TE-HL	+4.37	F/L
Bobbin	13	88	ODI	15	0.53	P 1	132	1ST TSP	-0.07	F/L
Bobbin	13	92	ODI	14	1.04	3	139	4TH TSP	+35.49	F/L
H/L Special I			VOL		0.89	1	138	5TH TSP	-8.84	5TH TSP
Bobbin	13	106	ODI	62	0.45	P 1	79	1ST TSP	+0.00	F/L
H/L Special I			SAI		0.30	1	48	1ST TSP	-0.07	1ST TSP
Bobbin	14	8	NQI		0.47	P 1	100	4TH TSP	+0.10	F/L
H/L Special I			SAI		0.51	1	64	4TH TSP	-0.01	4TH TSP
Bobbin	14	9	NQI		0.29	P 1	72	2ND TSP	+0.05	F/L
H/L Tubesheet	14	30	SAI		0.26	1	43	TTS-HL	+0.05	TTS-HL

ATTACHMENT #10 - INDICATIONS OF IMPERFECTIONS  
 INDICATIONS OF IMPERFECTIONS

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1	
Bobbin	14	41	IDI	76	7.66	P 1	64	TE-HL	+14.02	F/L
Bobbin	14	42	IDI	41	9.54	P 1	105	TE-HL	+17.16	F/L
Bobbin	14	51	ODI	3	0.94	3	155	3RD TSP	+28.87	F/L
H/L Special I			VOL		0.96	1	162	3RD TSP	+29.00	4TH TSP
H/L Tubesheet	14	59	MAI		0.97	1	14	TTS-HL	-3.24	TTS-HL
H/L Tubesheet	14	78	MAI		3.38	1	27	TTS-HL	-3.15	TTS-HL
Bobbin	15	15	IDI	53	3.58	P 1	91	TE-HL	+13.94	F/L
Bobbin	15	17	NQI		0.52	P 1	100	2ND TSP	+0.02	F/L
Bobbin			ODI	26	1.31	4	114	17TH TSP	+20.14	F/L
H/L Special I			MAI		0.52	1	37	2ND TSP	+0.00	2ND TSP
C/L Special I			VOL		0.61	1	108	16TH TSP	-2.38	16TH TSP
Bobbin	15	20	IDI	1	6.58	P 1	157	TE-HL	+6.36	F/L
Bobbin			IDI	9	5.72	P 1	147	TE-HL	+11.84	F/L
Bobbin			IDI	52	8.29	P 1	94	TE-HL	+5.41	F/L
Bobbin	15	32	IDI	64	7.78	P 1	78	TE-HL	+17.07	F/L
H/L Tubesheet			SAI		6.07	1	44	TTS-HL	-4.22	TTS-HL
Bobbin	15	96	ODI	14	2.32	4	130	11TH TSP	+41.35	F/L
C/L Special I			VOL		0.28	1	93	10TH TSP	-0.52	10TH TSP
C/L Special I			VOL		0.57	1	81	10TH TSP	-2.91	10TH TSP
Bobbin	16	38	IDI	94	58.62	P 1	42	TE-HL	+17.33	F/L
Bobbin	16	43	ODI	10	1.78	4	132	11TH TSP	+3.54	F/L
C/L Special I			VOL		0.27	1	112	11TH TSP	+3.75	11TH TSP
Bobbin	16	44	IDI	60	5.00	P 1	21	TE-HL	+6.07	F/L
Bobbin	16	47	ODI	34	0.52	P 1	114	1ST TSP	-0.02	F/L
H/L Special I			SAI		0.80	1	35	1ST TSP	-0.02	1ST TSP
H/L Tubesheet	16	57	MAI		1.02	1	15	TTS-HL	-2.12	TTS-HL
Bobbin	16	91	NQI		1.01	3	49	10TH TSP	+31.48	F/L
C/L Special I			VOL		1.53	1	120	9TH TSP	-12.37	9TH TSP
Bobbin	16	107	ODI	6	0.78	3	150	5TH TSP	+15.32	F/L
Bobbin			ODI	8	0.49	3	147	4TH TSP	+22.86	F/L
H/L Special I			VOL		0.49	1	133	4TH TSP	+22.86	4TH TSP
H/L Special I			VOL		1.13	1	131	5TH TSP	+15.32	5TH TSP
Bobbin	16	108	ODI	4	0.92	3	153	10TH TSP	+34.82	F/L
C/L Special I			VOL		0.97	1	123	9TH TSP	-8.91	9TH TSP
Bobbin	17	18	ADI		1.28	4	61	9TH TSP	+5.88	F/L
C/L Special I			VOL		0.40	1	63	9TH TSP	+5.67	9TH TSP
Bobbin	17	26	ODI	40	7.22	P 1	106	TE-HL	+13.74	F/L
Bobbin	17	38	NQI		8.47	P 1	160	TE-HL	+13.66	F/L
Bobbin			NQI		11.77	P 1	160	TE-HL	+13.94	F/L
H/L Tubesheet	17	42	VOL		1.15	1	167	TTS-HL	-0.08	TTS-HL
Bobbin	17	59	ODI	4	0.79	3	152	3RD TSP	+40.34	F/L
H/L Special I			VOL		0.91	1	149	4TH TSP	-4.04	4TH TSP
Bobbin	17	63	ODI	13	0.79	3	140	9TH TSP	+10.35	F/L
Bobbin			ODI	7	0.74	3	148	10TH TSP	+32.81	F/L
C/L Special I			VOL		0.31	1	132	9TH TSP	-11.34	9TH TSP
C/L Special I			VOL		0.60	1	121	9TH TSP	+10.62	9TH TSP
Bobbin	17	65	ODI	33	0.48	3	115	4TH TSP	+42.39	F/L
H/L Special I			VOL		0.14	1	135	5TH TSP	-1.86	5TH TSP
Bobbin	17	67	ODI	18	0.82	3	134	12TH TSP	+17.48	F/L
Bobbin	17	68	IDI	33	3.66	P 1	117	TE-HL	+4.51	F/L
Bobbin	17	70	NQI		19.42	P 1	162	TE-HL	+7.94	F/L
Bobbin	17	71	ODI	7	0.79	3	148	3RD TSP	+8.59	F/L
Bobbin			ODI	26	0.38	3	123	3RD TSP	+9.14	F/L
Bobbin			IDI	52	8.47	P 1	95	TE-HL	+16.18	F/L
H/L Special I			MAI		8.26	1	21	TTS-HL	-3.13	TTS-HL
H/L Special I			VOL		0.89	1	124	3RD TSP	+9.17	3RD TSP
Bobbin	17	80	ODI	11	0.75	3	142	10TH TSP	+10.53	F/L
Bobbin			IDI	25	20.46	P 1	128	TE-HL	+1.83	F/L
C/L Special I			VOL		0.46	1	80	10TH TSP	+10.10	10TH TSP
Bobbin	17	88	NQI		4.53	P 1	29	TE-CL	+19.01	F/L
Bobbin	17	96	NQI		2.81	P 1	55	TE-HL	+6.74	F/L
Bobbin	17	101	IDI	63	10.07	P 1	22	TE-HL	+8.43	F/L
Bobbin	18	5	ODI	24	0.36	3	125	11TH TSP	+36.81	F/L
C/L Special I			VOL		1.07	1	158	10TH TSP	-7.72	10TH TSP
Bobbin	18	37	NQI		9.74	P 1	164	TE-HL	+10.06	F/L

ATTACHMENT #10 - INDICATIONS OF IMPERFECTIONS

INDICATIONS OF IMPERFECTIONS

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1
Bobbin			ODI	18	0.31	P 1	132	17TH TSP	-0.03
Bobbin	18	40	IDI	75	12.01	P 1	67	TE-HL	+9.01
Bobbin	18	51	ODI	22	0.26	3	127	11TH TSP	+8.20
Bobbin	18	58	ODI	13	0.42	3	140	11TH TSP	+33.84
C/L Special I			VOL		0.47	1	138	11TH TSP	+33.84
H/L Tubesheet	18	102	SAI		1.85	1	167	TTS-HL	-0.23
Bobbin	19	31	NQI		8.73	P 1	147	TE-HL	+14.98
Bobbin	19	32	IDI	75	9.57	P 1	58	TE-HL	+16.88
H/L Tubesheet			SAI		11.27	1	27	TTS-HL	-4.34
Bobbin	19	70	NQI		0.31	P 1	56	1ST TSP	+0.05
H/L Tubesheet	20	5	MAI		1.24	1	11	TTS-HL	+0.00
Bobbin	20	11	NQI		58.22	P 1	42	TE-HL	+15.85
H/L Special I			MAI		12.72	1	26	TE-HL	+16.70
Bobbin	20	32	IDI	37	9.34	P 1	104	TE-HL	+6.64
H/L Tubesheet	20	48	SAI		0.38	2	36	TTS-HL	-0.08
Bobbin	20	59	ODI	6	1.39	3	147	9TH TSP	+18.58
C/L Special I			VOL		1.90	1	154	9TH TSP	+18.98
Bobbin	20	61	NQI		12.37	P 1	161	TE-HL	+11.27
Bobbin	20	100	ODI	39	0.54	3	106	6TH TSP	+4.62
H/L Special I			VOL		0.46	1	111	6TH TSP	+4.62
Bobbin	20	103	ODI	10	0.99	4	139	10TH TSP	+33.66
C/L Special I			VOL		0.36	1	52	9TH TSP	-11.75
C/L Special I			VOL		0.44	1	121	9TH TSP	-10.42
C/L Special I			VOL		0.78	1	151	9TH TSP	-4.96
Bobbin	21	6	ODI	10	1.12	3	141	9TH TSP	+27.60
C/L Special I			VOL		1.09	1	105	9TH TSP	+27.83
Bobbin	21	7	ODI	49	0.36	3	92	4AVB	+3.21
Bobbin	21	10	NQI		4.22	P 1	160	TE-HL	+12.19
Bobbin	21	11	IDI	1	5.58	P 1	152	TE-HL	+15.06
Bobbin			IDI	26	2.16	P 1	119	TE-HL	+16.99
Bobbin	21	12	IDI	28	5.16	P 1	116	TE-HL	+14.09
Bobbin	21	16	ODI	16	0.90	3	133	5TH TSP	+18.97
H/L Special I			VOL		0.80	1	96	5TH TSP	+18.88
Bobbin	21	22	ODI	13	0.88	3	137	TTS-CL	+1.14
C/L Special I			VOL		1.38	1	115	TTS-CL	+1.33
Bobbin	21	25	IDI	77	9.59	P 1	56	TE-HL	+11.42
H/L Tubesheet			MAI		1.16	1	12	TTS-HL	+0.09
Bobbin	21	30	IDI	39	6.97	P 1	106	TE-HL	+14.04
Bobbin			IDI	97	14.02	P 1	34	TE-HL	+3.78
Bobbin			IDI	98	44.01	P 1	37	TE-HL	+2.78
Bobbin	21	31	IDI	76	10.17	P 1	57	TE-HL	+14.83
Bobbin	21	37	IDI	45	16.24	P 1	13	TE-HL	+1.85
Bobbin	21	42	IDI	60	8.13	P 1	76	TE-HL	+17.95
H/L Tubesheet			MAI		5.66	1	27	TTS-HL	-3.41
Bobbin	21	51	ODI	31	0.36	P 1	112	17TH TSP	-0.05
Bobbin	21	64	NQI		9.73	P 1	163	TE-HL	+8.30
Bobbin	21	65	ODI	24	0.28	P 1	122	1ST TSP	+0.00
Bobbin	21	86	NQI		0.40	3	85	3RD TSP	+26.11
Bobbin			ODI	36	0.51	3	110	3RD TSP	+27.79
H/L Special I			VOL		0.49	1	94	3RD TSP	+26.11
H/L Special I			VOL		0.51	1	108	3RD TSP	+27.79
Bobbin	21	93	ODI	10	0.47	3	142	5TH TSP	+4.02
Bobbin			ODI	14	0.61	3	137	5TH TSP	+12.07
Bobbin			ODI	14	0.69	3	137	5TH TSP	+9.50
H/L Special I			VOL		0.44	1	61	5TH TSP	+4.02
H/L Special I			VOL		0.55	1	115	5TH TSP	+9.50
H/L Special I			VOL		0.64	1	125	5TH TSP	+12.07
Bobbin	21	99	ODI	22	2.14	4	127	13TH TSP	+5.29
C/L Special I			VOL		0.50	1	101	13TH TSP	+4.60
Bobbin	22	6	WAR	15	0.58	P 4	0	4AVB	+0.00
Bobbin	22	10	IDI	53	5.40	P 1	84	TE-HL	+9.04
Bobbin	22	18	IDI	19	2.63	P 1	128	TE-HL	+16.86
Bobbin			IDI	54	6.89	P 1	83	TE-HL	+15.85
Bobbin			IDI	95	26.00	P 1	35	TE-HL	+5.74
Bobbin	22	22	NQI		0.55	3	58	9TH TSP	+10.33



ATTACHMENT #10 - INDICATIONS OF IMPERFECTIONS  
 INDICATIONS OF IMPERFECTIONS

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1
C/L Special I					0.46	1	165	9TH TSP	+11.05
Bobbin	22	33	IDI	3	4.85	P 1	153	TE-HL	+10.09
Bobbin			IDI	69	13.97	P 1	24	TE-HL	+4.67
Bobbin			IDI	73	7.71	P 1	65	TE-HL	+13.99
Bobbin			IDI	80	21.01	P 1	57	TE-HL	+11.06
Bobbin			IDI	86	32.46	P 1	30	TE-HL	+2.68
H/L Tubesheet			SAI		1.58	1	37	TTS-HL	+0.13
Bobbin	22	35	NQI		18.96	P 1	177	TE-HL	+4.34
Bobbin	22	36	IDI	46	14.42	P 1	16	TE-HL	+3.74
Bobbin	22	42	NQI		8.78	P 1	160	TE-HL	+4.49
Bobbin	22	43	ODI	10	1.53	3	141	20TH TSP	+1.72
C/L Special I			VOL		0.54	1	91	20TH TSP	+1.86
Bobbin	22	52	IDI	64	8.58	P 1	76	TE-HL	+16.90
Bobbin	22	54	ADI		2.10	6	69	16TH TSP	+4.55
Bobbin			ODI	14	1.35	4	132	16TH TSP	+7.90
C/L Special I			VOL		0.33	1	91	16TH TSP	+4.89
C/L Special I			VOL		0.55	1	94	16TH TSP	+8.75
Bobbin	22	67	IDI	83	38.06	P 1	51	TE-HL	+12.60
H/L Tubesheet			SAI		1.11	1	18	TTS-HL	+0.00
H/L Tubesheet	22	75	SAI		0.28	1	33	TTS-HL	-2.96
Bobbin	22	85	WAR	4	0.25	P 4	0	1AVB	+0.00
Bobbin			WAR	5	0.31	P 4	0	4AVB	+0.00
Bobbin	22	92	ODI	1	1.10	3	156	4TH TSP	+37.31
H/L Special I			VOL		0.45	1	118	5TH TSP	-7.47
Bobbin	22	97	ODI	22	0.62	3	128	5TH TSP	+40.27
Bobbin			ODI	5	1.01	3	150	17TH TSP	+11.72
H/L Special I			VOL		1.06	1	131	6TH TSP	-4.43
C/L Special I			VOL		0.61	1	84	17TH TSP	+11.32
Bobbin	22	99	ODI	13	1.75	4	135	6TH TSP	+20.13
Bobbin			ODI	26	0.63	3	122	6TH TSP	+22.66
H/L Special I			VOL		0.62	1	112	6TH TSP	+26.49
H/L Special I			VOL		0.62	1	114	6TH TSP	+28.12
H/L Special I			VOL		0.72	1	116	6TH TSP	+21.81
H/L Special I			VOL		1.51	1	112	6TH TSP	+23.71
Bobbin	23	14	ODI	14	1.44	3	137	6TH TSP	+13.06
H/L Special I			VOL		0.91	1	89	6TH TSP	+13.34
H/L Special I			VOL		1.05	1	110	6TH TSP	+14.54
Bobbin	23	19	IDI	64	11.75	P 1	70	TE-HL	+16.02
Bobbin	23	20	IDI	1	5.06	P 1	142	TE-HL	+14.96
Bobbin			IDI	50	10.90	P 1	13	TE-HL	+3.93
Bobbin			IDI	60	6.28	P 1	75	TE-HL	+10.21
H/L Tubesheet	23	22	VOL		0.55	1	156	TTS-HL	+0.51
Bobbin	23	26	IDI	66	9.69	P 1	68	TE-HL	+14.04
Bobbin	23	34	NQI		36.93	P 1	38	TE-HL	+2.77
Bobbin	23	36	IDI	90	4.26	P 1	39	TE-HL	+1.76
Bobbin	23	39	IDI	1	5.14	P 1	142	TE-HL	+14.13
Bobbin	23	41	IDI	78	20.21	P 1	53	TE-HL	+15.04
Bobbin			IDI	99	21.37	P 1	27	TE-HL	+1.82
Bobbin	23	42	IDI	27	6.58	P 1	121	TE-HL	+15.09
Bobbin	23	44	IDI	2	5.91	P 1	154	TE-HL	+5.35
Bobbin	23	45	NQI		9.84	P 1	160	TE-HL	+16.93
Bobbin			IDI	9	5.57	P 1	145	TE-HL	+15.02
Bobbin	23	48	IDI	23	6.51	P 1	126	TE-HL	+13.13
Bobbin	23	62	NQI		5.94	3	10	2ND TSP	+35.78
Bobbin	23	67	NQI		0.74	3	30	2ND TSP	+26.15
H/L Special I			VOL		0.25	1	62	2ND TSP	+26.15
H/L Tubesheet	23	69	SAI		0.46	1	51	TTS-HL	+0.15
Bobbin	24	16	IDI	68	7.43	P 1	72	TE-HL	+10.31
Bobbin	24	25	IDI	81	17.30	P 1	56	TE-HL	+17.86
H/L Tubesheet			MAI		14.51	1	30	TTS-HL	-5.28
Bobbin	24	28	IDI	94	21.93	P 1	31	TE-HL	+9.48
Bobbin	24	41	NQI		4.63	P 1	133	TE-HL	+3.44
Bobbin			NQI		5.68	P 1	147	TE-HL	+13.19
H/L Tubesheet			SAI		1.63	1	17	TTS-HL	+0.20
H/L Tubesheet	24	45	SAI		3.34	1	16	TTS-HL	+0.08

ATTACHMENT #10 - INDICATIONS OF IMPERFECTIONS

INDICATIONS OF IMPERFECTIONS

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1
Bobbin	24	49	NQI		6.43	P 1	168	TE-HL	+15.12
Bobbin	24	50	IDI	78	13.93	P 1	60	TE-HL	+16.06
Bobbin	24	52	NQI		4.94	P 1	160	TE-HL	+16.01
Bobbin	24	93	ODI	14	0.56	3	138	19TH TSP	+3.30
C/L Special I			VOL		0.67	1	90	19TH TSP	+3.91
Bobbin	24	107	NQI		0.32	P 1	68	3RD TSP	-0.02
Bobbin	25	33	IDI	31	8.74	P 1	113	TE-HL	+9.28
Bobbin	25	34	IDI	32	5.12	P 1	112	TE-HL	+6.38
Bobbin			IDI	41	4.79	P 1	102	TE-HL	+3.43
Bobbin			IDI	41	7.56	P 1	102	TE-HL	+10.26
Bobbin	25	42	NQI		9.39	P 1	140	TE-HL	+5.33
Bobbin	25	44	NQI		8.75	P 1	155	TE-HL	+4.43
Bobbin	25	50	NQI		4.99	P 1	147	TE-HL	+8.27
Bobbin			IDI	58	8.33	P 1	83	TE-HL	+9.25
Bobbin	25	62	NQI		0.57	P 1	93	3RD TSP	+0.00
H/L Special I			SAI		0.32	P 1	126	3RD TSP	+0.02
Bobbin	25	74	NQI		0.77	P 1	96	3RD TSP	+0.00
H/L Special I			SAI		1.06	1	41	3RD TSP	-0.13
Bobbin	25	89	NQI		3.98	P 1	36	TE-CL	+18.91
Bobbin	25	92	NQI		13.26	P 1	27	TE-HL	+13.99
Bobbin	25	94	ODI	78	0.84	P 1	61	1ST TSP	-0.02
H/L Special I			SAI		0.51	1	74	1ST TSP	-0.03
Bobbin	25	96	ODI	17	0.96	3	134	4TH TSP	+18.78
H/L Special I			VOL		0.93	1	106	4TH TSP	+13.98
Bobbin	26	8	WAR	17	1.22	P 4	0	2AVB	+0.00
Bobbin	26	13	NQI		0.50	P 1	49	1ST TSP	+0.07
H/L Special I			SAI		0.41	1	93	1ST TSP	+0.00
Bobbin	26	19	NQI		0.82	P 1	36	1ST TSP	+0.09
H/L Special I			SAI		0.27	1	91	1ST TSP	+0.00
Bobbin	26	36	IDI	33	5.55	P 1	111	TE-HL	+4.36
H/L Tubesheet	26	47	SAI		0.48	1	33	TTS-HL	+0.00
Bobbin	26	73	NQI		2.57	P 1	119	TE-CL	+19.17
H/L Tubesheet	26	80	SAI		3.47	1	46	TTS-HL	-3.82
H/L Tubesheet	26	82	SAI		2.66	1	29	TTS-HL	-2.50
Bobbin	26	87	NQI		3.69	P 1	62	TE-HL	+11.62
H/L Special I			MAI		1.76	1	16	TE-HL	+11.90
Bobbin	26	99	ODI	31	0.17	3	117	10TH TSP	+7.67
Bobbin			ODI	33	0.30	3	114	10TH TSP	+12.10
C/L Special I			VOL		0.21	1	141	10TH TSP	+11.53
C/L Special I			VOL		0.36	1	154	10TH TSP	+7.36
Bobbin	27	14	NQI		0.78	P 1	42	12TH TSP	-0.05
Bobbin			ODI	10	0.87	P 1	140	1ST TSP	+0.15
H/L Special I			SAI		0.49	1	66	1ST TSP	+0.02
Bobbin	27	16	IDI	89	63.39	P 1	48	TE-HL	+11.09
Bobbin	27	19	NQI		0.37	P 1	54	11TH TSP	+0.00
Bobbin	27	24	ODI	12	2.20	4	129	1ST TSP	+15.49
H/L Special I			VOL		1.19	1	112	2ND TSP	-8.74
Bobbin	27	27	ODI	5	0.93	3	148	4TH TSP	+38.87
H/L Special I			VOL		1.32	1	128	4TH TSP	+39.90
Bobbin	27	42	NQI		7.97	P 1	159	TE-HL	+8.80
Bobbin			ODI	6	7.51	P 1	136	TE-HL	+13.97
H/L Tubesheet	27	63	SAI		1.96	1	22	TTS-HL	-0.13
U-Bend	27	64	VOL		5.72	1	14	2AVB	+4.78
U-Bend	27	65	VOL		6.61	1	19	7TH TSP	+46.50
U-Bend	27	66	VOL		7.79	1	17	2AVB	+5.25
Bobbin			WAR	12	0.77	P 4	0	3AVB	+0.00
Bobbin			IDI	67	10.14	P 1	71	TE-HL	+16.41
Bobbin			IDI	72	8.16	P 1	65	TE-HL	+12.46
H/L Tubesheet			MAI		13.29	1	29	TTS-HL	-4.87
H/L Tubesheet	27	70	MAI		0.51	1	32	TTS-HL	-4.11
Bobbin	27	89	NQI		1.20	3	140	2ND TSP	+5.33
Bobbin	27	106	NQI		39.54	P 1	186	TE-HL	+3.04
Bobbin	28	17	NQI		0.93	P 1	46	2ND TSP	-0.05
H/L Special I			SAI		1.01	1	22	2ND TSP	-0.05
Bobbin	28	61	ODI	15	0.68	3	137	12TH TSP	+18.75

ATTACHMENT #10 - INDICATIONS OF IMPERFECTIONS

INDICATIONS OF IMPERFECTIONS

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1
C/L Special I								11TH TSP	11TH TSP
Bobbin	28	65	ODI	3	1.28	3	153	8TH TSP	F/L
U-Bend								8TH TSP	8TH TSP
Bobbin	28	73	ADI	6	6.78	6	88	TTS-HL	F/L
Bobbin								1ST TSP	F/L
H/L Special I								TTS-HL	1ST TSP
H/L Special I								1ST TSP	1ST TSP
H/L Special I								1ST TSP	1ST TSP
Bobbin	28	74	ODI	1	0.25	P 1	145	1ST TSP	F/L
Bobbin	28	90	IDI	66	2.88	P 1	73	TE-HL	F/L
Bobbin	28	100	IDI	69	12.81	P 1	69	TE-HL	F/L
Bobbin	29	28	IDI	9	5.29	P 1	141	TE-HL	F/L
Bobbin	29	33	NQI		0.18	P 1	76	17TH TSP	F/L
Bobbin	29	72	ODI	15	1.89	4	137	9TH TSP	F/L
C/L Special I								9TH TSP	9TH TSP
H/L Tubesheet	29	99	VOL		0.54	1	104	TTS-HL	TTS-HL
Bobbin	30	18	ODI	31	0.82	3	118	12TH TSP	F/L
C/L Special I								12TH TSP	11TH TSP
Bobbin	30	23	NQI		0.83	P 1	74	1ST TSP	F/L
Bobbin								11TH TSP	F/L
Bobbin	30	35	WAR	20	1.42	P 4	0	2AVB	F/L
Bobbin	30	38	WAR	16	1.02	P 4	0	4AVB	F/L
Bobbin	30	77	ODI	3	0.63	3	153	9TH TSP	F/L
H/L Tubesheet								TTS-HL	TTS-HL
C/L Special I								9TH TSP	8TH TSP
Bobbin	30	78	NQI		0.49	3	100	12TH TSP	F/L
C/L Special I								11TH TSP	11TH TSP
Bobbin	30	90	NQI		0.81	1	107	11TH TSP	F/L
Bobbin								3RD TSP	F/L
Bobbin								1ST TSP	F/L
H/L Special I								2ND TSP	2ND TSP
H/L Special I								3RD TSP	3RD TSP
Bobbin	31	12	ADI	6	6.80	6	72	17TH TSP	F/L
C/L Special I								16TH TSP	16TH TSP
Bobbin	31	31	NQI		0.41	1	63	16TH TSP	F/L
Bobbin	31	56	IDI	89	14.81	P 1	42	TE-HL	F/L
Bobbin	31	59	IDI	75	10.23	P 1	66	TE-HL	F/L
Bobbin	31	60	IDI	24	4.42	P 1	126	TE-HL	F/L
Bobbin	31	66	IDI	4	5.45	P 1	142	TE-HL	F/L
H/L Tubesheet	31	67	SAI		1.11	1	29	TTS-HL	TTS-HL
Bobbin	31	68	NQI		7.06	P 1	156	TE-HL	F/L
Bobbin	31	72	NQI		4.76	P 1	161	TE-HL	F/L
Bobbin								TE-HL	F/L
Bobbin	31	73	IDI	6	5.45	P 1	140	TE-HL	F/L
Bobbin	31	96	NQI		0.48	P 1	51	1ST TSP	F/L
H/L Special I								1ST TSP	1ST TSP
Bobbin	31	97	ODI	3	0.70	1	44	1ST TSP	F/L
Bobbin	31	102	NQI		0.30	P 1	143	5TH TSP	F/L
H/L Special I								2ND TSP	F/L
H/L Special I								3RD TSP	3RD TSP
Bobbin	32	24	NQI		0.52	3	77	2ND TSP	F/L
Bobbin	32	41	WAR	13	0.78	P 4	0	3AVB	F/L
Bobbin	32	56	IDI	72	8.85	P 1	63	TE-HL	F/L
H/L Tubesheet								TTS-HL	TTS-HL
Bobbin	32	64	NQI		8.74	1	26	TTS-HL	F/L
Bobbin	32	75	ODI	9	7.59	P 1	163	TE-HL	F/L
H/L Special I								2ND TSP	F/L
Bobbin	32	103	IDI	63	0.68	3	145	2ND TSP	F/L
H/L Tubesheet	33	12	SCI		0.50	1	85	2ND TSP	2ND TSP
Bobbin	33	14	WAR	5	0.29	P 4	0	4AVB	F/L
Bobbin	33	16	IDI	43	6.02	P 1	97	TE-HL	F/L
Bobbin	33	63	NQI		0.49	P 1	55	1ST TSP	F/L
Bobbin	33	66	IDI	83	21.45	P 1	33	TE-HL	F/L
Bobbin	33	67	NQI		0.39	P 1	50	1ST TSP	F/L
H/L Special I								1ST TSP	1ST TSP
Bobbin	33	77	ODI	35	0.50	1	34	1ST TSP	F/L
								16TH TSP	+7.31



ATTACHMENT #10 - INDICATIONS OF IMPERFECTIONS

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1
U-Bend	33	36	VOL		2.74	1		2AVB	+6.24
Bobbin			ODI	6	2.02	3		2AVB	+7.19
Bobbin	33	88	WAR	17	1.10	P 4	0	2AVB	+0.00
Bobbin	33	99	ODI	1	1.44	3		154 3RD TSP	+29.20
Bobbin			ODI	23	0.40	3		125 3RD TSP	+27.34
H/L Special I			VOL		1.56	1		161 3RD TSP	+27.34
H/L Special I			VOL		1.94	1		159 3RD TSP	+29.20
Bobbin	33	100	WAR	22	1.56	P 4	0	2AVB	+0.00
Bobbin	34	13	WAR	11	0.73	P 4	0	3AVB	+0.00
Bobbin	34	16	WAR	18	1.26	P 4	0	3AVB	+0.00
Bobbin	34	19	NQI		1.14	P 1	51	2ND TSP	+0.08
Bobbin	34	24	IDI	96	20.08	P 1	39	TE-HL	+1.46
Bobbin	34	30	WAR	20	1.45	P 4	0	2AVB	+0.00
Bobbin	34	33	ODI	5	1.23	4		145 5TH TSP	+39.17
H/L Special I			VOL		1.39	1		112 6TH TSP	-4.95
Bobbin	34	45	IDI	91	7.99	P 1	31	TE-HL	+1.40
Bobbin	34	57	IDI	2	6.63	P 1	151	TE-HL	+13.86
Bobbin	34	64	IDI	2	11.54	P 1	159	TE-HL	+11.51
Bobbin	34	70	NQI		0.20	P 1	65	2ND TSP	+0.14
Bobbin	34	74	ODI	4	0.78	P 1	156	16TH TSP	-0.15
Bobbin	34	76	ODI	7	0.90	3		146 4TH TSP	+10.26
H/L Special I			VOL		1.61	1		166 4TH TSP	+10.39
Bobbin	34	83	ODI	10	1.00	3		142 3RD TSP	+18.34
Bobbin			ODI	16	1.02	3		134 3RD TSP	+23.68
H/L Special I			VOL		1.13	1		21 3RD TSP	+24.94
Bobbin	34	88	ADI		1.53	6		57 TTS-CL	+24.02
Bobbin	34	102	ODI	20	0.86	3		129 2ND TSP	-0.82
H/L Special I			VOL		0.29	1		88 2ND TSP	-0.82
Bobbin	35	14	ODI	30	0.50	3		118 1ST TSP	+22.07
U-Bend			VOL		1.36	1		138 7TH TSP	+2.46
H/L Tubesheet	35	20	SAI		0.91	1		16 TTS-HL	-0.12
Bobbin	35	35	NQI		8.16	P 1	158	TE-HL	+3.53
Bobbin	35	39	WAR	11	0.73	P 4	0	1AVB	+0.00
Bobbin			IDI	40	8.26	P 1	107	TE-HL	+13.98
Bobbin	35	53	WAR	33	2.79	P 4	0	2AVB	+0.00
Bobbin	35	75	WAR	16	1.01	P 4	0	3AVB	+0.00
Bobbin	35	78	WAR	26	2.06	P 4	0	3AVB	+0.00
Bobbin	35	99	IDI	67	34.43	P 1	24	TE-HL	+6.45
H/L Tubesheet	36	31	MAI		0.68	1		31 TTS-HL	-3.04
Bobbin	36	39	WAR	21	1.28	P 4	0	1AVB	+0.00
Bobbin	36	43	NQI		0.76	3		134 4TH TSP	+20.54
H/L Special I			VOL		2.29	1		143 4TH TSP	+20.66
Bobbin	36	55	NQI		0.37	P 1	72	2ND TSP	+0.05
Bobbin	36	65	WAR	14	0.92	P 4	0	3AVB	+0.00
Bobbin			WAR	17	1.14	P 4	0	4AVB	+0.00
Bobbin	36	69	WAR	20	1.43	P 4	0	3AVB	+0.00
Bobbin	36	72	WAR	14	0.89	P 4	0	2AVB	+0.00
U-Bend	36	79	VOL		0.84	1		159 3AVB	-2.32
Bobbin			NQI		1.75	3		154 3AVB	-2.14
Bobbin	36	88	ODI	4	1.31	3		151 5TH TSP	+22.48
H/L Special I			VOL		0.92	1		137 5TH TSP	+22.62
Bobbin	36	100	IDI	44	23.24	P 1	15	TE-HL	+4.34
Bobbin	37	27	NQI		0.54	3		113 16TH TSP	-0.97
C/L Special I			VOL		1.09	1		121 16TH TSP	-0.97
Bobbin	37	32	ODI	11	1.89	3		142 19TH TSP	+4.33
C/L Special I			VOL		1.72	1		153 19TH TSP	+4.45
Bobbin	37	33	ODI	7	1.73	3		147 12TH TSP	+9.35
C/L Special I			VOL		1.68	1		166 12TH TSP	+9.33
Bobbin	37	35	ODI	6	1.62	4		139 12TH TSP	+15.72
Bobbin	37	57	IDI	9	14.37	P 1	144	TE-HL	+14.06
Bobbin	37	66	NQI		0.57	P 1	63	3RD TSP	+0.09
H/L Special I			SAI		0.79	1		31 3RD TSP	-0.05
Bobbin	37	85	IDI	86	3.98	P 1	31	TE-HL	+8.16
Bobbin	37	88	NQI		0.62	3		145 17TH TSP	+6.42
C/L Special I			VOL		0.38	1		111 17TH TSP	+6.35

ATTACHMENT #10 - INDICATIONS OF IMPERFECTIONS

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1
Bobbin	38	17	WAR	13	0.70	P 4	0	1AVB	+0.00 F/L
Bobbin	38	24	ODI	17	0.57	3	134	17TH TSP	+1.67 F/L
Bobbin	38	30	IDI	87	32.28	P 1	51	TE-HL	+6.33 F/L
Bobbin	38	54	WAR	14	0.75	P 4	0	2AVB	+0.00 F/L
Bobbin			WAR	18	1.07	P 4	0	3AVB	+0.00 F/L
Bobbin			WAR	20	1.22	P 4	0	1AVB	+0.00 F/L
U-Bend	38	58	VOL		1.04	P 1	80	3AVB	+0.00 2AVB
Bobbin			WAR	39	4.70	P 4	0	3AVB	+0.00 F/L
Bobbin	38	59	WAR	13	0.83	P 4	0	1AVB	+0.00 F/L
Bobbin			WAR	13	0.83	P 4	0	3AVB	+0.00 F/L
Bobbin			WAR	25	2.00	P 4	0	2AVB	+0.00 F/L
Bobbin	38	65	NQI		0.75	3	129	2ND TSP	+7.62 F/L
Bobbin			WAR	17	1.13	P 4	0	3AVB	+0.00 F/L
H/L Special I			VOL		0.52	1	98	2ND TSP	+7.42 2ND TSP
Bobbin	38	69	WAR	12	0.71	P 4	0	3AVB	+0.00 F/L
Bobbin	38	74	ODI	19	0.26	P 1	131	18TH TSP	+0.00 F/L
Bobbin	38	75	IDI	26	5.40	P 1	122	TE-HL	+6.47 F/L
Bobbin	39	18	WAR	15	0.92	P 4	0	3AVB	+0.00 F/L
Bobbin	39	20	ODI	24	0.52	3	125	3RD TSP	+23.35 F/L
Bobbin	39	43	WAR	13	0.71	P 4	0	3AVB	+0.00 F/L
H/L Tubesheet	39	60	SAI		0.94	1	26	TTS-HL	-0.06 TTS-HL
Bobbin	39	75	WAR	14	0.83	P 4	0	1AVB	+0.00 F/L
Bobbin	39	80	WAR	6	0.39	P 4	0	4AVB	+0.00 F/L
Bobbin			WAR	27	2.15	P 4	0	2AVB	+0.00 F/L
Bobbin			WAR	32	2.94	P 4	0	3AVB	+0.00 F/L
Bobbin	39	81	NQI		2.79	3	155	10TH TSP	+35.15 F/L
C/L Special I			VOL		1.54	1	145	9TH TSP	-8.91 9TH TSP
Bobbin	39	87	ODI	8	2.41	4	137	TTS-HL	+2.02 F/L
Bobbin	39	96	ODI	25	0.41	3	123	10TH TSP	+17.14 F/L
C/L Special I			VOL		1.38	1	158	10TH TSP	+17.03 9TH TSP
Bobbin	40	19	WAR	10	0.56	P 4	0	3AVB	+0.00 F/L
Bobbin			WAR	15	0.87	P 4	0	1AVB	+0.00 F/L
Bobbin	40	21	WAR	14	0.80	P 4	0	1AVB	+0.00 F/L
Bobbin	40	28	ADI		1.24	6	78	TTS-CL	+23.25 F/L
Bobbin			ADI		5.08	6	38	7TH TSP	+2.10 F/L
Bobbin			ADI		3.02	6	28	12TH TSP	+18.69 F/L
Bobbin	40	35	ADI		2.92	6	26	9TH TSP	+12.38 F/L
Bobbin			ADI		1.98	6	35	10TH TSP	+38.47 F/L
Bobbin			WAR	21	1.44	P 4	0	3AVB	+0.00 F/L
Bobbin	40	39	NQI		0.46	3	139	10TH TSP	+31.75 F/L
Bobbin	40	44	WAR	8	0.46	P 4	0	1AVB	+0.00 F/L
Bobbin	40	47	WAR	11	0.61	P 4	0	1AVB	+0.00 F/L
Bobbin	40	51	NQI		1.23	P 1	141	2ND TSP	-0.12 F/L
H/L Special I			SAI		0.72	1	48	2ND TSP	-0.19 2ND TSP
Bobbin	40	54	WAR	11	0.62	P 4	0	1AVB	+0.00 F/L
Bobbin	40	62	WAR	12	0.68	P 4	0	1AVB	+0.00 F/L
Bobbin	40	70	WAR	26	2.07	P 4	0	3AVB	+0.00 F/L
Bobbin	40	76	ODI	15	0.55	3	135	9TH TSP	+9.92 F/L
C/L Special I			SAI		0.28	1	51	9TH TSP	+9.60 8TH TSP
Bobbin	40	87	ODI	32	0.37	3	114	9TH TSP	+4.67 F/L
C/L Special I			SAI		0.44	1	105	9TH TSP	+4.95 8TH TSP
Bobbin	40	88	IDI	13	6.99	P 1	136	TE-HL	+16.92 F/L
H/L Tubesheet			MAI		1.76	1	56	TTS-HL	-4.67 TTS-HL
Bobbin	40	95	ODI	29	0.40	3	118	9TH TSP	+15.01 F/L
Bobbin	41	44	NQI		5.25	3	10	TTS-CL	+14.34 F/L
Bobbin			NQI		4.47	3	8	17TH TSP	+5.15 F/L
Bobbin			WAR	18	1.14	P 4	0	3AVB	+0.00 F/L
Bobbin			WAR	19	1.23	P 4	0	4AVB	+0.00 F/L
Bobbin			WAR	27	2.00	P 4	0	2AVB	+0.00 F/L
Bobbin	41	45	WAR	6	0.45	P 4	0	1AVB	+0.00 F/L
Bobbin	41	48	WAR	22	1.47	P 4	0	2AVB	+0.00 F/L
H/L Tubesheet			SAI		1.06	1	14	TTS-HL	+0.20 TTS-HL
Bobbin	41	57	WAR	11	0.63	P 4	0	4AVB	+0.00 F/L
Bobbin			WAR	15	0.91	P 4	0	1AVB	+0.00 F/L
Bobbin			WAR	17	1.04	P 4	0	3AVB	+0.00 F/L

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Bobbin,C/L Special Interest,H/L Special Interest,H/L Tubesheet,U-Bend

ATTACHMENT #10 - INDICATIONS OF IMPERFECTIONS

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION		EXTENT1
Bobbin	41	58	WAR	23	1.67	P	4	0 1AVB	+0.00	F/L
Bobbin	41	64	WAR	27	2.14	P	4	0 1AVB	+0.00	F/L
Bobbin			WAR	31	2.74	P	4	0 2AVB	+0.00	F/L
Bobbin			WAR	34	3.34	P	4	0 3AVB	+0.00	F/L
Bobbin	41	65	WAR	16	0.97	P	4	0 1AVB	+0.00	F/L
Bobbin			WAR	23	1.69	P	4	0 3AVB	+0.00	F/L
Bobbin			WAR	32	3.00	P	4	0 2AVB	+0.00	F/L
Bobbin	41	66	WAR	22	1.54	P	4	0 1AVB	+0.00	F/L
Bobbin	41	68	WAR	7	0.44	P	4	0 3AVB	+0.00	F/L
Bobbin			WAR	14	0.82	P	4	0 1AVB	+0.00	F/L
Bobbin	41	70	WAR	10	0.57	P	4	0 2AVB	+0.00	F/L
Bobbin			WAR	16	1.01	P	4	0 1AVB	+0.00	F/L
H/L Tubesheet			SAI		0.77	1		16 TTS-HL	+0.08	TTS-HL
Bobbin	41	71	WAR	11	0.65	P	4	0 1AVB	+0.00	F/L
Bobbin	41	72	WAR	15	0.91	P	4	0 1AVB	+0.00	F/L
Bobbin	41	91	IDI	50	2.99	P	1	92 TE-HL	+17.89	F/L
H/L Tubesheet			SAI		7.31	1		22 TTS-HL	-3.62	TTS-HL
Bobbin	42	21	WAR	10	0.62	P	4	0 1AVB	+0.00	F/L
Bobbin	42	33	ODI	44	0.44	3		100 6TH TSP	+27.48	F/L
H/L Special I			VOL		0.40	1		54 6TH TSP	+27.47	6TH TSP
Bobbin	42	45	ODI	20	1.27	3		129 13TH TSP	+6.21	F/L
Bobbin			WAR	4	0.36	P	4	0 1AVB	+0.00	F/L
C/L Special I			VOL		0.87	1		108 13TH TSP	+6.06	12TH TSP
Bobbin	42	47	NQI		3.92	3		10 9TH TSP	+18.72	F/L
H/L Tubesheet	42	48	MAI		2.17	1		34 TTS-HL	+0.03	TTS-HL
Bobbin	42	51	NQI		0.20	P	1	121 17TH TSP	+0.00	F/L
Bobbin	42	54	ODI	1	0.97	3		154 2ND TSP	+31.57	F/L
H/L Special I			VOL		1.29	1		146 2ND TSP	+31.53	2ND TSP
H/L Tubesheet	42	56	SAI		0.59	1		31 TTS-HL	+0.21	TTS-HL
H/L Tubesheet	42	57	SAI		1.52	1		31 TTS-HL	-0.07	TTS-HL
H/L Tubesheet	42	60	MAI		2.45	1		16 TTS-HL	-0.01	TTS-HL
Bobbin	42	64	WAR	26	1.87	P	4	0 1AVB	+0.00	F/L
H/L Tubesheet	42	67	SAI		0.27	1		56 TTS-HL	-0.02	TTS-HL
H/L Tubesheet	42	76	SAI		0.42	1		39 TTS-HL	-0.11	TTS-HL
Bobbin	42	77	IDI	72	4.84	P	1	70 TE-HL	+14.03	F/L
Bobbin	42	89	ODI	20	0.34	P	1	131 16TH TSP	-0.11	F/L
Bobbin	43	22	WAR	20	1.35	P	4	0 2AVB	+0.00	F/L
Bobbin			WAR	24	1.75	P	4	0 1AVB	+0.00	F/L
Bobbin	43	23	WAR	7	0.43	P	4	0 2AVB	+0.00	F/L
Bobbin	43	27	ODI	2	0.52	3		152 3RD TSP	+28.48	F/L
H/L Special I			VOL		0.61	1		124 3RD TSP	+28.47	3RD TSP
H/L Tubesheet	43	37	SAI		1.82	1		24 TTS-HL	-0.01	TTS-HL
H/L Special I	43	74	VOL		0.76	1		150 5TH TSP	-0.29	5TH TSP
Bobbin	43	88	IDI	38	3.96	P	1	111 TE-HL	+14.46	F/L
Bobbin	43	89	NQI		12.21	P	1	22 TE-HL	+16.75	F/L
H/L Tubesheet			MAI		3.24	1		26 TTS-HL	-4.73	TTS-HL
H/L Tubesheet	44	37	SAI		1.80	1		28 TTS-HL	+0.00	TTS-HL
Bobbin	44	43	WAR	17	1.08	P	4	0 1AVB	+0.00	F/L
H/L Tubesheet	44	45	MAI		0.30	1		38 TTS-HL	-0.19	TTS-HL
Bobbin	44	46	WAR	12	0.68	P	4	0 1AVB	+0.00	F/L
Bobbin	44	47	WAR	8	1.58	P	2	0 15TH TSP	+0.00	F/L
Bobbin	44	48	WAR	10	0.61	P	4	0 3AVB	+0.00	F/L
Bobbin	44	56	NQI		5.79	3		14 19TH TSP	+10.38	F/L
Bobbin	44	62	WAR	18	1.12	P	4	0 1AVB	+0.00	F/L
Bobbin	44	63	WAR	18	1.13	P	4	0 1AVB	+0.00	F/L
Bobbin	44	64	IDI	74	0.64	P	1	68 TE-HL	+15.07	F/L
Bobbin	44	72	NQI		0.28	3		82 10TH TSP	+2.10	F/L
Bobbin			NQI		0.30	3		73 10TH TSP	+5.75	F/L
Bobbin			NQI		0.57	3		90 11TH TSP	+14.97	F/L
Bobbin			NQI		0.77	3		159 11TH TSP	+21.17	F/L
C/L Special I			VOL		0.50	1		126 10TH TSP	+2.14	8TH TSP
C/L Special I			VOL		0.86	1		144 10TH TSP	+5.70	8TH TSP
C/L Special I			VOL		1.72	1		117 10TH TSP	-0.55	8TH TSP
C/L Special I			VOL		1.21	1		110 11TH TSP	+20.68	10TH TSP
C/L Special I			VOL		1.22	1		107 11TH TSP	+14.71	10TH TSP



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Bobbin,C/L Special Interest,H/L Special Interest,H/L Tubesheet,U-Bend

ATTACHMENT #10 - INDICATIONS OF IMPERFECTIONS

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1	
Bobbin	44	76	ODI	3	1.18	3	150	9TH TSP	+19.55	F/L
C/L Special I			VOL		0.54	1	89	9TH TSP	+19.11	8TH TSP
Bobbin	44	79	NQI		0.28	3	61	19TH TSP	+9.43	F/L
C/L Special I			VOL		0.19	1	111	19TH TSP	+9.30	18TH TSP
Bobbin	44	83	IDI	8	1.59	P 1	144	TE-HL	+9.34	F/L
H/L Tubesheet	44	91	SAI		0.50	1	28	TTS-HL	-2.56	TTS-HL
Bobbin	45	40	WAR	9	0.54	P 4	0	LAVE	+0.00	F/L
Bobbin	45	75	NQI		0.68	P 1	35	3RD TSP	+0.00	F/L
H/L Special I			SAI		0.16	1	67	3RD TSP	-0.01	3RD TSP
Bobbin	46	28	IDI	97	10.78	P 1	34	TE-HL	+7.78	F/L
H/L Tubesheet	47	57	MAI		1.00	1	28	TTS-HL	-4.90	TTS-HL
U-Bend	48	31	VOL		1.40	1	198	LAVB	+20.04	4AVB
Bobbin	48	37	NQI		0.61	P 1	70	1ST TSP	+0.05	F/L
H/L Special I			SAI		0.50	1	46	1ST TSP	+0.05	1ST TSP
Bobbin	48	71	ODI	5	0.43	P 1	143	15TH TSP	+0.02	F/L
Bobbin	48	75	ODI	12	0.35	3	139	3RD TSP	+25.96	F/L
Bobbin	48	76	NQI		0.45	P 1	55	1ST TSP	+0.02	F/L
H/L Special I			MAI		0.63	1	167	1ST TSP	+0.11	1ST TSP
Bobbin	48	85	ODI	22	0.76	3	127	TTS-HL	+5.02	F/L
H/L Special I			VOL		0.39	1	173	TTS-HL	+4.82	1ST TSP
Bobbin	49	32	NQI		0.73	3	55	TTS-HL	+23.56	F/L
H/L Tubesheet			VOL		0.52	1	73	TTS-HL	+0.01	TTS-HL
H/L Special I			VOL		0.48	1	167	TTS-HL	+23.60	1ST TSP
Bobbin	49	38	NQI		0.42	3	111	4TH TSP	+29.01	F/L
Bobbin			NQI		0.43	3	113	4TH TSP	+2.23	F/L
Bobbin			ODI	9	0.51	3	142	5TH TSP	+25.71	F/L
Bobbin			ODI	11	0.40	3	140	4TH TSP	+37.38	F/L
Bobbin			ODI	11	0.70	3	140	4TH TSP	+24.82	F/L
Bobbin			ODI	13	0.87	3	137	3RD TSP	+23.91	F/L
H/L Special I			VOL		0.22	1	65	4TH TSP	+29.17	5TH TSP
H/L Special I			VOL		0.29	1	91	4TH TSP	+24.91	5TH TSP
H/L Special I			VOL		0.30	1	130	4TH TSP	+37.47	5TH TSP
H/L Special I			VOL		0.45	1	145	4TH TSP	-19.97	5TH TSP
H/L Special I			VOL		0.93	1	7	4TH TSP	+2.16	5TH TSP
Bobbin	49	40	WAR	10	2.53	P 2	0	17TH TSP	+0.00	F/L
Bobbin	49	56	WAR	8	2.06	P 2	0	19TH TSP	-0.34	F/L
H/L Tubesheet			SAI		1.33	1	15	TTS-HL	-0.05	TTS-HL
Bobbin	49	57	ODI	43	0.44	3	100	TTS-HL	+3.58	F/L
Bobbin			WAR	7	1.34	P 2	0	19TH TSP	+0.00	F/L
Bobbin			WAR	9	1.83	P 2	0	17TH TSP	+0.00	F/L
H/L Tubesheet			VOL		0.36	1	146	TTS-HL	-0.12	TTS-HL

Total Indications Found = 756  
 Total Tubes Found = 455

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ATTACHMENT #11 - INDICATIONS OF IMPERFECTIONS  
 INDICATIONS OF IMPERFECTIONS

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1	
Bobbin	2	8	NQI		1.20	3	138	18TH TSP	+19.65	8TH TSP
Bobbin			ODI	8	1.36	4	150	18TH TSP	+10.71	8TH TSP
C/L Special I			VOL		0.51	1	109	18TH TSP	+10.24	18TH TSP
C/L Special I			VOL		0.83	1	120	18TH TSP	+19.61	18TH TSP
Bobbin	2	14	NQI		1.84	3	149	18TH TSP	+19.22	8TH TSP
C/L Special I			VOL		0.92	1	118	18TH TSP	+19.11	18TH TSP
H/L Tubesheet	2	47	SAI		0.95	1	14	TTS-HL	+0.07	TTS-HL
H/L Tubesheet	2	62	SAI		0.72	1	13	TTS-HL	-0.09	TTS-HL
U-Bend	2	64	VOL		0.42	1	76	7TH TSP	+2.85	8TH TSP
H/L Tubesheet	2	70	SAI		0.40	1	39	TTS-HL	-0.15	TTS-HL
Bobbin	2	88	ODI	14	1.09	3	131	15TH TSP	+18.06	8TH TSP
C/L Special I			VOL		0.90	1	123	15TH TSP	+18.39	15TH TSP
H/L Tubesheet	2	93	SAI		0.96	1	24	TTS-HL	+0.09	TTS-HL
H/L Tubesheet	2	104	SAI		1.01	1	18	TTS-HL	+0.07	TTS-HL
Bobbin	3	40	IDI	6	3.49	P 1	138	TE-CL	+1.03	8TH TSP
U-Bend	3	80	VOL		0.71	1	149	7TH TSP	+0.05	7TH TSP
H/L Tubesheet	3	81	SAI		0.22	1	65	TTS-HL	-0.07	TTS-HL
H/L Tubesheet	3	95	SAI		0.84	1	14	TTS-HL	+0.03	TTS-HL
Bobbin	4	4	NQI		1.13	3	39	11TH TSP	+28.62	8TH TSP
C/L Special I			VOL		0.38	1	96	11TH TSP	+28.82	11TH TSP
Bobbin	4	11	ODI	9	0.57	3	135	9TH TSP	+2.22	8TH TSP
C/L Special I			VOL		1.22	1	160	9TH TSP	+1.86	9TH TSP
Bobbin	4	18	NQI		0.97	P 1	104	1ST TSP	-0.04	8TH TSP
U-Bend	4	31	VOL		1.25	1	71	8TH TSP	+7.13	7TH TSP
Bobbin	4	54	IDI	35	10.29	P 1	13	TE-HL	+8.18	9TH TSP
H/L Tubesheet	4	84	SAI		0.51	1	37	TTS-HL	-0.05	TTS-HL
Bobbin	4	87	NQI		7.31	3	17	7TH TSP	+6.01	9TH TSP
H/L Tubesheet	4	98	SAI		0.45	1	30	TTS-HL	-0.16	TTS-HL
H/L Tubesheet	4	111	SAI		0.55	1	25	TTS-HL	-1.00	TTS-HL
Bobbin	5	48	ODI	19	0.33	3	128	9TH TSP	+9.14	8TH TSP
H/L Tubesheet	5	53	SAI		1.03	1	19	TTS-HL	+0.07	TTS-HL
Bobbin	5	56	IDI	39	11.60	P 1	22	TE-HL	+16.07	8TH TSP
Bobbin	5	61	ODI	26	1.11	3	123	10TH TSP	+24.81	8TH TSP
C/L Special I			VOL		0.90	1	50	10TH TSP	+24.75	10TH TSP
Bobbin	5	94	IDI	61	17.88	P 1	23	TE-HL	+6.07	9TH TSP
H/L Tubesheet	5	108	SAI		0.33	1	73	TTS-HL	-0.03	TTS-HL
Bobbin	6	8	NQI		1.17	3	141	16TH TSP	+2.23	F/L
Bobbin			ODI	1	1.44	3	141	5TH TSP	+23.34	F/L
Bobbin			ODI	5	1.80	3	138	4TH TSP	+15.42	F/L
Bobbin			ODI	11	1.38	3	134	2ND TSP	+33.00	F/L
Bobbin			ODI	12	1.27	3	133	9TH TSP	+17.01	F/L
H/L Special I			VOL		0.42	1	101	6TH TSP	-20.21	6TH TSP
H/L Special I			VOL		0.82	1	31	4TH TSP	+14.74	4TH TSP
C/L Special I			VOL		0.73	1	150	9TH TSP	+17.28	9TH TSP
C/L Special I			VOL		0.68	1	116	16TH TSP	+2.40	16TH TSP
Bobbin	6	35	NQI		0.26	3	112	15TH TSP	-1.25	F/L
Bobbin	6	64	IDI	60	10.68	P 1	24	TE-HL	+11.57	F/L
H/L Tubesheet			SAI		0.43	1	30	TTS-HL	+0.03	TTS-HL
H/L Tubesheet	6	72	SAI		0.49	1	34	TTS-HL	+0.03	TTS-HL
H/L Tubesheet	6	74	SAI		0.39	1	45	TTS-HL	+0.05	TTS-HL
H/L Tubesheet	6	76	SAI		0.68	1	26	TTS-HL	+0.00	TTS-HL
Bobbin	6	78	NQI		0.34	P 1	105	2ND TSP	+0.02	F/L
Bobbin	6	101	IDI	63	12.53	P 1	25	TE-HL	+18.28	F/L
H/L Tubesheet			MAI		1.13	1	33	TTS-HL	-3.16	TTS-HL
H/L Tubesheet			SAI		1.24	P 2	19	TTS-HL	-0.04	TTS-HL
Bobbin	6	104	NQI		0.72	3	92	11TH TSP	+5.68	F/L
C/L Special I			VOL		0.97	1	94	11TH TSP	+5.87	11TH TSP
Bobbin	6	112	ODI	17	0.66	3	129	12TH TSP	+13.06	F/L
H/L Tubesheet			SAI		0.27	1	96	TTS-HL	+0.00	TTS-HL
C/L Special I			VOL		0.43	1	111	12TH TSP	+12.87	12TH TSP
H/L Tubesheet	7	38	SAI		1.05	1	13	TTS-HL	+0.02	TTS-HL
H/L Tubesheet	7	51	MAI		1.38	1	3	TTS-HL	+0.09	TTS-HL
Bobbin	7	65	NQI		0.58	3	89	9TH TSP	+24.07	F/L
C/L Special I			SAI		0.40	1	46	9TH TSP	+24.14	9TH TSP
Bobbin	7	68	NQI		0.42	3	38	9TH TSP	+10.48	F/L

ATTACHMENT #11 - INDICATIONS OF IMPERFECTIONS

INDICATIONS OF IMPERFECTIONS

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1	
Bobbin			NQI		2.59	3	18	13TH TSP	+3.17	F/L
Bobbin	7	75	ADI		2.80	6	95	1ST TSP	+9.89	F/L
Bobbin	7	94	IDI	46	12.91	P 1	16	TE-HL	+13.36	F/L
Bobbin			IDI	83	10.30	P 1	69	TE-HL	+15.10	F/L
Bobbin	7	96	NQI		0.43	P 1	66	2ND TSP	+0.13	F/L
Bobbin			NQI		0.61	P 1	52	5TH TSP	-0.31	F/L
H/L Special I			SAI		0.27	1	66	5TH TSP	-0.08	5TH TSP
Bobbin	8	21	NQI		0.83	3	133	11TH TSP	+10.68	F/L
C/L Special I			VOL		0.51	1	112	11TH TSP	+11.66	11TH TSP
Bobbin	8	22	ADI		4.65	6	79	12TH TSP	+15.57	F/L
Bobbin			ODI	11	3.35	6	85	11TH TSP	+8.19	F/L
C/L Special I			VOL		0.28	1	129	11TH TSP	+11.50	11TH TSP
C/L Special I			VOL		0.47	1	153	11TH TSP	+8.73	11TH TSP
C/L Special I			VOL		0.90	1	95	11TH TSP	-7.09	11TH TSP
H/L Tubesheet	8	48	SAI		0.87	1	161	TTS-HL	-0.11	TTS-HL
Bobbin	8	85	ADI		3.43	6	96	19TH TSP	+2.59	F/L
Bobbin	8	105	ODI	21	0.36	3	127	11TH TSP	+24.35	F/L
Bobbin			IDI	41	14.41	P 1	16	TE-HL	+6.56	F/L
C/L Special I			VOL		0.26	1	61	11TH TSP	+23.86	11TH TSP
Bobbin	8	106	NQI		5.68	3	14	17TH TSP	+6.32	F/L
Bobbin	9	10	ADI		2.77	6	88	3RD TSP	+25.22	F/L
H/L Special I			VOL		0.79	1	161	4TH TSP	-18.42	4TH TSP
Bobbin	9	16	ODI	10	1.23	4	145	10TH TSP	+24.19	F/L
Bobbin			ODI	29	0.48	3	121	10TH TSP	+28.69	F/L
C/L Special I			VOL		0.29	1	106	10TH TSP	+23.35	10TH TSP
C/L Special I			VOL		0.29	1	115	10TH TSP	+29.30	10TH TSP
C/L Special I			VOL		0.34	1	138	10TH TSP	+30.67	10TH TSP
C/L Special I			VOL		0.35	1	61	10TH TSP	+21.38	10TH TSP
C/L Special I			VOL		0.77	1	17	10TH TSP	+24.33	10TH TSP
C/L Special I			VOL		0.92	1	42	10TH TSP	+25.98	10TH TSP
Bobbin	9	20	ODI	21	0.79	3	127	12TH TSP	+19.62	F/L
C/L Special I			VOL		0.64	1	109	11TH TSP	-2.40	11TH TSP
Bobbin	9	31	ODI	3	2.26	4	142	2ND TSP	+15.97	F/L
Bobbin			IDI	41	1.17	P 1	103	TE-HL	+1.56	F/L
H/L Special I			VOL		0.81	1	110	2ND TSP	+15.93	2ND TSP
Bobbin	9	42	ADI		2.73	6	82	TTS-HL	+6.66	F/L
H/L Special I			VOL		0.45	1	109	TTS-HL	+4.06	TTS-HL
Bobbin	9	73	NQI		0.77	3	112	2ND TSP	+5.58	F/L
H/L Special I			VOL		0.96	1	117	2ND TSP	+5.56	2ND TSP
Bobbin	9	77	ODI	11	1.50	3	134	10TH TSP	+34.60	F/L
Bobbin			ODI	16	0.51	3	130	10TH TSP	+33.63	F/L
C/L Special I			VOL		0.81	1	91	9TH TSP	-8.13	9TH TSP
C/L Special I			VOL		1.36	1	109	9TH TSP	-9.59	9TH TSP
Bobbin	9	99	IDI	76	11.70	P 1	25	TE-HL	+5.79	F/L
Bobbin	9	109	NQI		0.58	P 1	62	1ST TSP	+0.05	F/L
U-Bend	10	4	VOL		0.94	1	135	7TH TSP	-15.16	7TH TSP
H/L Tubesheet	10	31	SAI		0.48	1	19	TTS-HL	-1.11	TTS-HL
Bobbin	10	53	ODI	30	0.22	3	120	3RD TSP	+21.70	F/L
Bobbin	10	71	ADI		4.59	6	92	1ST TSP	+21.61	F/L
Bobbin	10	76	NQI		0.62	P 1	83	2ND TSP	+0.19	F/L
H/L Special I			SAI		0.45	1	72	2ND TSP	+0.19	2ND TSP
Bobbin	10	78	ADI		2.82	6	80	6TH TSP	+15.40	F/L
Bobbin			ODI	30	0.53	3	119	4TH TSP	+5.09	F/L
H/L Special I			VOL		0.48	1	155	6TH TSP	+17.03	6TH TSP
H/L Special I			VOL		0.66	1	146	4TH TSP	+5.29	4TH TSP
Bobbin	10	95	NQI		1.37	3	155	2ND TSP	+26.51	F/L
H/L Special I			VOL		0.99	1	106	3RD TSP	-18.27	3RD TSP
H/L Tubesheet	10	113	SAI		0.51	1	17	TTS-HL	+0.22	TTS-HL
Bobbin	11	8	ODI	5	1.45	4	141	15TH TSP	+7.02	F/L
C/L Special I			VOL		0.35	1	103	14TH TSP	-4.99	14TH TSP
Bobbin	11	13	ODI	5	2.18	4	141	10TH TSP	+41.77	F/L
C/L Special I			VOL		0.26	1	90	9TH TSP	-2.48	9TH TSP
H/L Tubesheet	11	47	SAI		1.59	1	17	TTS-HL	-0.03	TTS-HL
H/L Tubesheet	11	56	MAI		0.30	1	51	TTS-HL	-0.03	TTS-HL
Bobbin	11	61	NQI		0.77	P 1	83	1ST TSP	-0.06	F/L



ATTACHMENT #11 - INDICATIONS OF IMPERFECTIONS  
 INDICATIONS OF IMPERFECTIONS

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1
H/L Special I			MAI		0.60	1	80	1ST TSP	-0.11
Bobbin	11	63	ODI	17	1.78	4	138	9TH TSP	+17.22
C/L Special I			VOL		0.85	1	21	9TH TSP	+17.17
Bobbin	11	66	NQI		0.50	P 1	55	1ST TSP	-0.02
H/L Special I	11	73	VOL		1.21	1	30	1ST TSP	+15.38
H/L Tubesheet	11	89	SAI		0.41	1	66	TTS-HL	-0.09
Bobbin	11	97	ODI	8	1.09	3	138	12TH TSP	+19.14
C/L Special I			VOL		0.63	1	105	11TH TSP	-2.75
Bobbin	11	111	ODI	14	2.31	3	134	14TH TSP	+1.91
C/L Special I			VOL		0.80	1	99	14TH TSP	+1.88
Bobbin	12	9	NQI		0.44	3	120	12TH TSP	+10.15
C/L Special I			VOL		0.39	1	131	11TH TSP	-12.94
Bobbin	12	16	NQI		0.23	P 1	111	17TH TSP	-0.07
Bobbin	12	39	ODI	16	1.05	3	131	17TH TSP	+15.43
C/L Special I			VOL		1.02	1	91	16TH TSP	-7.30
Bobbin	12	60	NQI		0.73	P 1	63	2ND TSP	+0.04
H/L Special I			SAI		0.89	1	49	2ND TSP	-0.03
Bobbin	12	76	ODI	5	0.70	3	140	6TH TSP	+11.56
H/L Special I			VOL		0.50	1	65	6TH TSP	+5.58
H/L Special I			VOL		0.81	1	124	6TH TSP	+11.27
Bobbin	12	97	NQI		0.84	P 1	73	3RD TSP	+0.06
H/L Special I			SAI		0.81	1	19	3RD TSP	-0.01
Bobbin	13	3	ADI		2.69	6	86	10TH TSP	+19.46
Bobbin			ADI		3.59	6	60	10TH TSP	+22.40
C/L Special I			VOL		0.77	1	67	10TH TSP	+23.65
C/L Special I			VOL		0.94	1	50	10TH TSP	+20.51
Bobbin	13	39	ADI		2.37	6	71	2ND TSP	+14.17
H/L Special I			VOL		0.71	1	146	2ND TSP	+14.90
Bobbin	13	41	NQI		0.41	P 1	67	1ST TSP	+0.10
H/L Special I			SAI		0.38	1	75	1ST TSP	-0.02
Bobbin	13	47	NQI		3.62	P 1	148	TE-HL	+15.04
Bobbin	13	52	ODI	28	0.35	3	121	3RD TSP	+9.73
Bobbin	13	56	ODI	69	1.05	P 1	81	3RD TSP	-0.39
H/L Special I			SAI		0.96	1	52	3RD TSP	+0.00
Bobbin	13	76	NQI		0.64	P 1	63	4TH TSP	-0.02
H/L Tubesheet	13	95	SAI		0.57	1	35	TTS-HL	-0.06
Bobbin	13	105	NQI		0.66	P 1	66	2ND TSP	-0.09
H/L Special I			SAI		0.22	1	112	2ND TSP	-0.17
Bobbin	14	20	NQI		1.31	3	43	7TH TSP	+3.90
Bobbin	14	53	ADI		2.39	6	93	11TH TSP	+7.33
C/L Special I			VOL		0.46	1	128	11TH TSP	+7.49
H/L Tubesheet	14	59	SCI		0.35	1	77	TTS-HL	-0.09
H/L Tubesheet	14	60	MAI		0.43	1	64	TTS-HL	-2.13
Bobbin	14	61	IDI	82	16.70	P 1	27	TE-HL	+6.23
H/L Tubesheet	14	65	SCI		0.35	1	67	TTS-HL	-0.05
Bobbin	14	69	IDI	79	13.77	P 1	26	TE-HL	+7.51
H/L Tubesheet	14	77	MAI		0.58	1	39	TTS-HL	-0.13
Bobbin	14	98	IDI	54	9.92	P 1	14	TE-HL	+14.01
Bobbin	14	106	ODI	6	1.85	4	145	3RD TSP	+11.03
H/L Special I			VOL		0.32	1	72	3RD TSP	+10.70
Bobbin	15	4	ADI		5.59	6	93	9TH TSP	+10.64
C/L Special I			VOL		0.59	1	51	9TH TSP	+9.27
C/L Special I			VOL		0.69	1	94	9TH TSP	+10.91
Bobbin	15	6	ODI	28	0.17	P 1	126	11TH TSP	-0.05
Bobbin	15	11	NQI		0.90	3	104	12TH TSP	+7.41
C/L Special I			VOL		1.10	1	105	12TH TSP	+7.74
Bobbin	15	15	ODI	30	0.46	3	120	9TH TSP	+8.26
C/L Special I			VOL		0.97	1	163	9TH TSP	+8.69
Bobbin	15	20	ODI	17	1.27	4	150	6TH TSP	+25.76
H/L Special I			VOL		0.24	1	94	7TH TSP	-20.08
Bobbin	15	22	ODI	6	2.17	4	163	TTS-CL	+2.69
Bobbin			ODI	10	0.73	3	137	18TH TSP	+3.01
Bobbin			ODI	17	0.48	3	131	13TH TSP	+6.15
C/L Special I			VOL		0.67	1	131	TTS-CL	+2.66
C/L Special I			VOL		0.48	1	128	18TH TSP	+3.51

ATTACHMENT #11 - INDICATIONS OF IMPERFECTIONS

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1
C/L Special I					0.55	1	86	13TH TSP	+7.33
Bobbin	15	26	NQI		0.24	3	93	1ST TSP	+17.40
Bobbin	15	38	NQI		0.52	3	109	TTS-CL	+16.55
Bobbin			NQI		0.41	3	102	3RD TSP	+35.97
Bobbin			ODI	5	0.98	3	140	TTS-CL	+7.47
H/L Special I			VOL		1.56	1	149	4TH TSP	-9.08
Bobbin	15	48	ADI		6.26	6	71	14TH TSP	+3.78
C/L Special I			VOL		0.63	1	112	14TH TSP	+4.36
Bobbin	15	75	NQI		1.40	P 1	21	1ST TSP	+0.06
H/L Special I			SAI		0.21	1	94	1ST TSP	+0.08
Bobbin	15	108	NQI		0.23	P 1	83	2ND TSP	+0.16
H/L Special I			SAI		0.25	1	57	2ND TSP	+0.07
H/L Tubesheet	15	109	MAI		0.34	1	35	TTS-HL	-0.14
Bobbin	16	7	NQI		0.40	3	88	10TH TSP	+4.78
C/L Special I			VOL		1.12	1	164	10TH TSP	+5.05
Bobbin	16	11	NQI		0.36	3	108	11TH TSP	+38.06
C/L Special I			VOL		1.29	1	169	10TH TSP	-6.27
Bobbin	16	13	ODI	20	0.59	3	128	11TH TSP	+24.12
C/L Special I			VOL		0.63	1	115	11TH TSP	+23.85
Bobbin	16	33	ODI	24	1.26	3	126	10TH TSP	+29.18
C/L Special I			VOL		0.77	1	149	10TH TSP	+28.49
Bobbin	16	56	NQI		1.00	3	51	18TH TSP	+4.78
C/L Special I			VOL		0.28	1	92	18TH TSP	+5.62
H/L Tubesheet	16	59	SCI		0.58	1	27	TTS-HL	-0.42
H/L Tubesheet	16	62	SAI		0.59	1	14	TTS-HL	-0.08
Bobbin	16	65	NQI		0.19	P 1	107	4TH TSP	-0.16
H/L Special I			SAI		0.22	1	75	4TH TSP	+0.16
Bobbin	16	105	NQI		2.26	P 1	27	3RD TSP	+0.00
Bobbin	17	8	NQI		0.89	3	135	10TH TSP	+9.29
C/L Special I			VOL		1.04	1	39	10TH TSP	+10.03
Bobbin	17	10	NQI		0.63	3	97	11TH TSP	+15.32
C/L Special I			VOL		0.76	1	106	11TH TSP	+16.13
Bobbin	17	13	NQI		8.41	3	15	TTS-CL	+16.15
Bobbin			NQI		0.27	P 1	129	17TH TSP	-0.05
Bobbin	17	21	NQI		0.73	3	138	9TH TSP	+25.74
C/L Special I			VOL		1.21	1	105	9TH TSP	+27.23
H/L Tubesheet	17	30	SAI		0.75	1	24	TTS-HL	-2.73
Bobbin	17	34	NQI		0.34	P 1	122	16TH TSP	-0.81
C/L Special I			VOL		0.55	1	104	16TH TSP	-0.72
Bobbin	17	55	NQI		1.93	P 1	134	TE-HL	+12.53
Bobbin	17	61	IDI	74	7.16	P 1	79	TE-HL	+13.66
Bobbin			IDI	80	8.57	P 1	28	TE-HL	+14.08
H/L Tubesheet	17	67	SAI		0.43	1	61	TTS-HL	+0.04
H/L Tubesheet	17	69	MAI		1.43	1	34	TTS-HL	-1.48
Bobbin	17	72	NQI		0.84	3	99	9TH TSP	+26.96
C/L Special I			VOL		0.83	1	110	9TH TSP	+26.95
Bobbin	17	73	NQI		0.36	P 1	138	6TH TSP	+0.00
H/L Special I			VOL		0.75	1	162	5TH TSP	+0.14
Bobbin	17	87	ODI	10	1.15	3	135	3RD TSP	+1.46
H/L Special I			VOL		1.46	1	153	3RD TSP	+1.47
Bobbin	17	88	NQI		1.17	P 1	165	8TH TSP	+3.48
U-Bend			VOL		1.06	1	129	8TH TSP	+4.28
Bobbin	17	95	NQI		0.47	3	76	2ND TSP	+30.13
Bobbin			NQI		0.47	3	128	3RD TSP	+27.53
Bobbin			NQI		0.60	3	86	3RD TSP	+20.47
Bobbin			NQI		0.63	3	129	3RD TSP	+23.76
Bobbin	17	111	ADI		9.11	6	68	6TH TSP	+37.68
H/L Special I			VOL		0.98	1	143	7TH TSP	-9.18
H/L Special I			VOL		1.29	1	126	7TH TSP	-6.14
Bobbin	18	13	ODI	17	0.32	P 1	132	17TH TSP	-0.02
Bobbin	18	27	NQI		1.06	3	132	6TH TSP	+32.38
Bobbin			NQI		0.49	P 1	156	17TH TSP	+0.00
H/L Special I			VOL		1.42	1	124	7TH TSP	-11.82
Bobbin	18	50	NQI		0.31	P 1	80	2ND TSP	+0.12
H/L Special I			SAI		0.32	1	148	2ND TSP	+0.06



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Bobbin,C/L Special Interest,H/L Special Interest,H/L Tubesheet,U-Bend

ATTACHMENT #11 - INDICATIONS OF IMPERFECTIONS  
 INDICATIONS OF IMPERFECTIONS

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1	
Bobbin	18	77	NQI		0.48	3	60	2ND TSP	+11.81	F/L
Bobbin			ADI		6.26	6	76	10TH TSP	+17.44	F/L
C/L Special I			VOL		1.36	1	80	10TH TSP	+17.44	10TH TSP
Bobbin	18	78	ADI		2.09	6	75	10TH TSP	+32.97	F/L
C/L Special I			VOL		0.63	1	103	9TH TSP	-11.94	9TH TSP
Bobbin	18	92	NQI		0.77	3	61	3RD TSP	+9.25	F/L
H/L Special I			VOL		0.49	1	114	3RD TSP	+9.19	3RD TSP
H/L Tubesheet	18	99	VOL		0.56	1	46	TTS-HL	-1.20	TTS-HL
H/L Tubesheet	19	33	SAI		1.19	1	23	TTS-HL	-0.04	TTS-HL
Bobbin	19	46	ODI	17	0.59	3	131	10TH TSP	+15.99	F/L
Bobbin			ODI	24	0.60	3	126	10TH TSP	+18.28	F/L
C/L Special I			VOL		0.55	1	74	10TH TSP	+16.79	10TH TSP
C/L Special I			VOL		0.68	1	34	10TH TSP	+19.14	10TH TSP
Bobbin	19	53	NQI		0.34	P 1	94	2ND TSP	+0.00	F/L
Bobbin	19	63	NQI		0.51	3	102	TTS-HL	+24.16	F/L
H/L Special I			VOL		0.69	1	109	TTS-HL	+23.89	1ST TSP
Bobbin	19	66	NQI		1.56	P 1	155	TE-HL	+14.63	F/L
Bobbin	19	86	NQI		0.31	3	79	6TH TSP	+1.78	F/L
Bobbin			ODI	7	0.65	3	136	6TH TSP	+3.69	F/L
Bobbin			ODI	24	0.34	3	124	5TH TSP	+22.31	F/L
Bobbin	19	95	NQI		1.42	3	41	10TH TSP	+13.92	F/L
C/L Special I			VOL		0.77	1	59	10TH TSP	+13.75	10TH TSP
Bobbin	20	23	WAR	10	0.45	P 4	0	4AVB	+0.00	F/L
Bobbin	20	34	NQI		3.62	3	20	3AVB	-11.79	F/L
U-Bend			VOL		1.31	1	157	3AVB	-11.65	8TH TSP
Bobbin	20	64	IDI	42	15.34	P 1	13	TE-HL	+8.43	F/L
Bobbin	20	81	ADI		3.11	6	73	2ND TSP	+13.20	F/L
H/L Special I			VOL		0.27	1	95	2ND TSP	+14.83	2ND TSP
C/L Special I			NQI		0.42	1	70	10TH TSP	+12.47	10TH TSP
Bobbin	21	7	NQI		0.46	3	139	6TH TSP	+4.98	F/L
H/L Special I			VOL		0.28	1	96	6TH TSP	+4.84	6TH TSP
Bobbin	21	8	ODI	26	1.30	4	134	12TH TSP	+19.61	F/L
C/L Special I			VOL		0.41	1	61	12TH TSP	+20.22	11TH TSP
Bobbin	21	23	WAR	4	0.36	P 4	0	1AVB	+0.00	F/L
Bobbin	21	27	WAR	11	0.59	P 4	0	2AVB	+0.00	F/L
Bobbin	21	34	ODI	9	2.31	4	145	9TH TSP	+10.88	F/L
C/L Special I			VOL		0.65	1	21	9TH TSP	+16.57	9TH TSP
C/L Special I			VOL		1.08	1	31	9TH TSP	+11.37	9TH TSP
Bobbin	21	43	ODI	13	1.83	4	142	12TH TSP	+11.21	F/L
C/L Special I			VOL		0.60	1	99	12TH TSP	+11.09	12TH TSP
H/L Tubesheet	21	48	SAI		0.96	1	19	TTS-HL	+0.14	TTS-HL
Bobbin	22	9	NQI		0.43	3	112	5TH TSP	+40.63	F/L
Bobbin			ODI	4	0.65	3	138	TTS-CL	+26.57	F/L
H/L Special I			VOL		1.23	1	116	6TH TSP	-3.45	6TH TSP
C/L Special I			VOL		0.53	1	82	20TH TSP	-2.93	20TH TSP
C/L Special I			VOL		0.79	1	125	20TH TSP	-4.50	20TH TSP
Bobbin	22	11	ADI		6.40	6	83	11TH TSP	+26.06	F/L
C/L Special I			VOL		0.38	1	30	11TH TSP	+25.79	11TH TSP
Bobbin	22	18	ODI	23	0.83	3	124	2ND TSP	+19.59	F/L
H/L Special I			VOL		0.33	1	43	3RD TSP	-25.79	3RD TSP
Bobbin	22	19	IDI	95	5.83	P 1	45	TE-HL	+10.14	F/L
Bobbin	22	43	ODI	13	2.67	4	142	3RD TSP	+33.85	F/L
H/L Special I			VOL		0.52	1	124	4TH TSP	-10.81	4TH TSP
H/L Tubesheet	22	55	SAI		0.59	1	28	TTS-HL	+0.03	TTS-HL
Bobbin	22	56	NQI		0.24	P 1	103	2ND TSP	+0.05	F/L
H/L Tubesheet	22	83	MAI		0.53	1	14	TTS-HL	+0.07	TTS-HL
H/L Special I	22	88	VOL		0.84	1	114	6TH TSP	-19.07	6TH TSP
H/L Special I			VOL		1.22	1	124	6TH TSP	-27.29	6TH TSP
Bobbin	22	102	ADI		3.44	6	92	19TH TSP	+3.19	F/L
C/L Special I			VOL		0.54	1	150	19TH TSP	+2.91	19TH TSP
Bobbin	23	15	ODI	1	0.87	3	140	16TH TSP	+5.06	F/L
C/L Special I			VOL		0.50	1	75	16TH TSP	+4.46	16TH TSP
C/L Special I			VOL		0.51	1	100	16TH TSP	+5.09	16TH TSP
Bobbin	23	67	ADI		3.02	6	89	6TH TSP	+17.80	F/L
H/L Special I			VOL		0.45	1	139	6TH TSP	+18.19	6TH TSP



ATTACHMENT #11 - INDICATIONS OF IMPERFECTIONS  
 INDICATIONS OF IMPERFECTIONS

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1	
Bobbin	23	68	IDI	74	6.94	P 1	26	TE-HL	+18.07	F/L
H/L Tubesheet	23	83	SAI		0.79	1	24	TTS-HL	+0.09	TTS-HL
H/L Tubesheet	23	92	SAI		1.09	1	28	TTS-HL	+0.13	TTS-HL
Bobbin	23	104	ODI	34	0.68	P 1	108	1ST TSP	+0.51	F/L
H/L Special I			VOL		0.69	1	80	1ST TSP	+0.36	1ST TSP
Bobbin	23	106	ODI	25	0.56	3	123	9TH TSP	+36.68	F/L
C/L Special I			VOL		0.60	1	23	8TH TSP	-7.37	8TH TSP
H/L Tubesheet	24	9	NQI		0.79	1	112	TTS-HL	+0.02	TTS-HL
Bobbin	24	16	WAR	21	1.00	P 4	0	2AVB	+0.00	F/L
Bobbin	24	27	ADI		3.49	6	75	4TH TSP	+26.62	F/L
H/L Special I			VOL		0.13	1	116	5TH TSP	-20.38	5TH TSP
Bobbin	24	82	IDI	57	8.46	P 1	20	TE-HL	+3.35	F/L
Bobbin	24	91	NQI		1.26	3	46	9TH TSP	+19.64	F/L
C/L Special I			VOL		0.90	1	115	9TH TSP	+20.16	9TH TSP
Bobbin	25	7	NQI		3.36	P 1	147	TE-HL	+11.11	F/L
Bobbin	25	10	NQI		4.66	3	13	2AVB	+3.53	F/L
Bobbin	25	37	ADI		5.49	6	78	3AVB	-4.42	F/L
U-Bend			VOL		0.91	1	46	3AVB	-4.55	3AVB
H/L Tubesheet	25	59	SAI		1.51	1	14	TTS-HL	+0.04	TTS-HL
H/L Tubesheet	25	72	SAI		1.03	1	195	TTS-HL	+0.13	TTS-HL
H/L Tubesheet	25	74	SAI		1.70	1	25	TTS-HL	+0.09	TTS-HL
Bobbin	26	14	ODI	12	1.19	3	132	TTS-CL	+15.41	F/L
C/L Special I			VOL		0.71	1	59	TTS-CL	+14.52	TTS-CL
Bobbin	26	29	NQI		0.52	P 1	110	2ND TSP	+0.10	F/L
Bobbin	26	69	ADI		4.72	6	65	2ND TSP	+20.58	F/L
Bobbin	26	71	ADI		2.18	6	71	6TH TSP	+10.63	F/L
Bobbin	26	83	ODI	17	0.51	3	131	2ND TSP	+2.53	F/L
Bobbin			ODI	29	0.72	3	122	2ND TSP	+3.03	F/L
H/L Special I			VOL		0.32	1	93	2ND TSP	+2.50	2ND TSP
H/L Special I			VOL		0.65	1	92	2ND TSP	+3.01	2ND TSP
Bobbin	27	8	WAR	19	0.86	P 4	0	3AVB	+0.00	F/L
Bobbin	27	9	WAR	16	0.69	P 4	0	1AVB	+0.00	F/L
Bobbin	27	21	ODI	12	0.20	3	138	TTS-CL	+22.08	F/L
Bobbin			ODI	1	0.54	3	139	2ND TSP	+21.50	F/L
Bobbin	27	31	NQI		1.58	P 1	58	TE-HL	+19.56	F/L
Bobbin			WAR	24	1.49	P 4	0	3AVB	+0.00	F/L
Bobbin	27	32	WAR	17	0.71	P 4	0	1AVB	+0.00	F/L
Bobbin			WAR	24	1.27	P 4	0	4AVB	+0.00	F/L
Bobbin	27	51	ODI	35	0.82	3	114	12TH TSP	+17.60	F/L
C/L Special I			VOL		0.59	1	59	11TH TSP	-4.78	11TH TSP
Bobbin	27	56	ADI		9.55	6	46	17TH TSP	+10.48	F/L
C/L Special I			VOL		0.59	1	80	17TH TSP	+9.67	17TH TSP
Bobbin	27	58	ADI		9.50	6	86	12TH TSP	+15.55	F/L
C/L Special I			VOL		0.69	1	120	11TH TSP	-7.02	11TH TSP
Bobbin	27	69	ADI		4.36	6	90	2ND TSP	+39.83	F/L
Bobbin			ODI	4	0.71	3	142	2ND TSP	+36.42	F/L
Bobbin	27	81	ODI	19	0.99	3	130	4TH TSP	+38.84	F/L
H/L Special I			VOL		0.46	1	134	5TH TSP	-4.70	5TH TSP
Bobbin	28	25	NQI		3.00	P 1	159	TE-HL	+11.43	F/L
Bobbin	28	37	WAR	22	1.36	P 4	0	4AVB	+0.00	F/L
Bobbin	28	43	WAR	15	0.79	P 4	0	2AVB	+0.00	F/L
H/L Tubesheet	28	51	SAI		0.51	1	116	TTS-HL	+0.02	TTS-HL
Bobbin	28	73	ADI		4.81	6	62	9TH TSP	+36.60	F/L
C/L Special I			VOL		0.75	1	113	8TH TSP	-7.73	8TH TSP
Bobbin	29	14	NQI		0.35	3	118	TTS-CL	+16.84	F/L
C/L Special I			VOL		1.16	1	164	TTS-CL	+17.20	TTS-CL
H/L Tubesheet	29	67	SAI		1.00	1	30	TTS-HL	-0.06	TTS-HL
Bobbin	29	105	WAR	21	1.25	P 4	0	3AVB	+0.00	F/L
Bobbin	30	42	NQI		0.36	3	37	10TH TSP	+7.97	F/L
C/L Special I			VOL		0.24	1	95	10TH TSP	+8.35	10TH TSP
Bobbin	30	51	WAR	15	0.67	P 4	0	1AVB	+0.00	F/L
Bobbin	30	52	WAR	15	0.70	P 4	0	1AVB	+0.00	F/L
Bobbin	30	53	WAR	19	0.96	P 4	0	1AVB	+0.00	F/L
Bobbin	30	58	ODI	8	1.76	3	137	11TH TSP	+37.21	F/L
C/L Special I			VOL		1.74	1	121	10TH TSP	-6.79	10TH TSP

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ATTACHMENT #11 - INDICATIONS OF IMPERFECTIONS  
 INDICATIONS OF IMPERFECTIONS

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1	
H/L Tubesheet	30	72	SCI		0.33	1	24	TTS-HL	+0.12	TTS-HL
H/L Tubesheet	30	86	SAI		0.86	1	19	TTS-HL	+0.00	TTS-HL
Bobbin	30	105	WAR	23	1.46	P 4	0	3AVB	+0.00	F/L
Bobbin			WAR	23	1.51	P 4	0	2AVB	+0.00	F/L
Bobbin	31	32	ODI	6	1.17	3	138	11TH TSP	+42.41	F/L
C/L Special I			VOL		1.77	1	122	10TH TSP	-1.44	10TH TSP
Bobbin	31	33	NQI		0.73	3	111	1ST TSP	+12.97	F/L
H/L Special I			VOL		2.49	1	162	2ND TSP	-11.33	2ND TSP
Bobbin	31	36	WAR	15	0.69	P 4	0	2AVB	+0.00	F/L
Bobbin	31	38	WAR	16	0.77	P 4	0	2AVB	+0.00	F/L
Bobbin	31	41	NQI		0.55	3	92	11TH TSP	+36.23	F/L
C/L Special I			VOL		0.47	1	70	10TH TSP	-8.20	10TH TSP
Bobbin	31	42	WAR	22	1.23	P 4	0	3AVB	+0.00	F/L
Bobbin	31	44	WAR	18	0.90	P 4	0	3AVB	+0.00	F/L
Bobbin	31	46	NQI		0.66	3	41	17TH TSP	+10.49	F/L
C/L Special I			VOL		0.43	1	91	17TH TSP	+11.50	17TH TSP
Bobbin	31	49	WAR	8	0.35	P 4	0	2AVB	+0.00	F/L
Bobbin	31	50	WAR	9	0.39	P 4	0	1AVB	+0.00	F/L
H/L Tubesheet	31	59	SAI		0.84	1	16	TTS-HL	+0.00	TTS-HL
Bobbin	31	67	WAR	12	0.53	P 4	0	1AVB	+0.00	F/L
Bobbin			WAR	18	0.85	P 4	0	3AVB	+0.00	F/L
Bobbin	31	85	NQI		0.71	3	75	TTS-HL	+3.85	F/L
H/L Special I			VOL		0.41	1	163	TTS-HL	+3.64	TTS-HL
H/L Tubesheet	31	86	SAI		0.78	1	25	TTS-HL	+0.02	TTS-HL
Bobbin	31	99	ODI	57	0.50	P 1	97	3RD TSP	+0.02	F/L
H/L Special I			SAI		0.31	1	55	3RD TSP	+0.00	3RD TSP
H/L Tubesheet	32	12	NQI		0.49	1	40	TTS-HL	+0.19	TTS-HL
Bobbin	32	27	NQI		7.54	P 1	16	TE-HL	+19.63	F/L
Bobbin	32	47	WAR	11	0.53	P 4	0	1AVB	+0.00	F/L
Bobbin	32	54	NQI		0.48	3	101	13TH TSP	+1.38	F/L
C/L Special I			VOL		0.48	1	23	13TH TSP	+1.71	13TH TSP
Bobbin	32	57	IDI	67	4.82	P 1	24	TE-HL	+3.01	F/L
H/L Tubesheet	32	71	SAI		3.49	1	150	TTS-HL	+0.00	TTS-HL
Bobbin	33	12	WAR	13	0.63	P 4	0	1AVB	+0.00	F/L
Bobbin	33	33	WAR	13	0.63	P 4	0	2AVB	+0.00	F/L
Bobbin			WAR	27	1.85	P 4	0	3AVB	+0.00	F/L
Bobbin	33	46	WAR	24	1.49	P 4	0	2AVB	+0.00	F/L
Bobbin	33	51	WAR	19	1.08	P 4	0	1AVB	+0.00	F/L
H/L Tubesheet	33	98	SAI		1.27	1	24	TTS-HL	+0.06	TTS-HL
Bobbin	33	102	WAR	22	1.11	P 4	0	3AVB	+0.00	F/L
Bobbin			WAR	25	1.32	P 4	0	2AVB	+0.00	F/L
Bobbin	34	56	WAR	18	1.03	P 4	0	1AVB	+0.00	F/L
Bobbin	34	93	ODI	52	0.52	P 1	98	1ST TSP	+0.15	F/L
H/L Special I			SAI		0.17	1	62	1ST TSP	+0.01	1ST TSP
Bobbin	34	101	WAR	17	0.83	P 4	0	2AVB	+0.00	F/L
Bobbin			WAR	20	1.02	P 4	0	3AVB	+0.00	F/L
Bobbin	35	19	WAR	25	1.82	P 4	0	2AVB	+0.00	F/L
Bobbin	35	29	WAR	27	1.84	P 4	0	2AVB	+0.00	F/L
Bobbin	35	46	WAR	17	0.96	P 4	0	1AVB	+0.00	F/L
Bobbin	35	48	WAR	17	0.96	P 4	0	1AVB	+0.00	F/L
H/L Tubesheet	35	51	SAI		1.00	1	33	TTS-HL	-0.03	TTS-HL
Bobbin	35	53	WAR	23	1.49	P 4	0	1AVB	+0.00	F/L
Bobbin	35	56	WAR	20	1.19	P 4	0	1AVB	+0.00	F/L
Bobbin	35	67	ODI	34	0.57	3	115	12TH TSP	+17.21	F/L
Bobbin	35	94	NQI		0.31	P 1	94	1ST TSP	+0.02	F/L
H/L Special I			SAI		0.55	1	75	1ST TSP	-0.06	1ST TSP
Bobbin	35	100	WAR	22	1.32	P 4	0	3AVB	+0.00	F/L
Bobbin	36	23	WAR	21	1.30	P 4	0	3AVB	+0.00	F/L
Bobbin	36	26	NQI		1.04	P 1	126	TE-CL	+16.27	F/L
Bobbin	36	33	ODI	88	41.97	3	40	4AVB	+4.38	F/L
U-Bend			NQI		4.98	1	124	4AVB	-14.96	7TH TSP
Bobbin	36	47	WAR	20	1.26	P 4	0	1AVB	+0.00	F/L
Bobbin	36	55	NQI		6.47	P 1	13	TE-HL	+12.79	F/L
Bobbin			WAR	20	1.21	P 4	0	1AVB	+0.00	F/L
Bobbin	36	65	ODI	65	0.35	P 1	85	2ND TSP	+0.07	F/L

ATTACHMENT #11 - INDICATIONS OF IMPERFECTIONS

INDICATIONS OF IMPERFECTIONS

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1	
H/L Special I			SAI		0.25	1		62 2ND TSP	-0.03	2ND TSP
H/L Tubesheet	36	67	SAI		0.58	1		26 TTS-HL	+0.09	TTS-HL
U-Bend	36	68	VOL		0.88	1		52 7TH TSP	+3.78	7TH TSP
Bobbin	36	96	WAR	14	0.62	P 4		0 4AVB	+0.00	F/L
Bobbin	36	100	WAR	21	1.14	P 4		0 3AVB	+0.00	F/L
Bobbin	37	16	NQI		0.60	P 1		167 1ST TSP	+0.12	F/L
H/L Tubesheet	37	29	VOL		0.51	1		140 TTS-HL	+0.00	TTS-HL
Bobbin	37	44	WAR	19	1.15	P 4		0 1AVB	+0.00	F/L
Bobbin	37	47	WAR	11	0.65	P 4		0 1AVB	+0.00	F/L
Bobbin	37	51	WAR	13	0.77	P 4		0 1AVB	+0.00	F/L
Bobbin	37	52	WAR	9	0.58	P 4		0 1AVB	+0.00	F/L
Bobbin	37	55	WAR	21	1.24	P 4		0 3AVB	+0.00	F/L
H/L Tubesheet			VOL		1.10	1		159 TTS-HL	+0.00	TTS-HL
Bobbin	37	57	WAR	16	0.90	P 4		0 1AVB	+0.00	F/L
Bobbin	37	60	WAR	12	0.52	P 4		0 1AVB	+0.00	F/L
Bobbin	37	78	ADI		2.56	6		73 4TH TSP	+30.38	F/L
H/L Special I			VOL		0.36	1		113 4TH TSP	+30.20	4TH TSP
Bobbin	38	18	WAR	15	0.86	P 4		0 3AVB	+0.00	F/L
Bobbin	38	20	WAR	12	0.72	P 4		0 3AVB	+0.00	F/L
Bobbin	38	25	WAR	9	0.56	P 4		0 1AVB	+0.00	F/L
Bobbin			WAR	15	0.87	P 4		0 2AVB	+0.00	F/L
Bobbin			WAR	19	1.14	P 4		0 3AVB	+0.00	F/L
Bobbin	38	31	WAR	26	1.80	P 4		0 4AVB	+0.00	F/L
Bobbin			WAR	32	2.71	P 4		0 3AVB	+0.00	F/L
Bobbin	38	42	ODI	6	0.53	3		138 11TH TSP	+18.65	F/L
C/L Special I			VOL		0.38	1		131 11TH TSP	+19.11	11TH TSP
C/L Special I			VOL		0.44	1		119 11TH TSP	+23.81	11TH TSP
Bobbin	38	48	WAR	16	0.94	P 4		0 1AVB	+0.00	F/L
Bobbin	38	51	WAR	22	1.34	P 4		0 2AVB	+0.00	F/L
Bobbin	38	52	WAR	14	0.80	P 4		0 1AVB	+0.00	F/L
Bobbin	38	57	WAR	20	1.14	P 4		0 1AVB	+0.00	F/L
H/L Tubesheet	38	79	SAI		1.28	1		29 TTS-HL	+0.00	TTS-HL
Bobbin	38	83	WAR	16	0.74	P 4		0 3AVB	+0.00	F/L
Bobbin	39	28	WAR	12	0.60	P 4		0 2AVB	+0.00	F/L
Bobbin			WAR	17	0.89	P 4		0 3AVB	+0.00	F/L
Bobbin	39	29	WAR	12	0.57	P 4		0 3AVB	+0.00	F/L
Bobbin			WAR	32	2.71	P 4		0 2AVB	+0.00	F/L
Bobbin	39	30	WAR	12	0.56	P 4		0 1AVB	+0.00	F/L
Bobbin			WAR	17	0.86	P 4		0 2AVB	+0.00	F/L
Bobbin			WAR	18	0.95	P 4		0 3AVB	+0.00	F/L
Bobbin	39	32	WAR	13	0.62	P 4		0 2AVB	+0.00	F/L
Bobbin	39	39	WAR	22	1.25	P 4		0 3AVB	+0.00	F/L
Bobbin	39	42	WAR	17	0.89	P 4		0 2AVB	+0.00	F/L
Bobbin	39	49	WAR	13	0.62	P 4		0 1AVB	-0.08	F/L
Bobbin	39	50	WAR	21	1.20	P 4		0 1AVB	+0.00	F/L
Bobbin	39	52	WAR	24	1.47	P 4		0 1AVB	+0.00	F/L
Bobbin	39	53	ODI	77	0.48	P 1		71 1ST TSP	-0.05	F/L
H/L Special I			SAI		0.32	1		50 1ST TSP	-0.05	1ST TSP
Bobbin	39	54	NQI		1.92	3		30 6TH TSP	+10.57	F/L
H/L Special I			VOL		1.73	1		64 6TH TSP	+11.74	6TH TSP
Bobbin	39	58	WAR	27	1.68	P 4		0 3AVB	+0.00	F/L
Bobbin			WAR	28	1.87	P 4		0 1AVB	+0.00	F/L
Bobbin	39	61	WAR	18	0.86	P 4		0 1AVB	+0.00	F/L
Bobbin	39	63	WAR	16	0.73	P 4		0 1AVB	+0.00	F/L
Bobbin	39	64	WAR	19	0.92	P 4		0 1AVB	+0.00	F/L
Bobbin	39	65	WAR	14	0.59	P 4		0 1AVB	+0.00	F/L
Bobbin	39	82	WAR	31	2.29	P 4		0 2AVB	+0.00	F/L
Bobbin	39	83	WAR	15	0.69	P 4		0 2AVB	+0.00	F/L
Bobbin			WAR	16	0.75	P 4		0 1AVB	+0.00	F/L
Bobbin	39	84	ADI		6.25	6		70 6TH TSP	+21.75	F/L
Bobbin			WAR	12	0.52	P 4		0 2AVB	+0.00	F/L
Bobbin			WAR	16	0.71	P 4		0 3AVB	+0.00	F/L
H/L Special I			VOL		1.26	1		136 6TH TSP	+21.77	6TH TSP
Bobbin	39	91	WAR	17	0.79	P 4		0 3AVB	+0.00	F/L
Bobbin	39	92	WAR	14	0.64	P 4		0 1AVB	+0.00	F/L



ATTACHMENT #11 - INDICATIONS OF IMPERFECTIONS  
 INDICATIONS OF IMPERFECTIONS

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION		EXTENT1
Bobbin			WAR	19	0.92	P	4	0 3AVB	+0.00	F/L
Bobbin	39	93	WAR	22	1.20	P	4	0 3AVB	+0.00	F/L
Bobbin	40	20	WAR	7	0.35	P	4	0 4AVB	+0.00	F/L
Bobbin			WAR	16	0.82	P	4	0 2AVB	+0.00	F/L
Bobbin	40	26	WAR	12	0.59	P	4	0 1AVB	+0.00	F/L
Bobbin	40	28	WAR	14	0.72	P	4	0 2AVB	+0.00	F/L
Bobbin	40	31	WAR	12	0.60	P	4	0 1AVB	+0.00	F/L
Bobbin	40	33	WAR	20	1.13	P	4	0 2AVB	+0.00	F/L
Bobbin	40	39	WAR	18	0.92	P	4	0 2AVB	+0.00	F/L
Bobbin	40	41	WAR	12	0.56	P	4	0 3AVB	+0.00	F/L
Bobbin			WAR	34	3.17	P	4	0 2AVB	+0.00	F/L
Bobbin	40	42	WAR	21	1.17	P	4	0 3AVB	+0.00	F/L
Bobbin			WAR	28	1.93	P	4	0 2AVB	+0.00	F/L
Bobbin	40	43	WAR	13	0.62	P	4	0 1AVB	+0.00	F/L
Bobbin			WAR	22	1.30	P	4	0 4AVB	+0.00	F/L
Bobbin			WAR	28	1.93	P	4	0 2AVB	+0.00	F/L
Bobbin			WAR	31	2.49	P	4	0 3AVB	+0.00	F/L
Bobbin	40	46	WAR	19	1.01	P	4	0 1AVB	+0.00	F/L
Bobbin	40	47	ODI	53	0.64	3	98	5TH TSP	+12.36	F/L
Bobbin			WAR	15	0.75	P	4	0 3AVB	+0.00	F/L
Bobbin			WAR	30	2.24	P	4	0 1AVB	+0.00	F/L
Bobbin	40	48	WAR	19	1.03	P	4	0 1AVB	+0.00	F/L
Bobbin	40	50	WAR	15	0.76	P	4	0 3AVB	+0.00	F/L
Bobbin	40	52	WAR	17	0.86	P	4	0 2AVB	+0.00	F/L
Bobbin	40	56	WAR	12	0.59	P	4	0 1AVB	+0.00	F/L
Bobbin			WAR	13	0.63	P	4	0 2AVB	+0.00	F/L
Bobbin	40	60	WAR	13	0.62	P	4	0 1AVB	+0.00	F/L
Bobbin	40	61	WAR	26	1.60	P	4	0 2AVB	+0.00	F/L
Bobbin	40	64	WAR	20	1.05	P	4	0 1AVB	+0.00	F/L
Bobbin	40	65	WAR	19	0.95	P	4	0 1AVB	+0.00	F/L
Bobbin	40	67	WAR	17	0.83	P	4	0 3AVB	+0.00	F/L
Bobbin			WAR	19	0.92	P	4	0 2AVB	+0.00	F/L
Bobbin	40	71	WAR	18	0.85	P	4	0 1AVB	+0.00	F/L
Bobbin	40	80	WAR	21	1.07	P	4	0 1AVB	+0.00	F/L
Bobbin	40	81	WAR	9	0.35	P	4	0 1AVB	+0.00	F/L
Bobbin			WAR	18	0.89	P	4	0 2AVB	+0.00	F/L
Bobbin	40	82	WAR	15	0.69	P	4	0 2AVB	+0.00	F/L
Bobbin	40	83	WAR	15	0.66	P	4	0 1AVB	+0.00	F/L
Bobbin			WAR	20	1.03	P	4	0 3AVB	+0.00	F/L
Bobbin			WAR	22	1.17	P	4	0 2AVB	+0.00	F/L
Bobbin	40	92	WAR	18	0.85	P	4	0 3AVB	+0.00	F/L
H/L Tubesheet	40	96	SAI		1.04	1	14	TTS-HL	+0.00	TTS-HL
Bobbin	41	21	WAR	11	0.54	P	4	0 1AVB	+0.00	F/L
Bobbin	41	24	WAR	26	1.70	P	4	0 2AVB	+0.00	F/L
Bobbin	41	39	WAR	24	1.44	P	4	0 2AVB	+0.00	F/L
Bobbin	41	41	NQI		2.06	P	1	40 TE-HL	+15.79	F/L
Bobbin	41	49	WAR	14	0.67	P	4	0 4AVB	+0.00	F/L
Bobbin	41	55	WAR	14	0.72	P	4	0 3AVB	+0.00	F/L
Bobbin			WAR	28	1.91	P	4	0 2AVB	+0.00	F/L
Bobbin	41	74	WAR	11	0.46	P	4	0 2AVB	+0.00	F/L
Bobbin			WAR	15	0.68	P	4	0 1AVB	+0.00	F/L
H/L Special I	41	79	VOL		0.84	1	141	1ST TSP	+0.17	1ST TSP
H/L Tubesheet	41	93	VOL		0.20	1	77	TTS-HL	+0.70	TTS-HL
Bobbin	42	22	IDI	99	10.52	P	1	33 TE-CL	+2.88	F/L
Bobbin	42	51	ADI		2.46	6	75	9TH TSP	+21.05	F/L
C/L Special I			VOL		0.19	1	53	9TH TSP	+20.17	9TH TSP
Bobbin	42	59	ADI		4.90	6	94	1ST TSP	+11.76	F/L
H/L Special I			VOL		0.54	1	134	1ST TSP	+11.60	1ST TSP
Bobbin	42	60	ODI	3	0.94	3	140	4TH TSP	+7.40	F/L
H/L Special I			VOL		2.00	1	163	4TH TSP	+6.99	4TH TSP
Bobbin	42	84	ODI	17	1.20	4	137	5TH TSP	+35.46	F/L
H/L Special I			VOL		0.55	1	51	5TH TSP	+35.46	6TH TSP
Bobbin	42	87	WAR	24	1.47	P	4	0 1AVB	+0.00	F/L
Bobbin			WAR	27	1.78	P	4	0 3AVB	+0.00	F/L
Bobbin	43	22	WAR	22	1.22	P	4	0 1AVB	+0.00	F/L

ATTACHMENT #11 - INDICATIONS OF IMPERFECTIONS

INDICATIONS OF IMPERFECTIONS

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1	
Bobbin	43	23	IDI	76	12.05	P 1	29	TE-CL	+4.45	F/L
Bobbin	43	33	WAR	24	1.55	P 4	0	2AVB	+0.00	F/L
Bobbin			WAR	29	2.18	P 4	0	3AVB	+0.00	F/L
Bobbin	43	40	ODI	4	1.77	3	140	3RD TSP	+18.64	F/L
H/L Special I			VOL		0.27	1	96	3RD TSP	+19.38	3RD TSP
Bobbin	43	47	WAR	28	2.00	P 4	0	1AVB	+0.00	F/L
Bobbin	43	48	WAR	19	0.98	P 4	0	1AVE	+0.00	F/L
Bobbin	43	50	WAR	21	1.15	P 4	0	1AVE	+0.00	F/L
Bobbin	43	53	WAR	20	1.16	P 4	0	1AVE	+0.00	F/L
Bobbin	43	54	WAR	23	1.43	P 4	0	1AVE	+0.00	F/L
Bobbin	43	55	WAR	21	1.12	P 4	0	1AVE	+0.00	F/L
Bobbin	43	56	ADI		7.43	6	71	4TH TSP	+11.64	F/L
Bobbin			NQI		0.16	P 1	90	4TH TSP	+0.15	F/L
Bobbin			WAR	30	2.31	P 4	0	1AVE	+0.00	F/L
H/L Special I			VOL		1.10	1	98	4TH TSP	+13.63	4TH TSP
Bobbin	43	60	ODI	15	0.37	3	132	2ND TSP	+23.39	F/L
H/L Special I			VOL		0.59	1	129	2ND TSP	+23.32	2ND TSP
Bobbin	43	73	ODI	5	1.37	4	138	3RD TSP	+31.11	F/L
H/L Special I			VOL		0.71	1	170	4TH TSP	-12.04	4TH TSP
Bobbin	43	82	ODI	21	1.59	4	127	1ST TSP	+20.44	F/L
H/L Special I			VOL		0.50	1	124	1ST TSP	+19.95	1ST TSP
Bobbin	43	85	WAR	20	1.18	P 4	0	4AVE	+0.00	F/L
Bobbin	44	32	ADI		2.73	6	79	12TH TSP	+18.68	F/L
C/L Special I			VOL		0.27	1	84	12TH TSP	+18.79	12TH TSP
Bobbin	44	44	ODI	19	0.49	3	128	15TH TSP	-1.49	F/L
Bobbin	44	45	ADI		3.98	6	73	3RD TSP	+7.39	F/L
H/L Special I			VOL		0.30	1	96	3RD TSP	+7.39	3RD TSP
Bobbin	44	56	ADI		2.20	6	73	TTS-HL	+12.20	F/L
Bobbin			ODI	4	1.35	4	145	TTS-HL	+8.96	F/L
Bobbin			ADI		5.09	6	70	19TH TSP	+13.22	F/L
H/L Special I			VOL		0.88	1	163	TTS-HL	+11.48	TTS-HL
C/L Special I			VOL		0.85	1	134	19TH TSP	+12.76	19TH TSP
Bobbin	44	59	ADI		2.90	6	76	11TH TSP	+18.65	F/L
C/L Special I			VOL		0.66	1	160	11TH TSP	+18.08	11TH TSP
Bobbin	44	60	ODI	10	2.19	4	158	TTS-HL	+9.61	F/L
H/L Special I			VOL		0.28	1	96	TTS-HL	+9.66	TTS-HL
Bobbin	44	66	ODI	4	1.88	4	167	10TH TSP	+35.25	F/L
Bobbin			ODI	12	1.57	4	154	10TH TSP	+41.16	F/L
Bobbin			ODI	17	1.23	4	147	10TH TSP	+39.72	F/L
C/L Special I			VOL		0.53	1	121	10TH TSP	+39.12	9TH TSP
C/L Special I			VOL		0.79	1	119	10TH TSP	+40.78	9TH TSP
C/L Special I			VOL		0.99	1	145	10TH TSP	+37.18	9TH TSP
C/L Special I			VOL		1.30	1	168	10TH TSP	+34.57	9TH TSP
Bobbin	44	75	NQI		0.46	P 1	31	2ND TSP	+0.15	F/L
H/L Special I			SAI		0.22	1	57	2ND TSP	+0.07	2ND TSP
H/L Tubesheet	44	82	SAI		0.76	1	19	TTS-HL	+0.01	TTS-HL
Bobbin	45	40	NQI		0.45	3	134	5TH TSP	+26.46	F/L
H/L Special I			VOL		0.50	1	141	6TH TSP	-17.54	6TH TSP
Bobbin	45	61	ADI		2.49	6	64	2AVB	+12.49	F/L
U-Bend			VOL		0.74	1	7	2AVB	+12.49	2AVB
Bobbin	45	63	ADI		3.53	6	105	4TH TSP	+5.84	F/L
H/L Special I			VOL		0.41	1	103	4TH TSP	+7.08	4TH TSP
Bobbin	46	27	ADI		1.86	6	63	12TH TSP	+2.48	F/L
C/L Special I			VOL		0.41	1	100	12TH TSP	+2.37	12TH TSP
Bobbin	46	35	NQI		0.35	P 1	127	12TH TSP	-0.08	F/L
H/L Tubesheet	46	83	SAI		0.58	1	26	TTS-HL	+0.03	TTS-HL
H/L Tubesheet	46	84	MAI		0.93	1	24	TTS-HL	-0.04	TTS-HL
Bobbin	48	60	ODI	7	1.03	3	132	6TH TSP	+13.69	F/L
H/L Special I			VOL		0.59	1	108	6TH TSP	+13.79	6TH TSP
H/L Tubesheet	48	83	SAI		1.04	1	19	TTS-HL	-0.02	TTS-HL
Bobbin	49	31	WAR	4	0.70	P 2	0	16TH TSP	+0.00	F/L
Bobbin	49	39	WAR	5	0.92	P 2	0	17TH TSP	+0.00	F/L
Bobbin			WAR	10	1.91	P 2	0	16TH TSP	+0.00	F/L
C/L Special I			VOL		0.51	P 1	57	17TH TSP	+0.00	17TH TSP
Bobbin	49	41	WAR	14	2.92	P 2	0	17TH TSP	+0.00	F/L

ATTACHMENT #11 - INDICATIONS OF IMPERFECTIONS  
 INDICATIONS OF IMPERFECTIONS

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1
Bobbin			WAR	15	3.12	P 2	0	14TH TSP	+0.00
Bobbin			WAR	25	5.76	P 2	0	16TH TSP	+0.00
Bobbin	49	45	NQI		1.78	3	156	10TH TSP	+14.89
C/L Special I			VOL		0.95	1	161	10TH TSP	+14.54
Bobbin	49	50	ODI	59	0.72	P 1	96	13TH TSP	+0.05
C/L Special I			VOL		0.55	P 1	130	13TH TSP	+0.20
Bobbin	49	51	ODI	23	0.38	P 1	130	13TH TSP	+0.03
C/L Special I			VOL		0.57	P 1	166	13TH TSP	+0.19
Bobbin	49	54	ODI	50	0.34	P 1	106	13TH TSP	+0.00
C/L Special I			VOL		0.38	P 1	140	13TH TSP	+0.37
Bobbin	49	55	ODI	25	0.38	P 1	128	13TH TSP	+0.00
H/L Tubesheet			VOL		0.40	1	70	TTS-HL	+0.19
C/L Special I			VOL		0.54	P 1	165	13TH TSP	+0.35
Bobbin	49	59	ODI	23	3.31	3	126	14TH TSP	+11.36
C/L Special I			VOL		1.73	1	162	14TH TSP	+12.23
Bobbin	49	61	ODI	2	0.66	3	140	14TH TSP	+11.32
Bobbin	49	62	ODI	16	1.62	3	131	14TH TSP	+11.35
Bobbin			ODI	19	1.65	3	129	14TH TSP	+11.45
C/L Special I			VOL		0.19	1	128	14TH TSP	+11.76
Bobbin	49	66	ADI		3.34	6	91	4TH TSP	+35.72
Bobbin			ADI		4.96	6	88	3RD TSP	+8.88
H/L Special I			VOL		0.63	1	133	5TH TSP	-8.61
H/L Special I			VOL		1.63	1	129	3RD TSP	+8.90
Bobbin	49	70	NQI		2.63	3	141	12TH TSP	+1.19
Bobbin	49	72	ODI	36	0.23	P 1	107	16TH TSP	-0.02
C/L Special I			VOL		0.44	P 1	29	16TH TSP	+0.03
Bobbin	49	74	WAR	12	2.55	P 2	0	14TH TSP	+0.00
Bobbin			WAR	28	7.22	P 2	0	16TH TSP	+0.00
Bobbin	49	76	WAR	8	1.66	P 2	0	16TH TSP	+0.00
Bobbin	49	79	WAR	16	3.67	P 2	0	16TH TSP	+0.00

Total Indications Found = 680  
 Total Tubes Found = 411



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Bobbin,C/L Special Interest,H/L Special Interest,H/L Tubesheet,U-Bend

ATTACHMENT #12 - INDICATIONS OF IMPERFECTIONS

INDICATIONS OF IMPERFECTIONS

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1
U-Bend	2	18	VOL		0.83	1	42	8TH TSP	+3.13
Bobbin	2	29	IDI	45	13.21	P 1	18	TE-HL	+5.46
Bobbin	2	39	IDI	96	5.55	P 1	51	TE-HL	+10.71
H/L Tubesheet	2	56	MAI		0.56	1	195	TTS-HL	-0.91
Bobbin	2	61	IDI	70	3.70	P 1	87	TE-HL	+13.63
Bobbin			IDI	93	0.92	P 1	50	TE-HL	+17.76
Bobbin			IDI	95	12.91	P 1	45	TE-HL	+8.60
Bobbin	2	62	NQI		4.15	P 1	150	TE-HL	+13.35
Bobbin	2	76	IDI	58	5.87	P 1	19	TE-HL	+15.21
Bobbin	2	80	IDI	55	13.64	P 1	18	TE-HL	+12.10
Bobbin	2	85	IDI	91	9.18	P 1	54	TE-HL	+10.00
Bobbin	3	27	NQI		2.45	P 1	134	TE-HL	+17.51
H/L Tubesheet			SAI		2.64	1	32	TTS-HL	-4.07
Bobbin	3	36	IDI	92	5.28	P 1	50	TE-HL	+16.49
H/L Tubesheet	3	38	SAI		0.29	1	58	TTS-HL	-0.08
Bobbin	3	40	IDI	46	16.00	P 1	16	TE-HL	+16.21
Bobbin	3	96	NQI		0.41	3	72	TTS-CL	+15.49
Bobbin	3	110	IDI	82	3.15	P 1	27	TE-HL	+7.80
H/L Tubesheet	4	23	SAI		0.60	1	32	TTS-HL	-0.03
Bobbin	4	33	IDI	64	8.87	P 1	21	TE-HL	+11.03
H/L Tubesheet	4	34	SAI		2.09	1	13	TTS-HL	+0.00
Bobbin	4	41	NQI		4.95	P 1	150	TE-HL	+8.26
H/L Tubesheet	4	49	SAI		1.17	1	17	TTS-HL	-0.04
Bobbin	4	66	IDI	76	2.73	P 1	77	TE-HL	+6.42
Bobbin	4	68	IDI	85	3.22	P 1	28	TE-HL	+11.23
Bobbin	4	71	NQI		1.16	3	128	6TH TSP	+29.91
Bobbin			ODI	10	1.47	3	137	6TH TSP	+23.23
H/L Special I			VOL		0.63	1	119	6TH TSP	+11.57
H/L Special I			VOL		0.71	1	114	6TH TSP	+13.69
H/L Special I			VOL		0.71	1	118	6TH TSP	+27.27
H/L Special I			VOL		1.14	1	117	6TH TSP	+20.58
H/L Special I			VOL		1.20	1	131	6TH TSP	+28.61
H/L Special I			VOL		1.99	1	112	6TH TSP	+24.04
Bobbin	4	78	IDI	95	3.63	P 1	45	TE-HL	+12.28
Bobbin	4	84	IDI	68	5.48	P 1	88	TE-HL	+10.25
H/L Tubesheet	4	87	SAI		1.29	1	17	TTS-HL	-0.07
H/L Tubesheet	4	92	SAI		1.17	1	35	TTS-HL	-0.06
Bobbin	4	94	IDI	36	19.22	P 1	12	TE-HL	+12.20
H/L Tubesheet	4	97	SAI		1.26	1	39	TTS-HL	-4.07
Bobbin	4	98	ODI	15	0.87	3	133	3RD TSP	+22.89
H/L Special I			VOL		0.32	1	124	3RD TSP	+18.21
Bobbin	4	100	IDI	20	4.76	P 1	121	TE-HL	+4.96
Bobbin	4	107	ADI		2.42	6	57	11TH TSP	+34.18
C/L Special I			VOL		0.90	1	27	10TH TSP	-9.32
Bobbin	5	4	IDI	58	13.82	P 1	19	TE-HL	+15.48
H/L Special I			MAI		16.18	1	19	TE-HL	+15.49
Bobbin	5	7	IDI	91	6.66	P 1	54	TE-HL	+11.88
Bobbin	5	14	NQI		0.77	3	41	2ND TSP	+5.85
H/L Special I			VOL		0.62	1	126	2ND TSP	+6.41
Bobbin	5	16	IDI	17	0.69	P 1	120	TE-CL	+6.40
Bobbin	5	18	NQI		0.34	3	54	1ST TSP	+9.02
Bobbin			NQI		0.42	3	55	2ND TSP	+5.99
H/L Special I			VOL		0.32	1	102	2ND TSP	+6.45
H/L Tubesheet	5	27	SAI		1.66	1	30	TTS-HL	+0.00
Bobbin	5	29	ODI	2	2.67	3	146	19TH TSP	+1.41
C/L Special I			VOL		0.62	1	47	19TH TSP	+1.43
Bobbin	5	31	IDI	55	15.90	P 1	18	TE-HL	+3.14
Bobbin			IDI	74	3.63	P 1	80	TE-HL	+13.33
Bobbin	5	44	IDI	55	9.30	P 1	18	TE-HL	+5.95
Bobbin	5	46	NQI		3.03	P 1	145	TE-HL	+12.61
H/L Tubesheet			SAI		0.66	1	17	TTS-HL	-0.89
Bobbin	5	59	NQI		0.60	P 1	86	2ND TSP	-0.09
Bobbin	5	61	IDI	85	4.86	P 1	64	TE-HL	+14.32
H/L Tubesheet	5	66	MAI		0.90	1	34	TTS-HL	-0.09
Bobbin	5	67	IDI	99	5.12	P 1	34	TE-HL	+12.97

ATTACHMENT #12 - INDICATIONS OF IMPERFECTIONS  
INDICATIONS OF IMPERFECTIONS

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1	
Bobbin	5	68	IDI	88	10.63	P 1	29	TE-HL	+9.98	8TH TSP
Bobbin	5	81	NQI		0.72	3	27	TTS-CL	+10.08	8TH TSP
C/L Special I			VOL		1.09	1	132	TTS-CL	+9.94	TTS-CL
H/L Tubesheet	5	83	SAI		0.48	1	29	TTS-HL	-0.10	TTS-HL
H/L Tubesheet	5	87	SAI		0.74	1	37	TTS-HL	-0.10	TTS-HL
Bobbin	5	94	IDI	97	2.38	P 1	32	TE-HL	+7.79	8TH TSP
Bobbin	5	95	NQI		2.53	P 1	80	TE-HL	+10.21	8TH TSP
H/L Tubesheet	6	9	SAI		0.71	1	39	TTS-HL	-0.05	TTS-HL
Bobbin	6	16	ODI	26	0.20	P 1	119	2ND TSP	+0.07	F/L
H/L Tubesheet	6	22	MAI		0.98	1	34	TTS-HL	-0.03	TTS-HL
Bobbin	6	35	NQI		2.58	P 1	110	TE-HL	+10.28	F/L
Bobbin			NQI		3.68	P 1	59	TE-HL	+3.02	F/L
Bobbin			NQI		7.42	P 1	64	TE-HL	+8.66	F/L
H/L Tubesheet			SAI		1.28	1	37	TTS-HL	-2.71	TTS-HL
Bobbin	6	54	NQI		0.55	3	96	12TH TSP	+9.64	F/L
Bobbin	6	57	ADI		2.16	6	85	5TH TSP	+35.65	F/L
Bobbin			ODI	18	1.82	4	135	9TH TSP	+5.16	F/L
C/L Special I			VOL		0.55	1	24	9TH TSP	+4.90	9TH TSP
H/L Special I			VOL		1.16	1	169	6TH TSP	-8.59	6TH TSP
Bobbin	6	68	IDI	90	11.01	P 1	28	TE-HL	+17.21	F/L
H/L Tubesheet			MAI		5.68	1	20	TTS-HL	-4.20	TTS-HL
H/L Special I			MAI		7.60	1	25	TE-HL	+16.62	TE-HL
Bobbin	6	70	IDI	29	12.52	P 1	9	TE-HL	+2.73	F/L
Bobbin	6	71	IDI	83	5.10	P 1	57	TE-HL	+16.21	F/L
H/L Tubesheet			MAI		2.15	1	41	TTS-HL	-5.09	TTS-HL
Bobbin	6	74	IDI	58	9.01	P 1	18	TE-HL	+1.88	F/L
Bobbin	6	82	IDI	10	6.15	P 1	3	TE-HL	+14.31	F/L
Bobbin	6	85	IDI	96	5.65	P 1	38	TE-HL	+11.29	F/L
Bobbin	6	86	NQI		4.54	P 1	139	TE-HL	+2.05	F/L
Bobbin	6	89	NQI		0.66	3	82	2ND TSP	+11.51	F/L
H/L Special I			VOL		0.35	1	125	2ND TSP	+11.74	2ND TSP
Bobbin	6	94	NQI		3.26	P 1	155	TE-HL	+14.51	F/L
Bobbin	6	109	NQI		0.39	P 1	57	1ST TSP	+0.05	F/L
Bobbin	7	4	NQI		0.38	P 1	51	2ND TSP	-0.02	F/L
Bobbin	7	24	NQI		0.56	P 1	76	2ND TSP	+0.12	F/L
H/L Special I			SAI		0.35	1	48	2ND TSP	+0.09	2ND TSP
H/L Tubesheet	7	33	SAI		0.91	1	22	TTS-HL	-4.48	TTS-HL
H/L Tubesheet	7	38	SAI		1.25	1	28	TTS-HL	-0.15	TTS-HL
Bobbin	7	60	NQI		7.45	P 1	149	TE-HL	+10.82	F/L
Bobbin			NQI		13.06	P 1	166	TE-HL	+9.81	F/L
H/L Tubesheet	7	61	SAI		0.90	1	23	TTS-HL	-2.88	TTS-HL
Bobbin	7	66	IDI	99	3.51	P 1	35	TE-HL	+7.94	F/L
H/L Tubesheet	7	80	SAI		0.77	1	36	TTS-HL	-0.09	TTS-HL
Bobbin	7	82	ODI	21	0.26	3	125	1ST TSP	+10.14	F/L
Bobbin			NQI		0.26	P 1	99	15TH TSP	-0.35	F/L
H/L Tubesheet	7	84	SAI		0.54	1	29	TTS-HL	-2.08	TTS-HL
Bobbin	7	87	IDI	30	5.52	P 1	110	TE-HL	+9.80	F/L
Bobbin	8	4	IDI	92	9.35	P 1	51	TE-HL	+13.01	F/L
H/L Tubesheet			SCI		0.27	1	33	TTS-HL	-0.09	TTS-HL
Bobbin	8	23	IDI	82	36.65	P 1	32	TE-HL	+3.03	F/L
Bobbin			IDI	86	5.24	P 1	59	TE-HL	+10.07	F/L
H/L Tubesheet	8	31	SAI		0.86	1	26	TTS-HL	-0.06	TTS-HL
Bobbin	8	59	IDI	55	1.55	P 1	82	TE-HL	+5.92	F/L
Bobbin	8	63	NQI		8.54	P 1	149	TE-HL	+10.29	F/L
Bobbin			IDI	87	5.27	P 1	58	TE-HL	+15.47	F/L
H/L Tubesheet	8	66	MAI		0.24	1	34	TTS-HL	+0.07	TTS-HL
Bobbin	8	67	ODI	35	0.58	3	112	6TH TSP	+22.56	F/L
H/L Special I			VOL		0.50	1	24	6TH TSP	+22.36	6TH TSP
H/L Tubesheet	8	69	SAI		1.52	1	21	TTS-HL	-0.03	TTS-HL
Bobbin	8	74	IDI	74	15.46	P 1	29	TE-HL	+5.86	F/L
H/L Tubesheet	8	75	SAI		1.30	1	24	TTS-HL	-3.42	TTS-HL
Bobbin	8	83	WAR	6	0.41	P 4	0	4AVB	+0.00	F/L
Bobbin			IDI	92	6.35	P 1	36	TE-HL	+13.40	F/L
H/L Tubesheet			MAI		0.97	1	33	TTS-HL	-3.97	TTS-HL
H/L Tubesheet	8	89	SAI		0.55	1	19	TTS-HL	+0.00	TTS-HL



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TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1	
H/L Tubesheet	8	98	SAI		0.57	1	27	TTS-HL	-1.82	TTS-HL
Bobbin	8	102	IDI	80	4.02	P 1	60	TE-HL	+16.80	F/L
H/L Tubesheet			SAI		5.39	1	27	TTS-HL	-4.89	TTS-HL
Bobbin	8	104	ADI		3.10	6	42	11TH TSP	+19.00	F/L
C/L Special I			VOL		1.04	1	162	11TH TSP	+15.48	11TH TSP
Bobbin	9	5	IDI	88	15.42	P 1	52	TE-HL	+15.15	F/L
H/L Special I			MAI		10.44	1	30	TE-HL	+15.37	TE-HL
H/L Tubesheet	9	12	SCI		0.47	1	97	TTS-HL	-0.10	TTS-HL
Bobbin	9	15	IDI	87	6.56	P 1	27	TE-CL	+15.41	F/L
C/L Special I			MAI		3.31	1	22	TTS-CL	-5.75	TTS-CL
H/L Tubesheet	9	16	VOL		0.36	1	133	TTS-HL	-0.59	TTS-HL
H/L Tubesheet	9	18	SAI		0.92	1	13	TTS-HL	-3.97	TTS-HL
Bobbin	9	24	NQI		3.39	P 1	93	TE-HL	+16.18	F/L
Bobbin	9	41	ODI	16	1.21	3	132	11TH TSP	+42.43	F/L
C/L Special I			VOL		1.63	1	144	10TH TSP	-1.01	10TH TSP
Bobbin	9	70	IDI	87	5.65	P 1	34	TE-HL	+9.87	F/L
H/L Tubesheet	9	76	SAI		0.42	1	34	TTS-HL	-0.07	TTS-HL
Bobbin	9	81	IDI	73	10.02	P 1	76	TE-HL	+7.00	F/L
Bobbin			IDI	84	6.28	P 1	63	TE-HL	+16.14	F/L
Bobbin	9	85	IDI	59	12.72	P 1	23	TE-HL	+10.61	F/L
Bobbin	9	98	NQI		3.55	P 1	85	TE-HL	+15.16	F/L
Bobbin	9	102	IDI	35	8.31	P 1	12	TE-CL	+19.50	F/L
Bobbin	9	103	NQI		0.29	P 1	106	15TH TSP	-0.34	F/L
Bobbin	10	50	NQI		0.36	P 1	47	8TH TSP	+0.00	F/L
Bobbin	10	66	WAR	6	0.40	P 4	0	4AVB	+0.00	F/L
H/L Tubesheet	10	79	SAI		0.40	1	30	TTS-HL	-0.09	TTS-HL
Bobbin	10	85	IDI	79	21.43	P 1	31	TE-HL	+11.75	F/L
Bobbin	10	87	IDI	82	5.35	P 1	65	TE-HL	+14.85	F/L
H/L Special I			MAI		2.98	1	21	TE-HL	+13.64	TTS-HL
H/L Special I			MAI		3.33	1	23	TE-HL	+1.68	TTS-HL
U-Bend	10	113	SCI		1.15	1	17	7TH TSP	+21.07	7TH TSP
Bobbin	11	2	IDI	93	2.77	P 1	40	TE-HL	+12.73	F/L
H/L Tubesheet	11	5	VOL		0.18	1	98	TTS-HL	-0.04	TTS-HL
Bobbin	11	12	ODI	19	1.33	4	129	12TH TSP	+11.79	F/L
C/L Special I			VOL		0.74	1	114	11TH TSP	-10.63	11TH TSP
Bobbin	11	13	IDI	79	14.56	P 1	23	TE-CL	+17.11	F/L
C/L Special I			MAI		4.27	1	22	TTS-CL	-4.05	TTS-CL
Bobbin	11	17	IDI	38	17.30	P 1	11	TE-HL	+11.04	F/L
H/L Tubesheet	11	62	SAI		0.88	1	21	TTS-HL	-4.16	TTS-HL
Bobbin	11	72	IDI	78	16.12	P 1	61	TE-HL	+13.45	F/L
Bobbin	11	74	NQI		0.34	3	81	6TH TSP	+37.24	F/L
H/L Tubesheet	11	78	SAI		0.51	1	18	TTS-HL	+0.01	TTS-HL
Bobbin	11	84	IDI	76	17.08	P 1	64	TE-HL	+13.44	F/L
Bobbin			IDI	85	7.91	P 1	52	TE-HL	+5.64	F/L
Bobbin			IDI	89	24.14	P 1	47	TE-HL	+10.50	F/L
Bobbin	11	85	IDI	93	17.64	P 1	28	TE-HL	+9.61	F/L
Bobbin	11	89	IDI	100	3.81	P 1	30	TE-HL	+13.84	F/L
Bobbin	11	96	IDI	93	9.19	P 1	41	TE-HL	+16.91	F/L
H/L Tubesheet			MAI		6.52	1	30	TTS-HL	-4.08	TTS-HL
Bobbin	11	103	IDI	70	3.57	P 1	71	TE-HL	+14.33	F/L
Bobbin	11	107	ODI	21	1.06	3	124	15TH TSP	+0.88	F/L
C/L Special I			VOL		0.64	1	39	15TH TSP	+0.94	15TH TSP
Bobbin	12	16	ADI		6.35	6	110	8TH TSP	+6.61	F/L
U-Bend			VOL		0.61	1	84	8TH TSP	+6.64	8TH TSP
Bobbin	12	23	ADI		2.61	6	68	18TH TSP	+3.01	F/L
C/L Special I			VOL		0.34	1	90	18TH TSP	+2.87	17TH TSP
Bobbin	12	28	ADI		3.74	6	56	10TH TSP	+6.79	F/L
Bobbin			ODI	23	0.33	3	126	19TH TSP	+2.04	F/L
C/L Special I			VOL		0.35	1	82	10TH TSP	+6.66	10TH TSP
C/L Special I			VOL		0.65	1	104	19TH TSP	+2.18	19TH TSP
Bobbin	12	30	IDI	60	2.61	P 1	82	TE-HL	+16.60	F/L
H/L Tubesheet			MAI		2.38	1	29	TTS-HL	-2.86	TTS-HL
H/L Tubesheet	12	49	SAI		0.54	1	23	TTS-HL	-0.01	TTS-HL
H/L Tubesheet	12	61	SAI		0.69	1	21	TTS-HL	-3.17	TTS-HL
H/L Tubesheet			SAI		0.75	1	21	TTS-HL	-2.10	TTS-HL



ATTACHMENT #12 - INDICATIONS OF IMPERFECTIONS  
 INDICATIONS OF IMPERFECTIONS

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1
Bobbin	12	64	NQI		0.24	P	1	80 2ND TSP	+0.12
Bobbin	12	65	ODI	12	1.10	3	131	9TH TSP	+21.83
C/L Special I			VOL		1.08	1	94	9TH TSP	+21.93
H/L Tubesheet	12	80	SAI		0.54	1	22	TTS-HL	-0.10
Bobbin	12	96	ADI		4.79	6	64	4AVB	-2.47
U-Bend			VOL		0.97	1	34	4AVB	-2.41
Bobbin	13	11	ADI		3.39	6	43	9TH TSP	+5.77
Bobbin			IDI	55	14.66	P	1	16 TE-HL	+11.76
Bobbin			IDI	86	14.65	P	1	51 TE-HL	+13.08
C/L Special I			VOL		1.12	1	166	9TH TSP	+5.43
Bobbin	13	18	ADI		1.92	6	58	9TH TSP	+8.47
Bobbin	13	27	IDI	91	17.57	P	1	43 TE-HL	+15.94
Bobbin	13	57	ODI	5	1.18	3	142	13TH TSP	+8.70
C/L Special I			VOL		0.76	1	135	13TH TSP	+8.88
Bobbin	13	64	IDI	68	3.72	P	1	23 TE-HL	+11.57
Bobbin	13	65	IDI	76	14.25	P	1	26 TE-HL	+8.20
Bobbin	13	66	IDI	35	17.59	P	1	12 TE-HL	+13.31
Bobbin	13	67	IDI	53	20.51	P	1	18 TE-HL	+4.68
Bobbin	13	72	IDI	58	4.19	P	1	89 TE-HL	+12.31
H/L Tubesheet	13	78	SAI		1.09	1	27	TTS-HL	-0.07
H/L Tubesheet	13	80	MAI		0.50	1	40	TTS-HL	+0.00
Bobbin	13	83	IDI	96	14.32	P	1	42 TE-HL	+10.02
H/L Tubesheet	13	87	MAI		0.96	1	17	TTS-HL	-4.52
Bobbin	13	89	IDI	95	4.78	P	1	44 TE-HL	+15.28
H/L Tubesheet	13	98	MAI		0.72	1	23	TTS-HL	-4.36
H/L Tubesheet	14	16	SAI		0.73	1	25	TTS-HL	-0.53
Bobbin	14	38	IDI	1	4.39	P	1	141 TE-HL	+13.68
Bobbin	14	48	IDI	44	5.93	P	1	110 TE-HL	+6.22
Bobbin	14	53	NQI		0.84	P	1	53 1ST TSP	+0.13
H/L Special I			SAI		0.59	1	62	1ST TSP	+0.06
Bobbin	14	65	NQI		5.05	P	1	76 TE-HL	+6.58
Bobbin	14	72	IDI	62	13.54	P	1	16 TE-HL	+14.27
H/L Tubesheet	14	76	SAI		0.98	1	18	TTS-HL	-0.10
Bobbin	14	80	IDI	54	11.61	P	1	14 TE-HL	+9.38
H/L Tubesheet			SAI		0.95	1	23	TTS-HL	+0.03
H/L Tubesheet	14	81	SAI		0.98	1	24	TTS-HL	+0.05
H/L Tubesheet	14	91	MAI		0.91	1	28	TTS-HL	-5.00
Bobbin	14	93	ODI	14	0.77	3	132	TTS-HL	+12.41
H/L Special I			VOL		0.54	1	104	TTS-HL	+11.28
Bobbin	14	94	IDI	43	10.80	P	1	10 TE-HL	+14.51
Bobbin	15	14	ODI	1	1.93	3	145	2ND TSP	+33.78
H/L Special I			VOL		1.05	1	44	3RD TSP	-11.17
Bobbin	15	38	IDI	94	43.70	P	1	49 TE-HL	+15.89
H/L Tubesheet	15	39	VOL		0.55	1	90	TTS-HL	-1.47
H/L Tubesheet			VOL		0.57	1	138	TTS-HL	-0.16
H/L Tubesheet			VOL		0.62	1	107	TTS-HL	-2.99
H/L Tubesheet			VOL		0.85	1	41	TTS-HL	+1.37
Bobbin	15	59	IDI	94	57.96	P	1	37 TE-HL	+15.44
Bobbin	15	61	IDI	1	2.89	P	1	138 TE-HL	+3.19
Bobbin			IDI	2	3.29	P	1	127 TE-HL	+7.95
Bobbin			IDI	56	3.57	P	1	84 TE-HL	+11.76
Bobbin	15	64	IDI	25	2.16	P	1	111 TE-HL	+17.08
H/L Tubesheet			MAI		2.96	1	34	TTS-HL	-3.60
Bobbin	15	74	ADI		2.68	6	74	16TH TSP	+3.81
C/L Special I			VOL		0.99	1	23	16TH TSP	+3.80
Bobbin	15	85	IDI	61	8.75	P	1	17 TE-HL	+11.71
Bobbin	15	91	NQI		0.45	P	1	139 2ND TSP	+0.05
Bobbin	16	11	NQI		0.65	3	105	17TH TSP	+14.38
Bobbin			IDI	91	56.53	P	1	54 TE-HL	+14.62
C/L Special I			VOL		0.53	1	132	17TH TSP	+14.51
Bobbin	16	13	IDI	91	38.90	P	1	54 TE-HL	+12.71
Bobbin	16	14	IDI	95	7.45	P	1	47 TE-HL	+14.38
H/L Tubesheet			SAI		0.93	1	38	TTS-HL	+0.09
Bobbin	16	17	IDI	75	17.83	P	1	72 TE-HL	+10.42
Bobbin	16	19	NQI		4.45	P	1	159 TE-HL	+9.61

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ATTACHMENT #12 - INDICATIONS OF IMPERFECTIONS

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1
H/L Tubesheet			SAI		0.51	1	37	TTS-HL	-1.49
Bobbin	16	21	IDI	97	26.77	P 1	44	TE-HL	+18.71
H/L Tubesheet			MAI		12.08	1	29	TTS-HL	-4.24
Bobbin	16	33	ODI	11	0.84	3	137	6TH TSP	+24.03
H/L Special I			VOL		0.56	1	96	6TH TSP	+14.63
H/L Special I			VOL		1.36	1	136	6TH TSP	+25.36
H/L Special I			VOL		1.91	1	153	6TH TSP	+22.03
H/L Tubesheet	16	34	SAI		0.56	1	37	TTS-HL	-1.68
Bobbin	16	41	IDI	86	5.54	P 1	61	TE-HL	+13.96
Bobbin	16	47	IDI	90	4.53	P 1	55	TE-HL	+7.36
Bobbin	16	67	NQI		0.77	P 1	105	2ND TSP	-0.11
H/L Special I			SAI		1.01	1	44	2ND TSP	-0.12
H/L Tubesheet	16	80	MAI		0.48	1	55	TTS-HL	-0.09
Bobbin	16	93	ADI		1.62	6	65	4TH TSP	+16.24
Bobbin			ODI	1	1.03	3	143	10TH TSP	+26.47
H/L Special I			VOL		0.53	1	43	4TH TSP	+16.75
C/L Special I			VOL		1.15	1	20	10TH TSP	+26.53
Bobbin	16	97	IDI	57	4.09	P 1	20	TE-HL	+9.53
Bobbin			IDI	60	2.32	P 1	21	TE-HL	+10.54
Bobbin	16	99	NQI		2.06	P 1	25	TE-HL	+19.22
H/L Tubesheet			VOL		1.15	1	70	TTS-HL	+0.64
Bobbin	16	110	ADI		3.43	6	75	9TH TSP	+31.99
C/L Special I			VOL		0.80	1	110	9TH TSP	+31.32
Bobbin	17	12	IDI	92	3.80	P 1	47	TE-HL	+17.70
H/L Tubesheet			MAI		2.36	1	19	TTS-HL	-3.86
Bobbin	17	15	IDI	90	19.93	P 1	49	TE-HL	+15.73
Bobbin	17	24	IDI	86	4.88	P 1	56	TE-HL	+13.90
Bobbin			IDI	88	6.84	P 1	30	TE-HL	+13.52
H/L Tubesheet	17	57	SAI		1.16	1	41	TTS-HL	+0.01
H/L Tubesheet	17	62	MAI		0.67	1	18	TTS-HL	-1.77
H/L Tubesheet	17	67	MAI		0.70	1	18	TTS-HL	-2.70
Bobbin	17	68	ADI		2.62	6	43	TTS-HL	+11.38
H/L Special I			VOL		0.81	1	155	TTS-HL	+9.54
Bobbin	17	76	ODI	7	0.52	3	142	TTS-CL	+3.65
H/L Tubesheet	17	81	SAI		2.04	1	23	TTS-HL	-3.53
Bobbin	17	85	IDI	32	9.89	P 1	9	TE-HL	+15.31
Bobbin			IDI	95	3.11	P 1	36	TE-HL	+15.53
H/L Tubesheet	17	88	SAI		1.41	1	40	TTS-HL	-0.04
Bobbin	17	90	IDI	77	4.64	P 1	61	TE-HL	+15.39
Bobbin	17	94	IDI	57	12.22	P 1	16	TE-HL	+11.48
Bobbin	18	4	IDI	98	6.81	P 1	37	TE-HL	+10.35
Bobbin	18	11	IDI	59	3.88	P 1	88	TE-HL	+16.09
H/L Special I			SAI		4.99	1	37	TE-HL	+16.29
Bobbin	18	16	IDI	94	17.76	P 1	44	TE-HL	+14.82
Bobbin	18	32	NQI		6.40	P 1	154	TE-HL	+6.37
H/L Tubesheet	18	33	SAI		0.99	1	30	TTS-HL	-2.35
Bobbin	18	34	IDI	88	18.46	P 1	53	TE-HL	+12.46
Bobbin	18	48	NQI		0.48	3	50	6TH TSP	+15.67
H/L Special I			VOL		1.00	1	137	6TH TSP	+16.84
Bobbin	18	59	IDI	2	10.54	P 1	132	TE-HL	+7.06
Bobbin	18	60	IDI	90	10.03	P 1	46	TE-HL	+10.80
Bobbin	18	79	NQI		4.43	P 1	144	TE-HL	+18.07
H/L Tubesheet			MAI		1.45	1	25	TTS-HL	-2.25
Bobbin	18	80	IDI	13	17.49	P 1	4	TE-HL	+11.81
Bobbin	18	89	IDI	80	4.27	P 1	60	TE-HL	+12.52
Bobbin	18	96	NQI		7.32	P 1	185	TE-HL	+17.12
Bobbin			IDI	47	2.54	P 1	14	TE-HL	+12.38
Bobbin			IDI	73	2.11	P 1	22	TE-HL	+9.52
Bobbin			IDI	95	6.51	P 1	38	TE-HL	+14.28
Bobbin	19	5	NQI		4.26	P 1	166	TE-HL	+10.82
Bobbin	19	20	ODI	4	1.36	3	143	5TH TSP	+25.63
H/L Special I			VOL		1.11	1	138	5TH TSP	+26.15
Bobbin	19	22	IDI	47	3.15	P 1	99	TE-HL	+16.84
H/L Tubesheet			MAI		3.69	1	18	TTS-HL	-3.69
H/L Special I			MAI		4.00	1	23	TTS-HL	-4.06

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ATTACHMENT #12 - INDICATIONS OF IMPERFECTIONS  
 INDICATIONS OF IMPERFECTIONS

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1
Bobbin	19	23	IDI	57	9.17	P	1	20 TE-HL	+10.35
Bobbin	19	45	ODI	4	0.68	3	143	2ND TSP	+34.83
H/L Special I			VOL		0.45	1	244	2ND TSP	+34.83
Bobbin	19	52	IDI	9	3.27	P	1	133 TE-HL	+9.40
Bobbin	19	62	IDI	42	25.48	P	1	16 TE-HL	+13.52
Bobbin			IDI	84	35.24	P	1	64 TE-HL	+7.14
H/L Tubesheet			SAI		1.22	1	32	TTS-HL	-0.18
Bobbin	19	86	ODI	19	1.50	3	130	11TH TSP	+13.20
C/L Special I			VOL		1.65	1	112	11TH TSP	+13.21
Bobbin	19	87	IDI	16	4.48	P	1	129 TE-HL	+12.71
Bobbin	19	108	ODI	6	1.83	3	143	TTS-CL	+13.90
C/L Special I			VOL		2.45	1	116	TTS-CL	+13.37
Bobbin	20	17	ODI	14	0.53	3	134	5TH TSP	+33.35
H/L Special I			VOL		1.34	1	160	5TH TSP	+33.15
Bobbin	20	24	IDI	83	6.36	P	1	29 TE-HL	+8.48
Bobbin	20	26	ADI		7.86	6	68	5TH TSP	+7.25
Bobbin			ADI		3.02	6	48	10TH TSP	+8.52
H/L Special I			VOL		1.73	1	137	5TH TSP	+18.42
Bobbin	20	30	ODI	27	0.58	3	121	12TH TSP	+6.85
C/L Special I			VOL		0.70	1	104	12TH TSP	+6.82
Bobbin	20	35	ODI	21	0.38	3	127	TTS-CL	+18.54
Bobbin	20	36	ADI		1.68	6	70	6TH TSP	+12.68
H/L Special I			VOL		1.28	1	164	6TH TSP	+13.61
Bobbin	20	38	IDI	85	9.38	P	1	58 TE-HL	+10.55
Bobbin	20	74	NQI		0.83	3	97	1ST TSP	+3.22
Bobbin			NQI		0.46	3	84	13TH TSP	+4.34
Bobbin			ADI		2.61	6	90	2ND TSP	+3.27 to +38.15
Bobbin			ADI		4.92	6	96	1ST TSP	+3.22 to +14.83
H/L Special I			VOL		0.45	1	95	2ND TSP	+16.26
H/L Special I			VOL		0.45	1	113	2ND TSP	+20.57
H/L Special I			VOL		1.31	1	22	1ST TSP	+3.28
H/L Special I			VOL		1.92	1	22	1ST TSP	-1.07
H/L Special I			VOL		2.52	1	16	1ST TSP	+14.57
C/L Special I			VOL		0.28	1	127	13TH TSP	+3.98
Bobbin	20	78	ADI		1.69	6	47	12TH TSP	+11.05
H/L Tubesheet	20	82	SAI		0.92	1	32	TTS-HL	+0.00
Bobbin	20	83	NQI		11.54	P	1	165 TE-HL	+13.73
H/L Special I			MAI		4.12	1	17	TE-HL	+12.69
Bobbin	20	86	IDI	84	7.19	P	1	32 TE-HL	+1.98
Bobbin	20	90	IDI	96	8.90	P	1	46 TE-HL	+14.44
Bobbin	20	92	IDI	98	11.65	P	1	42 TE-HL	+11.52
H/L Tubesheet	20	97	SAI		0.64	1	20	TTS-HL	-1.01
Bobbin	20	98	ADI		4.01	6	68	10TH TSP	+35.08
Bobbin			NQI		0.71	3	138	10TH TSP	+42.54
C/L Special I			VOL		0.46	1	107	9TH TSP	-1.48
C/L Special I			VOL		0.63	1	85	9TH TSP	-9.14
Bobbin	20	106	NQI		0.79	3	119	12TH TSP	+2.02
C/L Special I			VOL		1.33	1	117	12TH TSP	+2.11
Bobbin	21	5	IDI	89	18.47	P	1	31 TE-HL	+0.70
Bobbin	21	7	ADI		2.23	6	65	5TH TSP	+41.33
H/L Special I			VOL		0.64	1	114	5TH TSP	+41.39
Bobbin	21	13	NQI		0.38	P	1	66 11TH TSP	+0.58
H/L Tubesheet	21	14	SAI		1.28	1	25	TTS-HL	-0.03
H/L Tubesheet	21	15	SAI		0.53	1	24	TTS-HL	-0.70
Bobbin	21	34	IDI	85	16.58	P	1	57 TE-HL	+3.08
Bobbin	21	43	IDI	60	25.51	P	1	21 TE-HL	+9.23
H/L Tubesheet	21	61	MAI		1.23	1	40	TTS-HL	+0.06
Bobbin	21	75	IDI	45	9.88	P	1	17 TE-HL	+19.25
H/L Tubesheet			MAI		1.42	1	18	TTS-HL	-1.97
H/L Tubesheet			SAI		0.38	1	32	TTS-HL	+0.09
Bobbin	22	10	IDI	95	32.34	P	1	44 TE-HL	+16.63
H/L Tubesheet			MAI		14.72	1	28	TTS-HL	-4.26
H/L Special I			MAI		10.30	4	64	TE-HL	+16.52
Bobbin	22	13	IDI	80	23.36	P	1	28 TE-HL	+0.74
Bobbin	22	27	ODI	21	0.51	3	126	13TH TSP	+4.26



ATTACHMENT #12 - INDICATIONS OF IMPERFECTIONS  
 INDICATIONS OF IMPERFECTIONS

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1	
C/L Special I					VOL			90 13TH TSP	+4.27	13TH TSP
Bobbin	22	30	IDI	96	5.99	P	1	27 TE-HL	+6.06	F/L
Bobbin	22	38	IDI	93	80.58	P	1	39 TE-HL	+17.79	F/L
H/L Special I					MAI			27 TTS-HL	-5.41	TTS-HL
Bobbin	22	51	NQI		0.40	3		88 TTS-CL	+18.71	F/L
Bobbin	22	81	WAR	10	0.57	P	4	0 3AVB	+0.00	F/L
Bobbin	22	83	NQI		2.92	3		25 7TH TSP	+9.52	F/L
U-Bend					VOL			140 7TH TSP	+9.52	7TH TSP
H/L Tubesheet	23	6	SAI		2.24	1		24 TTS-HL	-0.19	TTS-HL
Bobbin	23	11	IDI	78	2.40	P	1	61 TE-HL	+16.56	F/L
H/L Special I					MAI			14 TE-HL	+17.02	TTS-HL
Bobbin	23	21	NQI		0.49	3		115 TTS-CL	+24.33	F/L
H/L Tubesheet					SAI			30 TTS-HL	+0.00	TTS-HL
C/L Special I					VOL			64 TTS-CL	+24.14	20TH TSP
H/L Tubesheet	23	48	SAI		0.67	1		29 TTS-HL	-0.03	TTS-HL
Bobbin	23	56	IDI	89	3.23	P	1	45 TE-HL	+12.10	F/L
Bobbin	23	70	IDI	75	37.20	P	1	30 TE-HL	+7.57	F/L
Bobbin					IDI			32 TE-HL	+5.87	F/L
Bobbin	23	79	ODI	4	0.91	3		143 TTS-HL	+11.22	F/L
H/L Special I					VOL			156 TTS-HL	+17.48	TTS-HL
Bobbin	23	81	IDI	70	8.89	P	1	28 TE-HL	+11.20	F/L
Bobbin	23	83	IDI	58	13.81	P	1	23 TE-HL	+2.80	F/L
Bobbin	23	92	IDI	61	12.92	P	1	17 TE-HL	+7.52	F/L
Bobbin	23	106	ODI	10	0.52	3		137 1ST TSP	+7.99	F/L
H/L Special I					VOL			113 1ST TSP	+2.66	1ST TSP
H/L Special I					VOL			81 1ST TSP	+5.02	1ST TSP
H/L Special I					VOL			63 1ST TSP	+12.63	1ST TSP
H/L Special I					VOL			62 1ST TSP	+0.83	1ST TSP
H/L Special I					VOL			107 1ST TSP	+9.06	1ST TSP
H/L Special I					VOL			111 1ST TSP	+3.25	1ST TSP
H/L Special I					VOL			36 1ST TSP	+15.29	1ST TSP
H/L Special I					VOL			146 1ST TSP	+6.48	1ST TSP
H/L Special I					VOL			107 1ST TSP	+1.99	1ST TSP
H/L Special I					VOL			107 1ST TSP	+7.91	1ST TSP
H/L Special I					VOL			69 1ST TSP	+11.48	1ST TSP
H/L Special I					VOL			109 1ST TSP	+5.61	1ST TSP
Bobbin	24	12	IDI	85	2.51	P	1	51 TE-CL	+13.35	F/L
Bobbin					IDI			46 TE-CL	+16.97	F/L
C/L Special I					MAI			18 TE-CL	+16.49	TTS-CL
Bobbin	24	14	ODI	3	1.57	4		149 10TH TSP	+18.61	F/L
Bobbin	24	19	IDI	85	10.51	P	1	51 TE-HL	+17.59	F/L
H/L Tubesheet					MAI			33 TTS-HL	-3.41	TTS-HL
Bobbin	24	20	IDI	79	4.11	P	1	59 TE-HL	+16.00	F/L
Bobbin	24	22	IDI	93	1.38	P	1	26 TE-HL	+15.79	F/L
Bobbin	24	23	IDI	69	8.30	P	1	72 TE-HL	+16.77	F/L
H/L Tubesheet					MAI			24 TTS-HL	-4.27	TTS-HL
Bobbin	24	26	IDI	43	18.46	P	1	12 TE-HL	+4.79	F/L
Bobbin	24	34	ODI	28	1.28	3		11 TTS-CL	+19.18	F/L
Bobbin	24	45	NQI		3.02	3		15 10TH TSP	+19.69	F/L
Bobbin					NQI			15 10TH TSP	+10.33	F/L
Bobbin	24	94	NQI		0.43	3		56 9TH TSP	+17.30	F/L
Bobbin	25	10	ODI	7	0.58	3		139 11TH TSP	+14.11	F/L
C/L Special I					VOL			111 11TH TSP	+13.07	11TH TSP
Bobbin	25	44	IDI	21	2.46	P	1	129 TE-HL	+7.76	F/L
Bobbin	25	48	NQI		3.94	3		11 1AVB	+7.77	F/L
Bobbin	25	54	IDI	60	18.23	P	1	21 TE-HL	+12.08	F/L
Bobbin	25	104	ADI		2.14	6		67 2ND TSP	+2.80	F/L
Bobbin					ODI			148 2ND TSP	+4.58	F/L
H/L Special I					VOL			153 2ND TSP	+2.95	2ND TSP
H/L Special I					VOL			49 2ND TSP	+4.68	2ND TSP
H/L Tubesheet	25	106	VOL		0.64	1		100 TTS-HL	-0.53	TTS-HL
H/L Tubesheet					VOL			120 TTS-HL	-1.00	TTS-HL
Bobbin	26	17	IDI	47	21.71	P	1	15 TE-HL	+11.69	F/L
Bobbin	26	28	NQI		0.53	3		101 9TH TSP	+37.98	F/L
C/L Special I					VOL			148 9TH TSP	+37.98	9TH TSP

ATTACHMENT #12 - INDICATIONS OF IMPERFECTIONS

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1
Bobbin	26	30	ADI		5.12	6	46	11TH TSP	F/L
C/L Special I			VOL		0.72	1	124	11TH TSP	10TH TSP
Bobbin	26	40	IDI	88	7.84	P 1	28	TE-HL	F/L
Bobbin	26	66	IDI	79	9.29	P 1	22	TE-HL	F/L
Bobbin	26	76	NQI		0.54	3	103	10TH TSP	F/L
Bobbin	26	88	WAR	12	0.67	P 4	0	2AVB	F/L
Bobbin	26	106	ODI	10	0.95	4	134	3RD TSP	F/L
H/L Special I			VOL		0.82	1	17	3RD TSP	3RD TSP
Bobbin	26	107	WAR	9	0.48	P 4	0	3AVB	F/L
Bobbin	27	17	NQI		2.50	P 1	136	TE-HL	F/L
Bobbin	27	18	IDI	86	2.78	P 1	48	TE-HL	F/L
H/L Tubesheet			SAI		1.30	1	48	TTS-HL	TTS-HL
H/L Tubesheet	27	29	MAI		0.58	1	29	TTS-HL	TTS-HL
Bobbin	27	30	IDI	32	13.01	P 1	9	TE-HL	F/L
Bobbin	27	35	IDI	82	1.99	P 1	54	TE-HL	F/L
Bobbin	27	36	IDI	36	9.44	P 1	10	TE-HL	F/L
H/L Tubesheet	27	37	SAI		1.06	1	23	TTS-HL	TTS-HL
H/L Tubesheet	27	48	SAI		1.99	1	36	TTS-HL	TTS-HL
Bobbin	27	69	IDI	74	33.83	P 1	25	TE-HL	F/L
H/L Tubesheet	27	78	SAI		0.59	1	153	TTS-HL	TTS-HL
Bobbin	27	82	IDI	71	6.22	P 1	24	TE-HL	F/L
Bobbin	27	84	WAR	17	1.08	P 4	0	1AVB	F/L
Bobbin	27	95	NQI		2.06	3	157	3AVB	F/L
U-Bend			VOL		1.86	1	150	3AVB	2AVB
Bobbin	27	98	ADI		7.00	6	77	16TH TSP	F/L
C/L Special I			VOL		0.77	1	111	16TH TSP	15TH TSP
Bobbin	27	102	ODI	13	0.49	3	133	TTS-HL	F/L
H/L Special I			VOL		0.48	1	46	TTS-HL	TTS-HL
Bobbin	27	106	WAR	12	0.72	P 4	0	1AVB	F/L
Bobbin	28	9	ODI	29	0.91	3	119	TTS-HL	F/L
Bobbin			ODI	31	0.18	3	117	TTS-HL	F/L
H/L Special I			VOL		0.29	1	99	TTS-HL	TTS-HL
H/L Special I			VOL		0.49	1	90	TTS-HL	TTS-HL
Bobbin	28	15	IDI	39	3.20	P 1	11	TE-HL	F/L
Bobbin	28	24	IDI	79	2.06	P 1	22	TE-HL	F/L
Bobbin	28	26	IDI	43	8.31	P 1	12	TE-HL	F/L
Bobbin	28	43	ODI	7	1.11	3	140	TTS-CL	F/L
Bobbin			ODI	21	0.45	3	127	TTS-CL	F/L
C/L Special I			VOL		0.61	1	115	TTS-CL	20TH TSP
H/L Tubesheet	28	47	MAI		0.86	1	27	TTS-HL	TTS-HL
Bobbin	28	70	IDI	94	42.03	P 1	39	TE-HL	F/L
H/L Tubesheet			MAI		1.14	1	55	TTS-HL	TTS-HL
Bobbin	28	75	IDI	47	8.48	P 1	16	TE-HL	F/L
Bobbin	28	81	IDI	53	10.20	P 1	18	TE-HL	F/L
Bobbin	28	85	IDI	100	6.79	P 1	34	TE-HL	F/L
Bobbin	28	99	ADI		8.16	6	90	TTS-HL	F/L
H/L Special I			VOL		1.47	1	95	TTS-HL	TTS-HL
Bobbin	29	11	NQI		2.15	P 1	137	TE-HL	F/L
Bobbin			WAR	14	0.79	P 4	0	2AVB	F/L
H/L Tubesheet			MAI		2.26	1	17	TTS-HL	TTS-HL
H/L Special I			MAI		2.20	1	25	TTS-HL	TTS-HL
Bobbin	29	20	IDI	24	1.21	P 1	112	TE-HL	F/L
H/L Tubesheet			SAI		0.76	1	50	TTS-HL	TTS-HL
H/L Tubesheet	29	21	SAI		0.83	1	24	TTS-HL	TTS-HL
H/L Tubesheet	29	23	SAI		0.99	1	22	TTS-HL	TTS-HL
Bobbin	29	34	IDI	85	8.14	P 1	50	TE-HL	F/L
Bobbin	29	36	IDI	25	5.68	P 1	7	TE-HL	F/L
Bobbin	29	43	IDI	93	2.30	P 1	39	TE-HL	F/L
H/L Tubesheet			MAI		2.67	1	35	TTS-HL	TTS-HL
Bobbin	29	44	IDI	39	7.11	P 1	11	TE-HL	F/L
Bobbin			IDI	43	10.90	P 1	12	TE-HL	F/L
Bobbin			IDI	50	12.63	P 1	14	TE-HL	F/L
Bobbin	29	45	IDI	46	9.98	P 1	13	TE-HL	F/L
Bobbin	29	46	IDI	64	8.19	P 1	18	TE-HL	F/L
Bobbin	29	47	IDI	43	10.18	P 1	12	TE-HL	F/L

ATTACHMENT #12 - INDICATIONS OF IMPERFECTIONS  
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TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1
Bobbin	29	49	IDI	20	6.26	P	1	115 TE-HL	+16.95
Bobbin	29	54	IDI	93	3.07	P	1	39 TE-HL	+10.53
Bobbin	29	65	IDI	91	2.15	P	1	42 TE-HL	+8.29
Bobbin	29	66	IDI	33	12.03	P	1	9 TE-HL	+10.47
Bobbin			IDI	89	10.70	P	1	24 TE-HL	+12.36
H/L Tubesheet			MAI		0.37	1		33 TTS-HL	-3.41
Bobbin	29	67	IDI	99	21.10	P	1	29 TE-HL	+10.68
Bobbin	29	75	ODI	81	9.53	P	1	22 TE-HL	+2.17
Bobbin	29	77	NQI		3.13	P	1	157 TE-HL	+10.73
Bobbin	29	88	IDI	59	10.97	P	1	16 TE-HL	+12.32
H/L Tubesheet			SAI		0.48	1		18 TTS-HL	+0.03
Bobbin	29	104	ODI	13	1.21	4		153 5TH TSP	+32.84
H/L Special I			VOL		0.91	1		13 6TH TSP	-9.16
Bobbin	30	11	ODI	3	0.93	3		144 10TH TSP	+16.65
C/L Special I			VOL		1.10	1		138 10TH TSP	+15.51
Bobbin	30	14	ODI	2	1.04	3		145 11TH TSP	+5.35
Bobbin			ODI	6	0.64	3		141 13TH TSP	+5.39
C/L Special I			VOL		0.52	1		308 13TH TSP	+4.86
C/L Special I			VOL		0.96	1		136 11TH TSP	+5.23
Bobbin	30	39	IDI	94	11.04	P	1	33 TE-HL	+2.97
Bobbin	30	40	IDI	17	5.00	P	1	6 TE-HL	+9.68
Bobbin	30	61	IDI	86	4.84	P	1	50 TE-HL	+7.92
Bobbin			IDI	89	9.85	P	1	24 TE-HL	+6.00
Bobbin	30	62	IDI	70	2.36	P	1	70 TE-HL	+16.80
H/L Tubesheet			MAI		2.08	1		30 TTS-HL	-3.85
H/L Special I			MAI		2.00	1		24 TE-HL	+17.62
Bobbin	30	64	IDI	86	4.56	P	1	49 TE-HL	+6.46
Bobbin	30	66	IDI	56	1.68	P	1	85 TE-HL	+14.53
Bobbin	30	68	IDI	91	6.94	P	1	51 TE-HL	+11.81
Bobbin	30	69	IDI	70	5.55	P	1	19 TE-HL	+1.98
Bobbin			IDI	92	6.63	P	1	40 TE-HL	+7.56
Bobbin	30	70	IDI	81	14.29	P	1	22 TE-HL	+3.08
Bobbin	30	76	IDI	52	5.35	P	1	14 TE-HL	+13.71
Bobbin			IDI	95	7.55	P	1	36 TE-HL	+5.85
Bobbin	30	77	IDI	59	23.72	P	1	20 TE-HL	+12.72
Bobbin	30	80	IDI	82	6.66	P	1	55 TE-HL	+13.89
Bobbin	30	90	ODI	14	0.62	3		133 2ND TSP	+41.78
H/L Special I			VOL		1.10	1		54 3RD TSP	-3.26
Bobbin	30	91	NQI		0.63	5		87 3AVB	-11.70
Bobbin	30	100	IDI	56	0.95	P	1	84 TE-HL	+14.95
Bobbin	31	14	IDI	99	11.09	P	1	37 TE-HL	+12.56
H/L Tubesheet	31	32	SCI		0.57	1		13 TTS-HL	-0.03
H/L Tubesheet	31	34	SAI		0.99	1		33 TTS-HL	-0.07
Bobbin	31	38	IDI	94	70.52	P	1	44 TE-HL	+15.25
Bobbin	31	39	NQI		2.20	3		10 3RD TSP	+40.88
H/L Tubesheet	31	42	SAI		0.73	1		19 TTS-HL	-2.51
Bobbin	31	70	IDI	88	18.77	P	1	30 TE-HL	+3.48
Bobbin	31	97	ADI		2.64	6		103 5TH TSP	+4.57
H/L Special I			VOL		0.58	1		116 5TH TSP	+4.82
Bobbin	31	100	IDI	97	5.17	P	1	34 TE-HL	+11.37
Bobbin	32	22	NQI		2.81	P	1	132 TE-HL	+8.75
Bobbin			IDI	5	1.29	P	1	126 TE-CL	+15.28
Bobbin	32	26	ODI	5	1.46	4		133 3AVB	-3.44
Bobbin			ODI	15	0.65	3		133 TTS-CL	+19.92
C/L Special I			VOL		0.61	1		107 TTS-CL	+19.92
Bobbin	32	35	IDI	39	9.16	P	1	12 TE-HL	+15.38
Bobbin	32	38	IDI	88	2.79	P	1	47 TE-HL	+15.49
H/L Tubesheet			SAI		1.74	1		21 TTS-HL	-4.36
Bobbin	32	42	ODI	8	0.52	3		138 5TH TSP	+20.76
H/L Special I			VOL		0.52	1		90 5TH TSP	+20.84
Bobbin	32	43	IDI	55	1.43	P	1	17 TE-HL	+5.80
Bobbin			IDI	71	8.83	P	1	22 TE-HL	+7.37
H/L Tubesheet	32	44	SAI		0.34	1		27 TTS-HL	-0.03
H/L Tubesheet	32	55	SAI		0.32	1		32 TTS-HL	-0.01
Bobbin	32	59	ODI	16	2.51	4		158 10TH TSP	+20.86



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ATTACHMENT #12 - INDICATIONS OF IMPERFECTIONS  
INDICATIONS OF IMPERFECTIONS

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1
C/L Special I					VOL			0.64 1 150 10TH TSP	+20.51 10TH TSP
Bobbin	32	62	IDI	100	5.91	P 1	34	TE-HL	+5.63 F/L
Bobbin	32	63	WAR	15	0.96	P 4	0	1AVB	+0.00 F/L
Bobbin	32	88	ADI		1.94	6	52	2ND TSP	+30.67 F/L
Bobbin			ADI		2.21	6	96	2ND TSP	+33.06 F/L
Bobbin			ADI		1.83	6	87	15TH TSP	+5.10 F/L
Bobbin			ODI	24	1.31	4	145	1ST TSP	+5.72 F/L
Bobbin			ODI	28	0.94	3	120	1ST TSP	+4.73 F/L
H/L Special I					VOL			0.48 1 77 3RD TSP	-12.29 3RD TSP
H/L Special I					VOL			0.52 1 82 3RD TSP	-15.02 3RD TSP
H/L Special I					VOL			1.01 1 131 1ST TSP	+5.78 1ST TSP
H/L Special I					VOL			1.31 1 122 1ST TSP	+4.38 1ST TSP
Bobbin	32	89	ODI	13	0.38	3	133	10TH TSP	+25.53 F/L
Bobbin	32	92	NQI		0.45	3	33	2ND TSP	+37.80 F/L
Bobbin	32	93	ADI		1.98	6	88	17TH TSP	+18.53 F/L
Bobbin	32	97	ODI	10	1.31	4	166	9TH TSP	+25.66 F/L
Bobbin			ODI	13	0.97	4	162	2ND TSP	+38.81 F/L
Bobbin			ODI	24	1.05	4	146	5TH TSP	+15.39 F/L
C/L Special I					VOL			0.51 1 126 9TH TSP	+25.83 9TH TSP
H/L Special I					VOL			0.34 1 119 3RD TSP	-5.90 3RD TSP
H/L Special I					VOL			0.67 1 124 5TH TSP	+13.32 5TH TSP
H/L Special I					VOL			0.71 1 126 5TH TSP	+17.85 5TH TSP
H/L Special I					VOL			0.83 1 127 5TH TSP	+15.49 5TH TSP
Bobbin	32	98	ADI		5.03	6	37	7TH TSP	+53.99 F/L
U-Bend					VOL			1.16 1 22 7TH TSP	+54.30 7TH TSP
Bobbin	33	20	IDI	92	9.88	P 1	37	TE-HL	+9.51 F/L
Bobbin	33	27	ODI	24	0.59	3	122	11TH TSP	+9.28 F/L
C/L Special I					VOL			0.81 1 137 11TH TSP	+9.30 11TH TSP
C/L Special I					VOL			0.89 1 148 11TH TSP	+9.28 11TH TSP
Bobbin	33	33	IDI	91	4.77	P 1	43	TE-HL	+17.45 F/L
H/L Tubesheet					MAI			3.40 1 21 TTS-HL	-3.60 TTS-HL
Bobbin	33	36	NQI		2.54	3	23	2ND TSP	+30.07 F/L
H/L Special I					VOL			6.74 1 17 2ND TSP	+29.94 2ND TSP
Bobbin	33	51	ODI	15	0.35	3	131	9TH TSP	+31.02 F/L
H/L Tubesheet					VOL			0.95 1 18 TTS-HL	-3.19 TTS-HL
Bobbin	33	55	WAR	18	1.05	P 4	0	1AVB	+0.00 F/L
H/L Tubesheet					VOL			0.69 1 23 TTS-HL	-0.21 TTS-HL
Bobbin	33	67	NQI		0.32	P 1	106	14TH TSP	-0.40 F/L
Bobbin	33	84	WAR	9	0.55	P 4	0	1AVB	+0.00 F/L
Bobbin	33	93	NQI		0.26	3	85	9TH TSP	+32.52 F/L
Bobbin	33	98	ODI	14	2.12	4	161	13TH TSP	+5.49 F/L
C/L Special I					VOL			0.33 1 73 13TH TSP	+4.99 12TH TSP
Bobbin	33	99	ADI		3.25	6	44	17TH TSP	+9.24 F/L
Bobbin	33	101	ODI	4	0.29	3	141	4TH TSP	+23.03 F/L
H/L Special I					VOL			0.39 1 129 4TH TSP	+23.09 4TH TSP
Bobbin	34	15	IDI	28	1.88	P 1	119	TE-HL	+9.79 F/L
H/L Tubesheet					VOL			0.39 1 34 TTS-HL	-0.04 TTS-HL
Bobbin	34	37	NQI		7.59	P 1	166	TE-HL	+7.71 F/L
Bobbin	34	43	NQI		11.43	3	184	7TH TSP	+25.97 F/L
Bobbin	34	73	IDI	85	15.73	P 1	53	TE-HL	+13.41 F/L
Bobbin	34	75	IDI	72	2.85	P 1	68	TE-HL	+13.40 F/L
Bobbin	34	81	IDI	94	9.05	P 1	42	TE-HL	+8.75 F/L
Bobbin	34	84	ODI	20	0.94	3	127	16TH TSP	+4.88 F/L
C/L Special I					VOL			0.45 1 57 16TH TSP	+5.10 16TH TSP
Bobbin	34	86	ADI		2.47	6	73	4TH TSP	+23.02 F/L
H/L Special I					VOL			0.59 1 141 4TH TSP	+22.70 4TH TSP
Bobbin	35	14	ODI	30	0.30	3	118	1ST TSP	+20.56 F/L
H/L Special I					VOL			0.20 1 164 1ST TSP	+20.66 2ND TSP
Bobbin	35	15	ODI	23	0.69	3	125	1ST TSP	+21.23 F/L
H/L Special I					VOL			0.41 1 107 1ST TSP	+21.21 2ND TSP
Bobbin	35	17	NQI		3.85	P 1	25	TE-HL	+13.68 F/L
Bobbin	35	29	IDI	98	4.97	P 1	28	TE-HL	+13.51 F/L
Bobbin	35	38	NQI		2.93	P 1	39	TE-HL	+16.41 F/L
Bobbin	35	56	ADI		5.62	6	0	10TH TSP	+35.63 F/L
C/L Special I					VOL			0.37 1 129 9TH TSP	-8.87 9TH TSP

ATTACHMENT #12 - INDICATIONS OF IMPERFECTIONS

INDICATIONS OF IMPERFECTIONS

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1
C/L Special I					0.43	P 1	26	9TH TSP	-0.04
H/L Tubesheet	35	57	SAI		0.42	1	36	TTS-HL	+0.00
Bobbin	35	58	IDI	71	9.86	P 1	22	TE-HL	+14.19
Bobbin	35	60	NQI		2.62	P 1	71	TE-CL	+17.75
Bobbin	35	61	ODI	1	2.27	4	157	11TH TSP	+2.55
C/L Special I					0.82	1	105	11TH TSP	+1.90
Bobbin	35	63	NQI		0.89	P 1	46	2ND TSP	-0.05
H/L Special I					0.55	1	55	2ND TSP	-0.04
Bobbin	35	68	NQI		1.24	P 1	42	TE-CL	+16.27
Bobbin	35	70	ODI	3	1.81	3	140	4TH TSP	+6.04
H/L Special I					0.85	1	149	4TH TSP	+5.84
Bobbin	35	98	NQI		1.56	3	154	11TH TSP	+4.50
C/L Special I					0.60	1	91	11TH TSP	+4.76
Bobbin	36	16	ADI		7.40	6	73	5TH TSP	+36.58
H/L Special I					1.09	P 1	125	5TH TSP	+36.58
Bobbin	36	29	IDI	69	0.70	P 1	77	TE-HL	+6.62
Bobbin	36	35	WAR	8	0.56	P 4	0	1AVB	+0.00
H/L Tubesheet	36	36	SAI		1.54	2	34	TTS-HL	+0.08
Bobbin	36	38	IDI	72	2.74	P 1	73	TE-HL	+4.09
H/L Tubesheet					0.71	1	35	TTS-HL	-0.06
Bobbin	36	72	IDI	77	13.47	P 1	24	TE-HL	+8.70
H/L Tubesheet					1.21	1	18	TTS-HL	-0.05
Bobbin	36	80	NQI		4.78	P 1	155	TE-HL	+16.42
Bobbin	36	89	ADI		2.08	6	80	3RD TSP	+40.51
H/L Special I					1.92	1	160	4TH TSP	+4.90
U-Bend	36	93	VOL		0.91	1	156	8TH TSP	+2.75
Bobbin	37	23	WAR	6	0.42	P 4	0	4AVB	+0.00
Bobbin					1.01	P 4	0	3AVB	+0.00
Bobbin	37	25	IDI	33	28.54	P 1	11	TTC-CL	+0.15
Bobbin	37	26	NQI		0.60	P 1	59	2ND TSP	-0.39
Bobbin					16.22	P 1	20	TE-HL	+11.40
Bobbin	37	27	ADI	61	3.91	6	68	13TH TSP	+6.68
C/L Special I					8.00	1	176	13TH TSP	+6.34
H/L Tubesheet	37	30	MCI		0.67	1	64	TTS-HL	-0.08
Bobbin	37	31	ODI	5	0.80	3	142	17TH TSP	+6.00
C/L Special I					0.75	1	104	17TH TSP	+6.00
Bobbin	37	48	WAR	7	0.48	P 4	0	1AVB	+0.00
H/L Tubesheet	37	60	SAI		0.34	1	37	TTS-HL	-0.11
Bobbin	37	66	WAR	13	0.70	P 4	0	1AVB	+0.00
Bobbin	37	67	NQI		0.43	3	43	TTS-HL	+25.66
H/L Tubesheet					1.60	1	22	TTS-HL	-4.53
H/L Special I					0.34	1	46	1ST TSP	-3.43
Bobbin	37	75	WAR	6	0.38	P 4	0	1AVB	+0.00
Bobbin	37	79	ADI		2.81	6	75	11TH TSP	+12.58
C/L Special I					0.54	1	119	11TH TSP	+10.85
Bobbin	37	81	IDI	39	4.51	P 1	102	TE-HL	+16.48
H/L Special I					1.36	1	14	TTS-HL	-8.87
H/L Special I					2.44	1	22	TTS-HL	-4.54
H/L Special I					0.89	1	11	TTS-HL	-5.41
Bobbin	37	86	IDI	68	12.80	P 1	21	TE-HL	+12.71
Bobbin	38	24	IDI	73	11.41	P 1	24	TE-HL	+13.60
Bobbin	38	46	IDI	95	21.28	P 1	42	TE-HL	+16.65
H/L Tubesheet					0.51	1	117	TTS-HL	-3.92
H/L Tubesheet					0.68	1	77	TTS-HL	+0.01
Bobbin	38	53	WAR	13	0.91	P 4	0	1AVB	+0.00
Bobbin					11.04	P 1	31	TE-HL	+11.55
Bobbin	38	63	IDI	78	9.98	P 1	64	TE-HL	+13.11
H/L Tubesheet	38	65	SAI		1.88	1	25	TTS-HL	-0.10
Bobbin	38	66	IDI	90	8.29	P 1	48	TE-HL	+12.12
Bobbin	38	67	WAR	6	0.38	P 4	0	1AVB	+0.00
Bobbin	38	69	ADI		2.68	6	90	3RD TSP	+7.68
Bobbin	38	71	ADI		3.82	6	57	TTS-CL	+3.33
C/L Special I					0.49	1	99	TTS-CL	+2.60
Bobbin	38	78	NQI		0.30	3	103	7TH TSP	+7.26
H/L Tubesheet	38	82	SAI		0.74	1	42	TTS-HL	-0.04



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Bobbin,C/L Special Interest,H/L Special Interest,H/L Tubesheet,U-Bend

ATTACHMENT #12 - INDICATIONS OF IMPERFECTIONS  
 INDICATIONS OF IMPERFECTIONS

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1	
Bobbin	38	98	ODI	26	0.44	3	121	2ND TSP	-1.47	F/L
H/L Special I			VOL		0.42	1	91	2ND TSP	-1.41	2ND TSP
H/L Tubesheet	39	18	SAI		0.68	1	30	TTS-HL	+0.09	TTS-HL
H/L Tubesheet	39	19	SAI		0.98	1	9	TTS-HL	+0.08	TTS-HL
H/L Tubesheet	39	33	SAI		1.11	1	33	TTS-HL	+0.02	TTS-HL
Bobbin	39	34	IDI	53	7.23	P 1	18	TE-HL	+8.44	F/L
Bobbin			IDI	87	10.40	P 1	54	TE-HL	+17.73	F/L
H/L Tubesheet			MAI		3.84	1	33	TTS-HL	-3.86	TTS-HL
H/L Tubesheet	39	35	MAI		0.85	1	40	TTS-HL	-0.04	TTS-HL
Bobbin	39	36	WAR	15	0.91	P 4	0	1AVB	+0.00	F/L
Bobbin	39	39	IDI	92	4.75	P 1	61	TE-HL	+9.41	F/L
H/L Tubesheet			MAI		0.90	1	34	TTS-HL	-0.05	TTS-HL
H/L Tubesheet	39	43	SCI		0.73	1	15	TTS-HL	+0.00	TTS-HL
Bobbin	39	45	IDI	98	14.02	P 1	37	TE-HL	+9.24	F/L
H/L Tubesheet			MAI		0.65	1	41	TTS-HL	-0.03	TTS-HL
H/L Tubesheet	39	46	SCI		0.70	1	78	TTS-HL	-0.07	TTS-HL
Bobbin	39	51	WAR	13	0.90	P 4	0	1AVB	+0.00	F/L
Bobbin	39	52	IDI	92	18.33	P 1	46	TE-HL	+12.79	F/L
Bobbin	39	57	NQI		1.14	P 1	41	1ST TSP	-0.07	F/L
H/L Special I			SAI		0.57	1	64	1ST TSP	-0.01	1ST TSP
Bobbin	39	66	WAR	15	0.95	P 4	0	1AVB	+0.00	F/L
Bobbin	39	67	IDI	76	6.38	P 1	68	TE-HL	+13.70	F/L
H/L Tubesheet	39	70	SAI		1.51	1	44	TTS-HL	-4.53	TTS-HL
Bobbin	39	72	IDI	81	1.94	P 1	62	TE-HL	+15.37	F/L
Bobbin	39	75	IDI	70	1.96	P 1	76	TE-HL	+11.70	F/L
Bobbin			IDI	93	7.85	P 1	46	TE-HL	+11.24	F/L
Bobbin	39	84	IDI	94	6.95	P 1	32	TE-HL	+11.87	F/L
Bobbin	39	88	NQI		0.55	3	137	TTS-CL	+4.40	F/L
Bobbin	39	93	NQI		0.43	3	110	2ND TSP	+31.87	F/L
Bobbin	40	21	WAR	15	0.91	P 4	0	2AVB	+0.00	F/L
Bobbin	40	38	NQI		2.76	P 1	145	TE-HL	+7.14	F/L
Bobbin	40	44	NQI		2.37	P 1	31	TE-CL	+18.96	F/L
Bobbin	40	52	IDI	80	7.94	P 1	62	TE-HL	+16.33	F/L
H/L Tubesheet			SAI		3.12	1	53	TTS-HL	-4.36	TTS-HL
H/L Tubesheet	40	53	SAI		0.72	1	20	TTS-HL	-2.73	TTS-HL
Bobbin	40	61	NQI		1.03	P 1	140	TE-HL	+9.76	F/L
Bobbin			WAR	14	0.87	P 4	0	1AVB	+0.00	F/L
Bobbin	40	62	IDI	90	6.72	P 1	50	TE-HL	+12.14	F/L
Bobbin	40	66	WAR	16	0.98	P 4	0	1AVB	+0.00	F/L
H/L Tubesheet	40	70	SAI		1.62	1	42	TTS-HL	-0.10	TTS-HL
Bobbin	40	75	IDI	93	15.61	P 1	44	TE-HL	+8.93	F/L
Bobbin	40	93	WAR	17	0.96	P 4	0	1AVB	+0.00	F/L
Bobbin	40	94	WAR	11	0.55	P 4	0	1AVB	+0.03	F/L
Bobbin			WAR	12	0.67	P 4	0	2AVB	+0.00	F/L
Bobbin	41	23	NQI		0.85	3	152	TTS-CL	+12.66	F/L
C/L Special I			VOL		0.58	1	157	TTS-CL	+12.66	20TH TSP
H/L Tubesheet	41	51	SAI		0.71	1	24	TTS-HL	-0.04	TTS-HL
Bobbin	41	53	IDI	76	4.84	P 1	64	TE-HL	+15.53	F/L
Bobbin	41	55	ODI	25	4.63	3	10	TTS-CL	+19.47	F/L
Bobbin	41	70	NQI		0.44	P 1	122	2ND TSP	+0.07	F/L
Bobbin	41	95	ODI	14	1.05	3	133	TTS-HL	+0.78	F/L
Bobbin	42	25	IDI	60	11.50	P 1	18	TE-HL	+16.61	F/L
Bobbin	42	36	NQI		2.19	3	16	7TH TSP	+6.01	F/L
U-Bend			VOL		1.03	1	100	7TH TSP	+5.90	1AVB
Bobbin	42	39	ODI	14	0.84	3	133	11TH TSP	+34.60	F/L
C/L Special I			VOL		1.23	1	15	10TH TSP	-9.50	10TH TSP
Bobbin	42	43	NQI		0.40	3	79	9TH TSP	+22.08	F/L
C/L Special I			VOL		0.68	1	119	8TH TSP	-22.60	8TH TSP
Bobbin	42	47	NQI		0.53	3	22	12TH TSP	+11.53	F/L
C/L Special I			VOL		0.56	1	49	11TH TSP	-10.71	11TH TSP
Bobbin	42	51	IDI	98	10.51	P 1	33	TE-HL	+14.70	F/L
Bobbin	42	54	NQI		0.35	3	74	16TH TSP	+9.27	F/L
C/L Special I			VOL		0.39	1	63	16TH TSP	+9.54	16TH TSP
H/L Tubesheet	42	70	MAI		3.38	1	17	TTS-HL	-3.58	TTS-HL
H/L Tubesheet	42	81	SAI		0.84	1	15	TTS-HL	-1.17	TTS-HL



ATTACHMENT #12 - INDICATIONS OF IMPERFECTIONS  
INDICATIONS OF IMPERFECTIONS

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1	
Bobbin	42	89	WAR	15	0.86	P 4	0	3AVB	+0.00	F/L
Bobbin	43	27	NQI		0.34	3	47	10TH TSP	+9.15	F/L
Bobbin	43	34	ODI	67	0.52	3	80	1AVB	-2.70	F/L
Bobbin	43	37	WAR	16	1.10	P 4	0	3AVB	+0.00	F/L
Bobbin	43	38	WAR	14	0.85	P 4	0	2AVB	+0.00	F/L
H/L Tubesheet	43	39	SAI		1.02	1	17	TTS-HL	+0.09	TTS-HL
Bobbin	43	46	WAR	12	0.79	P 4	0	1AVB	+0.00	F/L
Bobbin	43	52	NQI		1.03	3	56	2AVB	+0.39	F/L
U-Bend			VOL		1.91	1	155	2AVB	+10.87	2AVB
Bobbin	43	55	ODI	48	0.45	3	102	4TH TSP	+36.02	F/L
H/L Special I			VOL		0.33	1	154	5TH TSP	-6.84	5TH TSP
Bobbin	43	57	NQI		2.97	3	16	14TH TSP	+19.47	F/L
Bobbin			NQI		4.74	3	16	12TH TSP	+8.74	F/L
Bobbin			NQI		4.88	3	17	16TH TSP	+15.80	F/L
Bobbin			NQI		5.54	3	14	11TH TSP	+1.94	F/L
Bobbin			NQI		7.67	3	15	14TH TSP	+12.49	F/L
Bobbin	43	59	ADI		2.10	6	83	3RD TSP	+24.87	F/L
Bobbin	43	68	WAR	15	0.87	P 4	0	1AVB	+0.00	F/L
Bobbin	43	71	IDI	53	13.21	P 1	17	TE-HL	+5.01	F/L
Bobbin			IDI	86	6.67	P 1	53	TE-HL	+6.15	F/L
Bobbin	44	30	ODI	5	0.86	3	144	5TH TSP	+20.79	F/L
H/L Special I			VOL		1.21	1	125	5TH TSP	+20.27	5TH TSP
Bobbin	44	33	NQI		3.28	P 1	139	TE-HL	+9.88	F/L
Bobbin	44	37	ODI	4	1.60	3	144	2ND TSP	+24.10	F/L
Bobbin			IDI	92	17.86	P 1	36	TE-HL	+15.50	F/L
H/L Special I			VOL		1.20	1	114	2ND TSP	+24.15	2ND TSP
Bobbin	44	49	WAR	14	0.96	P 4	0	1AVB	+0.00	F/L
Bobbin	44	53	WAR	17	1.33	P 4	0	1AVB	+0.00	F/L
Bobbin	44	54	IDI	29	4.37	P 1	110	TE-HL	+11.12	F/L
Bobbin	44	60	WAR	10	0.52	P 4	0	1AVB	+0.00	F/L
Bobbin	44	65	ODI	12	1.09	4	137	3RD TSP	+36.13	F/L
Bobbin	44	66	WAR	25	1.71	P 4	0	1AVB	+0.00	F/L
Bobbin	44	86	NQI		0.27	P 1	119	3RD TSP	+0.00	F/L
Bobbin	44	90	IDI	83	2.68	P 1	58	TE-HL	+9.22	F/L
Bobbin	45	25	ODI	15	0.83	3	134	9TH TSP	+11.20	F/L
C/L Special I			VOL		1.11	1	127	9TH TSP	+9.34	9TH TSP
Bobbin	45	34	WAR	15	1.10	P 4	0	1AVB	+0.00	F/L
Bobbin	45	40	NQI		0.34	P 1	44	1ST TSP	+0.07	F/L
Bobbin	45	48	WAR	8	0.52	P 4	0	1AVB	-0.05	F/L
Bobbin	45	52	WAR	15	1.01	P 4	0	1AVB	+0.00	F/L
Bobbin	45	57	WAR	25	2.24	P 4	0	1AVB	+0.00	F/L
Bobbin	45	59	WAR	28	1.98	P 4	0	1AVB	+0.00	F/L
Bobbin	45	60	WAR	16	0.87	P 4	0	1AVB	+0.00	F/L
Bobbin			WAR	19	1.09	P 4	0	2AVB	+0.00	F/L
Bobbin			IDI	40	4.21	P 1	107	TE-HL	+5.57	F/L
Bobbin	45	61	IDI	12	9.37	P 1	4	TE-HL	+13.24	F/L
Bobbin	45	67	IDI	95	7.18	P 1	42	TE-HL	+15.38	F/L
Bobbin	45	84	NQI		0.38	P 1	53	2ND TSP	+0.02	F/L
H/L Special I			SAI		1.05	1	5	2ND TSP	-0.16	2ND TSP
Bobbin	46	33	ADI		3.67	6	74	3RD TSP	+27.52	F/L
H/L Special I			VOL		0.82	1	127	3RD TSP	+27.69	3RD TSP
Bobbin	46	38	IDI	93	2.10	P 1	26	TE-HL	+16.36	F/L
H/L Tubesheet	46	40	SAI		0.46	1	20	TTS-HL	-0.95	TTS-HL
Bobbin	46	48	IDI	95	18.97	P 1	35	TE-HL	+5.15	F/L
Bobbin	46	60	NQI		0.30	3	90	10TH TSP	+10.85	F/L
C/L Special I			VOL		0.35	1	122	10TH TSP	+8.87	10TH TSP
Bobbin	46	73	ADI		5.29	6	77	13TH TSP	+2.57	F/L
C/L Special I			VOL		0.78	1	93	13TH TSP	+2.05	13TH TSP
H/L Tubesheet	46	77	SAI		0.92	1	36	TTS-HL	-1.39	TTS-HL
Bobbin	46	78	WAR	14	1.06	P 4	0	1AVB	+0.00	F/L
H/L Tubesheet	47	32	MAI		0.47	1	28	TTS-HL	-1.02	TTS-HL
Bobbin	47	35	NQI		5.15	P 1	145	TE-HL	+14.53	F/L
H/L Tubesheet			SAI		0.89	1	16	TTS-HL	-3.81	F/L
Bobbin	47	36	ODI	15	1.07	3	133	14TH TSP	+12.38	TTS-HL
C/L Special I			VOL		0.94	1	122	12TH TSP	-9.69	12TH TSP

ATTACHMENT #12 - INDICATIONS OF IMPERFECTIONS

INDICATIONS OF IMPERFECTIONS

TEST TYPE	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT1
Bobbin	47	42	IDI	95	1.47	P 1	35	TE-HL	+2.60
Bobbin			IDI	99	44.56	P 1	29	TE-HL	+1.62
Bobbin	47	44	ODI	4	1.18	3	142	4TH TSP	+8.74
H/L Special I			VOL		1.11	1	25	4TH TSP	+8.91
Bobbin	47	71	WAR	20	1.14	P 4	0	1AVB	+0.00
Bobbin	47	78	WAR	19	1.11	P 4	0	1AVB	+0.00
Bobbin			WAR	22	1.34	P 4	0	2AVB	+0.00
Bobbin	48	29	ODI	12	0.26	3	133	9TH TSP	+37.82
H/L Tubesheet	48	30	SAI		1.92	1	28	TTS-HL	-3.69
Bobbin	48	52	IDI	86	4.51	P 1	51	TE-HL	+16.32
Bobbin	48	55	NQI		0.20	3	99	17TH TSP	+9.36
Bobbin			ODI	18	2.86	3	7	4TH TSP	+9.48
Bobbin			ODI	18	2.92	3	7	4TH TSP	+12.41
Bobbin			ODI	23	2.22	3	9	4TH TSP	+16.81
Bobbin	48	69	WAR	9	3.00	P 2	0	18TH TSP	+0.00
Bobbin	48	70	WAR	9	2.18	P 2	0	15TH TSP	+0.00
Bobbin	49	36	IDI	56	11.88	P 1	14	TE-HL	+13.54
Bobbin	49	38	NQI		0.68	P 1	129	14TH TSP	+0.11
Bobbin			NQI		0.39	P 1	49	TTS-CL	-0.97
Bobbin			ODI	23	0.31	P 1	117	16TH TSP	-0.07
C/L Special I			VOL		0.57	1	161	14TH TSP	+0.19
C/L Special I			VOL		1.09	1	158	16TH TSP	-0.09
Bobbin	49	40	NQI		1.04	P 1	44	TE-HL	+17.22
Bobbin	49	43	IDI	30	2.60	P 1	113	TE-HL	+15.33
H/L Tubesheet	49	44	MAI		1.08	1	23	TTS-HL	-0.05
H/L Tubesheet	49	56	SAI		1.25	1	10	TTS-HL	-3.09
Bobbin	49	66	ADI		4.74	6	69	20TH TSP	+5.71
C/L Special I			VOL		0.67	1	88	20TH TSP	+5.02
Bobbin	49	69	ODI	38	0.57	P 1	108	17TH TSP	+0.03
Bobbin	49	70	IDI	90	3.63	P 1	49	TE-HL	+3.15
H/L Tubesheet			MAI		3.27	1	23	TTS-HL	+0.11
Bobbin	49	78	WAR	10	2.23	P 2	0	17TH TSP	+0.00
Bobbin	49	81	WAR	11	4.44	P 2	0	17TH TSP	+0.00
Bobbin	49	83	NQI		0.44	3	111	15TH TSP	-0.91
C/L Special I			SAI		0.16	1	71	15TH TSP	-0.99

Total Indications Found = 880  
Total Tubes Found = 576