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DUKE POWER

June 3, 1991

U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Attention: Document Control Desk

Subject: Catawba Nuclear Station Unit 1  
Docket No. 50-413  
April, 1991 EOC 5  
Steam Generator Tube Report

Gentlemen:

Pursuant to Catawba Technical Specification 4.4.5.5, the following information is submitted:

A) Information regarding F\* tubes is summarized in the following Attachments:

<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:

<u>Steam Generator</u>	<u># Tubes Plugged</u>	<u># Tubes Repaired</u>
A	17	26
B	22	0
C	134	0
D	57	49

Aool  
11

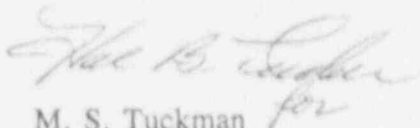
June 3, 1991

U. S. Nuclear Regulatory Commission

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Any questions can be directed to Laura T. Burba at (704) 373-2365.

Very truly yours,

A handwritten signature in cursive script, appearing to read "M. S. Tuckman".

M. S. Tuckman

LTB

Attachments

XC: S. D. Ebnetter  
Regional Administrator, Region II

R. E. Martin, ONRR

W. T. Orders  
Senior Resident Inspector, CNS

Plant: Catawba Unit 1  
Outage: 04/91 RFO

Steam Generator: A

QUERY: ATTACHMENT 1 F\* TUBES

TEST	ROW	COL	IND	%TW	VOLTS	CHW	DEG	LOCATION	EXTENT	LEG	TAPE	ANLST	PRB	COMMENTS		
H/L S.I	1	83	101	S/W	2.83	1	20	TE-HL	+	6.14	TTS-HL	TE-HL	1	R6452	590	
BOBBIN			101	68	5.65	1	27	TE-HL	+	7.50	9TH TSP	TE-HL	16	57675	610	
H/L S.I	2	88	101	S/W	11.84	2	35	TE-HL	+	9.17	TTS-HL	TE-HL	1	R6452	590	
H/L S.I			101	S/W	16.69	2	30	TE-HL	+	12.25	TTS-HL	TE-HL	1	R6452	590	
H/L S.I			101	S/W	19.50	2	37	TE-HL	+	17.10	TTS-HL	TE-HL	1	R6452	590	
BOBBIN			101	S/W	24.65	1	54	TE-HL	+	15.61	9TH TSP	TE-HL	16	17072	610	
BOBBIN			101	S/W	11.09	1	51	TE-HL	+	11.93	9TH TSP	TE-HL	16	17072	610	
BOBBIN			101	S/W	4.59	1	46	TE-HL	+	8.51	9TH TSP	TE-HL	16	17072	610	
H/L S.I	*	2	89	101	S/W	9.81	2	41	TE-HL	+	18.12	TTS-HL	TE-HL	1	R6452	590
BOBBIN			101	S/W	3.18	1	119	TE-HL	+	17.78	9TH TSP	TE-HL	16	17072	610	
BOBBIN	*	3	66	101	S/W	14.90	1	12	TE-HL	+	16.26	FL	TE-HL	66	B2860	610
H/L S.I			101	S/W	6.56	2	32	TE-HL	+	16.57	TTS-HL	TE-HL	2	D3162	590	
BOBBIN	*	3	71	101	S/W	6.43	1	177	TE-HL	+	12.09	FL	TE-HL	66	B2860	610
H/L S.I			101	S/W	5.64	2	21	TE-HL	+	12.37	TTS-HL	TE-HL	2	H3921	590	
BOBBIN		4	73	101	S/W	9.03	1	11	TE-HL	+	18.17	FL	TE-HL	66	B2860	610
BOBBIN			101	S/W	8.30	1	162	TE-HL	+	16.86	FL	TE-HL	66	B2860	610	
H/L S.I			101	S/W	2.28	2	31	TE-HL	+	18.99	TTS-HL	TE-HL	2	D3162	590	
H/L S.I			101	S/W	3.71	2	34	TE-HL	+	17.65	TTS-HL	TE-HL	2	D3162	590	
BOBBIN		4	87	101	S/W	9.61	1	14	TE-HL	+	13.24	FL	TE-HL	66	B2860	610
H/L S.I			101	S/W	1.71	2	32	TTS-HL	-	1.31	TTS-HL	TE-HL	1	B5371	590	
H/L S.I			101	S/W	2.44	2	17	TTS-HL	-	7.97	TTS-HL	TE-HL	1	B5371	590	
BOBBIN	*	4	94	101	63	15.18	1	25	TE-HL	+	7.40	FL	TE-HL	66	B2860	610
H/L S.I			101	S/W	5.21	2	30	TE-HL	+	7.43	TTS-HL	TE-HL	1	R6452	590	
BOBBIN	*	5	42	101	50	6.63	1	20	TE-HL	+	7.19	FL	TE-HL	69	W4892	610
H/L S.I			101	S/W	1.69	2	97	TE-HL	+	6.70	TTS-HL	TE-HL	3	B4260	590	
BOBBIN		5	58	101	40	1.64	17	0	TTS-HL	+	0.00	FL	TE-HL	65	19924	610
H/L S.I			101	S/W	3.31	2	21	TTS-HL	-	0.08	TTS-HL	TE-HL	2	H3921	590	
BOBBIN	*	5	69	101	S/W	2.76	1	131	TE-HL	+	13.04	FL	TE-HL	65	19924	610
BOBBIN			101	78	3.33	1	31	TE-HL	+	8.17	FL	TE-HL	65	19924	610	
H/L S.I			101	S/W	3.57	2	44	TE-HL	+	13.10	TTS-HL	TE-HL	1	H3921	590	
H/L S.I			101	S/W	2.81	2	32	TE-HL	+	15.97	TTS-HL	TE-HL	1	H3921	590	
H/L S.I			101	S/W	1.96	2	22	TE-HL	+	15.42	TTS-HL	TE-HL	1	H3921	590	
H/L S.I			101	S/W	1.67	2	13	TE-HL	+	10.95	TTS-HL	TE-HL	1	H3921	590	
H/L S.I			101	S/W	2.13	2	20	TE-HL	+	8.09	TTS-HL	TE-HL	1	H3921	590	
BOBBIN		5	78	101	S/W	4.12	1	145	TE-HL	+	10.93	FL	TE-HL	65	19924	610
H/L S.I			101	S/W	3.99	2	34	TTS-HL	-	5.14	TTS-HL	TE-HL	1	B5371	590	
H/L S.I			101	S/W	5.75	2	32	TTS-HL	-	10.74	TTS-HL	TE-HL	1	B5371	590	
H/L S.I		6	77	101	S/W	7.05	2	22	TE-HL	+	17.53	TTS-HL	TE-HL	2	H3921	590
BOBBIN			101	S/W	9.69	1	14	TE-HL	+	18.31	FL	TE-HL	64	19924	610	
H/L S.I	*	6	107	101	S/W	5.97	2	20	TE-HL	+	16.95	TTS-HL	TE-HL	1	R6452	590
BOBBIN			101	S/W	5.60	1	160	TE-HL	+	16.99	FL	TE-HL	64	19924	610	
BOBBIN	*	18	51	101	S/W	5.67	1	155	TE-HL	+	4.85	FL	TE-HL	31	B5371	610
H/L S.I			101	S/W	16.45	2	25	TE-HL	+	3.12	TTS-HL	TE-HL	3	B4260	590	
H/L S.I			101	S/W	14.67	2	29	TE-HL	+	6.01	TTS-HL	TE-HL	3	B4260	590	
BOBBIN	*	20	96	101	S/W	8.37	1	13	TE-HL	+	11.32	FL	TE-HL	53	19934	610
H/L S.I			101	S/W	3.56	2	42	TE-HL	+	11.80	TTS-HL	TE-HL	1	H3921	590	
H/L S.I	*	21	58	101	S/W	4.31	2	30	TE-HL	+	15.61	TTS-HL	TE-HL	2	H3921	590
BOBBIN			101	S/W	1.92	1	59	TE-HL	+	16.37	FL	TE-HL	51	W4892	610	
BOBBIN		22	56	101	S/W	2.08	1	116	TE-HL	+	15.92	FL	TE-HL	28	R9615	610
H/L S.I			101	S/W	8.67	2	32	TE-HL	+	15.56	TTS-HL	TE-HL	3	R6452	590	
BOBBIN	*	23	58	101	S/W	2.28	1	58	TE-HL	+	9.11	FL	TE-HL	50	B5926	610
H/L S.I			101	S/W	6.59	2	28	TE-HL	+	9.47	TTS-HL	TE-HL	2	H3921	590	
BOBBIN	*	27	45	101	60	14.43	1	24	TE-HL	+	16.89	FL	TE-HL	23	K7060	610
H/L S.I			101	S/W	7.63	2	20	TE-HL	+	16.37	TTS-HL	TE-HL	3	R6452	590	
H/L S.I		33	59	101	S/W	7.13	2	26	TE-HL	+	16.99	TTS-HL	TE-HL	2	B3720	590
BOBBIN			101	S/W	4.46	1	165	TE-HL	+	17.00	FL	TE-HL	42	B3720	610	
BOBBIN	*	36	70	101	40	14.52	1	16	TE-HL	+	5.02	FL	TE-HL	73	D3162	610
H/L S.I			101	S/W	9.48	2	26	TE-HL	+	4.61	TTS-HL	TE-HL	2	B3720	590	

TOTAL TUBES FOUND = 22  
TOTAL INDICATIONS FOUND = 58  
TOTAL TUBES IN INPUT FILE = 4674

\* = F\* Tube

Plant: Catawba Unit 1  
Outage: 04/91 RFO

Steam Generator: A

QUERY: ATTACHMENT 1 F\* TUBES

TEST	ROW	COL	IND	NTW	VOLTS	CHN	LEG	LOCATION	EXTENT	LEG	TAPE	ANLST	PRB	COMMENTS	
H/L TS	1	28	ID1	S/N	0.28	1	54	TTS-HL	0.82	1ST TSP	TE-HL	61	W6871	610	
H/L TS	*	1	48	ID1	S/N	0.21	1	32	TTS-HL	3.41	1ST TSP	TE-HL	61	W6871	610
H/L TS			ID1	S/N	0.18	1	34	TTS-HL	3.47	1ST TSP	TE-HL	61	W6871	610	
H/L TS	1	54	ID1	S/N	0.31	1	24	TTS-HL	0.02	1ST TSP	TE-HL	70	W6871	610	
H/L TS	2	75	ID1	S/N	0.17	1	0	TTS-HL	0.00	1ST TSP	TE-HL	66	S7675	610	
H/L TS		2	76	ID1	S/N	0.21	1	0	TTS-HL	3.47	1ST TSP	TE-HL	66	S7675	610
H/L TS	*	2	83	ID1	S/N	0.55	1	0	TTS-HL	2.79	1ST TSP	TE-HL	66	S7675	610
H/L TS		2	88	ID1	S/N	0.31	1	0	TTS-HL	3.58	1ST TSP	TE-HL	66	S7675	610
H/L TS			ID1	S/N	0.31	1	0	TTS-HL	3.58	1ST TSP	TE-HL	66	S7675	610	
H/L TS			ID1	S/N	0.31	1	0	TTS-HL	3.58	1ST TSP	TE-HL	66	S7675	610	
H/L TS			ID1	S/N	0.28	1	0	TTS-HL	3.58	1ST TSP	TE-HL	66	S7675	610	
H/L TS			ID1	S/N	0.28	1	0	TTS-HL	3.58	1ST TSP	TE-HL	66	S7675	610	
H/L TS			ID1	S/N	0.28	1	0	TTS-HL	3.58	1ST TSP	TE-HL	66	S7675	610	
H/L TS			ID1	S/N	0.28	1	0	TTS-HL	3.58	1ST TSP	TE-HL	66	S7675	610	
H/L TS			ID1	S/N	0.14	1	0	TTS-HL	0.05	1ST TSP	TE-HL	66	S7675	610	
H/L TS	*	2	89	ID1	S/N	0.27	1	0	TTS-HL	2.64	1ST TSP	TE-HL	66	W6871	610
H/L TS	2	91	ID1	S/N	0.17	1	0	TTS-HL	2.96	1ST TSP	TE-HL	66	S7675	610	
H/L TS	2	94	ID1	S/N	0.18	1	0	TTS-HL	0.08	1ST TSP	TE-HL	65	W6871	610	
H/L TS	3	57	ID1	S/N	0.19	1	24	TTS-HL	0.04	1ST TSP	TE-HL	70	N0942	610	
H/L TS	3	97	ID1	S/N	0.17	1	0	TTS-HL	2.02	1ST TSP	TE-HL	65	B2860	610	
H/L TS		4	73	ID1	S/N	0.27	1	0	TTS-HL	2.43	1ST TSP	TE-HL	64	S7675	610
H/L TS			ID1	S/N	0.24	1	0	TTS-HL	3.44	1ST TSP	TE-HL	64	S7675	610	
H/L TS			ID1	S/N	0.24	1	0	TTS-HL	3.44	1ST TSP	TE-HL	64	S7675	610	
H/L TS			ID1	S/N	0.20	1	0	TTS-HL	3.44	1ST TSP	TE-HL	64	S7675	610	
H/L TS	*	4	87	ID1	S/N	0.27	1	0	TTS-HL	1.00	1ST TSP	TE-HL	64	S7675	610
H/L TS	4	99	ID1	S/N	0.17	1	0	TTS-HL	2.64	1ST TSP	TE-HL	64	S7675	610	
H/L TS	5	58	ID1	S/N	0.19	1	0	TTS-HL	0.00	1ST TSP	TE-HL	44	D9674	610	
H/L TS			ID1	S/N	0.15	1	0	TTS-HL	0.00	1ST TSP	TE-HL	44	D9674	610	
H/L TS			ID1	S/N	0.11	1	0	TTS-HL	0.00	1ST TSP	TE-HL	44	D9674	610	
H/L TS	5	61	ID1	S/N	0.19	1	0	TTS-HL	0.00	1ST TSP	TE-HL	44	R6452	610	
H/L TS			ID1	S/N	0.19	1	0	TTS-HL	0.00	1ST TSP	TE-HL	44	R6452	610	
H/L TS	5	70	ID1	S/N	0.35	1	0	TTS-HL	3.57	1ST TSP	TE-HL	45	R6452	610	
H/L TS			ID1	S/N	0.24	1	0	TTS-HL	3.57	1ST TSP	TE-HL	45	R6452	610	
H/L TS			ID1	S/N	0.27	1	0	TTS-HL	0.00	1ST TSP	TE-HL	45	D3162	610	
H/L TS			ID1	S/N	0.27	1	0	TTS-HL	0.11	1ST TSP	TE-HL	45	D3162	610	
H/L TS	6	66	ID1	S/N	0.19	1	0	TTS-HL	2.56	1ST TSP	TE-HL	44	D9674	610	
H/L TS			ID1	S/N	0.11	1	0	TTS-HL	2.56	1ST TSP	TE-HL	44	R6452	610	
H/L TS	6	77	ID1	S/N	0.28	1	0	TTS-HL	3.78	1ST TSP	TE-HL	44	H3921	610	
H/L TS			ID1	S/N	0.40	1	0	TTS-HL	3.78	1ST TSP	TE-HL	44	H3921	610	
H/L TS	6	79	ID1	S/N	0.28	1	0	TTS-HL	3.66	1ST TSP	TE-HL	44	W6871	610	
H/L TS	*	6	80	ID1	S/N	0.39	1	0	TTS-HL	3.71	1ST TSP	TE-HL	44	R6452	610
H/L TS	*	6	84	ID1	S/N	0.19	1	0	TTS-HL	3.98	1ST TSP	TE-HL	44	H3921	610
H/L TS			ID1	S/N	0.23	1	0	TTS-HL	3.98	1ST TSP	TE-HL	44	H3921	610	
H/L TS	*	6	107	ID1	S/N	0.27	1	0	TTS-HL	3.98	1ST TSP	TE-HL	44	H3921	610
H/L TS	*	8	106	ID1	S/N	0.25	1	0	TTS-HL	2.58	1ST TSP	TE-HL	42	H3921	610
H/L TS			ID1	S/N	0.18	1	0	TTS-HL	2.58	1ST TSP	TE-HL	42	H3921	610	
H/L TS			ID1	S/N	0.18	1	0	TTS-HL	2.58	1ST TSP	TE-HL	42	H3921	610	
H/L TS			ID1	S/N	0.18	1	0	TTS-HL	2.58	1ST TSP	TE-HL	42	H3921	610	
H/L TS			ID1	S/N	0.11	1	0	TTS-HL	2.58	1ST TSP	TE-HL	42	H3921	610	
H/L TS	11	104	ID1	S/N	0.24	1	0	TTS-HL	1.17	1ST TSP	TE-HL	40	R9615	610	
H/L TS			ID1	S/N	0.20	1	0	TTS-HL	1.13	1ST TSP	TE-HL	40	R9615	610	
H/L TS			ID1	S/N	0.20	1	0	TTS-HL	1.17	1ST TSP	TE-HL	40	R9615	610	
H/L TS			ID1	S/N	0.20	1	0	TTS-HL	1.37	1ST TSP	TE-HL	40	R9615	610	
H/L TS	12	104	ID1	S/N	0.14	1	0	TTS-HL	2.77	1ST TSP	TE-HL	39	S7675	610	
H/L TS	14	94	ID1	S/N	0.24	1	0	TTS-HL	0.83	1ST TSP	TE-HL	38	S7675	610	
H/L TS	*	16	62	ID1	S/N	0.07	1	0	TTS-HL	2.50	1ST TSP	TE-HL	37	S7675	610
H/L TS		18	92	ID1	S/N	0.30	1	0	TTS-HL	2.55	1ST TSP	TE-HL	34	S7675	610
H/L TS	19	76	ID1	S/N	0.13	1	0	TTS-HL	0.93	1ST TSP	TE-HL	34	S7675	610	
H/L TS	19	84	ID1	S/N	0.17	1	0	TTS-HL	1.71	1ST TSP	TE-HL	34	W6871	610	
H/L TS	20	45	001	S/N	0.85	1	85	TTS-HL	0.03	1ST TSP	TE-HL	63	W6871	610	
H/L TS	20	46	001	S/N	0.85	1	90	TTS-HL	0.04	1ST TSP	TE-HL	63	N0942	610	
H/L TS	20	52	ID1	S/N	0.13	1	39	TTS-HL	0.13	1ST TSP	TE-HL	62	W6871	610	
H/L TS	20	54	ID1	S/N	0.15	1	18	TTS-HL	0.06	1ST TSP	TE-HL	62	W6871	610	
H/L TS	23	53	ID1	S/N	0.15	1	0	TTS-HL	2.20	1ST TSP	TE-HL	15	W6871	610	
H/L TS			ID1	S/N	0.15	1	0	TTS-HL	2.20	1ST TSP	TE-HL	15	W6871	610	
H/L TS			ID1	S/N	0.19	1	0	TTS-HL	2.20	1ST TSP	TE-HL	15	W6871	610	
H/L TS	23	63	ID1	S/N	0.25	1	47	TTS-HL	2.16	1ST TSP	TE-HL	31	H3921	610	
H/L TS	23	66	ID1	S/N	0.23	1	37	TTS-HL	0.08	1ST TSP	TE-HL	31	W6871	610	

\* = F\* Tube

Plant: Catawba Unit 1  
Outage: 04/91 RFD

Steam Generator: A

QUERY: ATTACHMENT 1 F\* TUBES

TEST	ROW	COL	IND	XTW	VOLTS	CHN	DEG	LOCATION	EXTENT	LEG	TAPE	ANLST	PRB	COMMENTS
H/L TS	25	50	IDI	S/W	0.14	1	113	TTS-HL *	0.08	1ST TSP	TE-HL	14	W6871	610

TOTAL TUBES FOUND = 40  
TOTAL INDICATIONS FOUND = 71  
TOTAL TUBES IN INPUT FILE = 4674

\* = F\* Tube

Plant: Catawba Unit 1  
Outage: 04/91 RFO

Steam Generator: B

QUERY: ATTACHMENT 2 F\* TUBES

TEST	ROW	COL	IND	ATW	VOLTS	CHW	DEG	LOCATION	EXTENT	LEG	TAPE	ANLST	PRB	COMMENTS		
BOBBIN *	6	65	ID1	S/W	1.70	1	0	TE-CL	+	12.11	FL	TE-HL	65	T9924	610	
BOBBIN *	11	27	ID1	S/W	8.53	1	37	TE-HL	+	16.14	FL	TE-HL	29	H8259	610	
H/L S.I			ID1	S/W	23.25	1	213	TTS-HL	-	4.33	TTS-HL	TE-HL	1	B5371	590	
BOBBIN *	11	85	ID1	S/W	1.83	1	129	TE-HL	+	17.21	FL	TE-HL	59	W6871	610	
H/L S.I			ID1	S/W	2.29	2	16	TE-HL	+	17.35	TTS-HL	TE-HL	9	S7675	610	
BOBBIN *	16	11	ID1	S/W	6.81	1	8	TE-HL	+	16.18	FL	TE-HL	25	D3162	610	
H/L S.I			ID1	S/W	1.42	1	31	TTS-HL	-	4.89	TTS-HL	TE-HL	1	B5371	590	
BOBBIN *	22	84	ID1	S/W	1.12	1	65	TE-HL	+	14.47	FL	TE-HL	50	B3720	610	
H/L S.I			ID1	S/W	1.67	2	4	TE-HL	+	14.56	TTS-HL	TE-HL	8	S7675	590	
H/L S.I *	29	34	ID1	S/W	3.64	17	17	TE-HL	+	12.30	TTS-HL	TE-HL	2	B5371	590	
BOBBIN			ID1	S/W	8.96	1	27	TE-HL	+	12.19	FL	TE-HL	76	W6871	610	
BOBBIN *	32	67	ID1	S/W	1.15	1	96	TE-HL	+	9.43	FL	TE-HL	42	H8259	610	
BOBBIN			ID1	S/W	7.42	1	12	TE-HL	+	10.40	FL	TE-HL	42	H8259	610	
H/L S.I			ID1	S/W	1.50	17	10	TE-HL	+	10.71	TTS-HL	TE-HL	6	B5371	590	
BOBBIN	35	17	ID1	S/W	4.83	1	0	TE-HL	+	14.33	FL	TE-HL	10	B5926	610	
BOBBIN	40	36	ID1	S/W	3.77	1	23	TE-HL	+	18.03	FL	TE-HL	6	B3720	610	
BOBBIN	45	73	OD1	S/W	9	0.72	1	133	TTS-HL	+	7.15	FL	TE-HL	34	B2860	610
H/L S.I			OD1	S/W	0.44	17	70	TTS-HL	+	8.72	TTS-HL	TE-HL	4	M0554	590	
H/L S.I			OD1	S/W	0.50	17	56	TTS-HL	+	8.04	TTS-HL	TE-HL	4	M0554	590	

TOTAL TUBES FOUND = 10  
TOTAL INDICATIONS FOUND = 19  
TOTAL TUBES IN INPUT FILE = 4674

\* = F\* Tube

Plant: Catawba Unit 1  
Outage: 04/91 RFO

Steam Generator: B

QUERY: ATTACHMENT 2 F\* TUBES

TEST	ROW	COL	IND	XTW	VOLTS	CHN	DEG	LOCATION	EXTENT	LEG	TAPE	ANLST	PRB	COMMENTS
H/L TS	2	3	ID1	S/W	0.19	1	0	TTS-HL *	0.16	1ST TSP	TE-HL	58	B3720	610
H/L TS	*	2	56	ID1	S/W	0.17	1	0 TTS-HL	1.74	1ST TSP	TE-HL	55	B4260	610
H/L TS	9	55	ID1	S/W	0.23		0	TTS-HL	1.19	1ST TSP	TE-HL	53	W4892	610
H/L TS	13	53	ID1	S/W	0.26		0	TTS-HL	0.67	1ST TSP	TE-HL	50	W4892	610
H/L TS	35	41	ID1	S/W	0.17	1	0	TTS-HL	2.64	1ST TSP	TE-HL	34	B4260	610

TOTAL TUBES FOUND = 5  
TOTAL INDICATIONS FOUND = 5  
TOTAL TUBES IN INPUT FILE = 4674

\* = F\* Tube

Plant: Catawba Unit 1  
Outage: 04/91 RFOU

Steam Generator: C

QUERY: ATTACHMENT 3 F\* TUBES

TEST	ROW	COL	IND	XTW	VOLTS	CHN	DEG	LOCATION	EXTENT	LEG	TAPE	ANLST	PRB	COMMENTS
H/L TS	10	68	101	S/W	0.93			0 TTS-HL - 2.21	1ST TSP	TE-HL	52	87675	610	
H/L TS	12	99	101	S/W	0.28			0 TTS-HL - 2.51	1ST TSP	TE-HL	51	87575	610	
H/L TS	17	40	101	S/W	0.07	1		0 TTS-HL + 0.19	1ST TSP	TE-HL	29	85371	610	
H/L TS	18	84	101	S/W	0.14	1		0 TTS-HL + 0.00	1ST TSP	TE-HL	46	83720	610	
H/L TS			101	S/W	0.11	1		0 TTS-HL + 0.00	1ST TSP	TE-HL	46	83720	610	
H/L TS	22	62	101	S/W	0.18	1		0 TTS-HL + 0.07	1ST TSP	TE-HL	44	83720	610	
H/L TS			101	S/W	0.14	1		0 TTS-HL + 0.07	1ST TSP	TE-HL	44	83720	610	
H/L TS			101	S/W	0.25	1		0 TTS-HL - 1.22	1ST TSP	TE-HL	44	83720	610	
H/L TS			101	S/W	0.14	1		0 TTS-HL + 0.04	1ST TSP	TE-HL	44	83720	610	
H/L TS	22	63	101	S/W	0.18	1		0 TTS-HL - 1.88	1ST TSP	TE-HL	44	85926	610	
H/L TS	23	78	101	S/W	0.38			0 TTS-HL + 0.22	1ST TSP	TE-HL	43	86452	610	
H/L TS			101	S/W	0.27			0 TTS-HL + 0.11	1ST TSP	TE-HL	43	86452	610	
H/L TS			101	S/W	0.16			0 TTS-HL + 0.05	1ST TSP	TE-HL	43	86452	610	
H/L TS	23	88	101	S/W	0.33			0 TTS-HL + 0.22	1ST TSP	TE-HL	43	86452	610	
H/L TS	29	68	101	S/W	0.16			0 TTS-HL - 2.73	1ST TSP	TE-HL	11	85926	610	
H/L TS	*	32	93	101	S/W	0.28		0 TTS-HL - 3.18	1ST TSP	TE-HL	9	84260	610	
H/L TS		33	81	101	S/W	0.20		0 TTS-HL - 1.10	1ST TSP	TE-HL	8	85371	610	
H/L TS		33	103	101	S/W	0.24		0 TTS-HL - 0.72	1ST TSP	TE-HL	8	82860	610	
H/L TS			101	S/W	0.16			0 TTS-HL - 1.19	1ST TSP	TE-HL	8	82860	610	
H/L TS		35	51	101	S/W	0.16	1	0 TTS-HL + 0.12	1ST TSP	TE-HL	17	85371	610	
H/L TS	*	43	75	101	S/W	0.23	1	0 TTS-HL - 2.75	1ST TSP	TE-HL	3	85371	610	
H/L TS		46	80	101	S/W	0.26		0 TTS-HL - 2.64	1ST TSP	TE-HL	2	85371	610	
H/L TS			101	S/W	0.17			0 TTS-HL - 2.64	1ST TSP	TE-HL	2	85371	610	
H/L TS			101	S/W	0.26			0 TTS-HL - 2.64	1ST TSP	TE-HL	2	85926	610	

TOTAL TUBES FOUND = 15  
TOTAL INDICATIONS FOUND = 24  
TOTAL TUBES IN INPUT FILE = 4674

\* = F\* Tube



Plant: Catawba Unit 1  
Outage: 04/91 RFO

Steam Generator: C

QUERY: ATTACHMENT 3 F\* TUBES

TEST	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT	LEG	TAPE	ANLST	PRB	COMMENTS	
BOBBIN	*	11	106	ID1	S/N 14.73	1	21	TE-HL	+	14.22	FL	TE-HL	70	W4892 610	
H/L S.I				ID1	S/N 4.58	2	31	TE-HL	+	13.96	TTS-HL	TE-HL	6	H8259 590	
H/L S.I	*	17	58	ID1	S/N 6.69	2	27	TE-HL	+	7.25	TTS-HL	TE-HL	5	H8259 590	
H/L S.I				ID1	S/N 3.38	2	24	TE-HL	+	13.45	TTS-HL	TE-HL	5	H8259 590	
H/L S.I				ID1	S/N 1.57	2	19	TE-HL	+	11.28	TTS-HL	TE-HL	5	H8259 590	
BOBBIN				ID1	S/N 5.44	1	147	TE-HL	+	8.10	FL	TE-HL	65	T9924 610	
H/L S.I	*	19	48	ID1	S/N 0.30	2	0	TE-HL	+	16.26	1ST TSP	TE-HL	4	L7871 590	
BOBBIN				ID1	58 10.86	1	23	TE-HL	+	16.18	FL	TE-HL	23	S7675 610	
BOBBIN		28	48	OD1	S/N 0.39	1	119	TTS-CL	+	5.25	FL	TE-HL	14	T7072 610	
C/L S.I.				OD1	S/N 1.70	2	47	TTS-CL	+	5.59	22ND TSP	TE-CL	1	B4260 590	MBM
H/L S.I		29	77	ID1	S/N 3.43	2	7	TE-HL	+	13.90	TTS-HL	TE-HL	5	H8259 590	
H/L S.I				ID1	S/N 2.54	2	23	TE-HL	+	5.07	TTS-HL	TE-HL	5	H8259 590	
BOBBIN				ID1	75 5.33	1	30	TE-HL	+	14.76	FL	TE-HL	55	H3921 610	
H/L S.I	*	49	73	ID1	S/N 5.68	2	20	TE-HL	+	9.40	TTS-HL	TE-HL	5	B5926 590	
BOBBIN				ID1	64 13.79	1	25	TE-HL	+	10.64	FL	TE-HL	39	R6452 610	

TOTAL TUBES FOUND = 6  
TOTAL INDICATIONS FOUND = 15  
TOTAL TUBES IN INPUT FILE = 4674

\* = F\* Tube

Plant: Catawba Unit 1  
Outage: 04/91 RFO

Steam Generator: D

QUERY: ATTACHMENT 4 F\* TUBES

TEST	ROW	COL	IND	%TW	VOLTS	CHN	DEG	LOCATION	EXTENT	LEG	TAPE	ANLST	PRB	COMMENTS
BOBBIN	*	1	20	101	50	11.73	1	20 TE-HL	+ 11.35	9TH TSP	TE-HL	73	R6452	610
H/L S.I				101	S/W	9.23	2	0 TE-HL	+ 11.06	TTS-HL	TE-HL	13	S7675	590
BOBBIN	*	1	38	101	S/W	8.44	1	13 TE-HL	+ 17.23	9TH TSP	TE-HL	73	B3720	610
H/L S.I				101	S/W	2.53	2	0 TE-HL	+ 17.41	TTS-HL	TE-HL	13	S7675	590
BOBBIN		3	60	101	40	3.43	17	0 TTS-HL	+ 0.00	FL	TE-HL	78	D3162	610
BOBBIN	*	4	25	101	S/W	8.00	1	14 TE-HL	+ 9.89	FL	TE-HL	33	B5371	610
H/L S.I				101	S/W	2.85	2	0 TE-HL	+ 9.94	TTS-HL	TE-HL	13	S7675	590
BOBBIN	*	4	26	101	46	6.65	17	13 TE-HL	+ 7.08	FL	TE-HL	33	B3720	610
H/L S.I				101	S/W	8.79	2	0 TE-HL	+ 7.53	TTS-HL	TE-HL	13	S7675	590
H/L S.I	*	4	40	101	S/W	5.42	2	0 TE-HL	+ 16.12	TTS-HL	TE-HL	12	S7675	590
BOBBIN				101	40	7.51	1	16 TE-HL	+ 16.12	FL	TE-HL	34	B5371	610
H/L S.I				101	S/W	3.40	2	43 TTS-HL	+ 1.08	TTS-HL	TE-HL	14	B2860	590
BOBBIN				101	S/W	5.41	1	14 TE-HL	+ 19.21	FL	TE-HL	34	W6871	610
H/L S.I	*	4	57	101	S/W	3.37	2	19 TTS-HL	+ 5.75	TTS-HL	TE-HL	14	B2860	590
BOBBIN				101	40	8.55	1	16 TE-HL	+ 15.30	FL	TE-HL	34	B5371	610
H/L S.I	*	6	6	101	S/W	13.34	1	27 TE-HL	+ 6.42	TTS-HL	TE-HL	14	B5926	590
BOBBIN				101	71	7.80	1	25 TE-HL	+ 6.37	FL	TE-HL	32	B4260	610
H/L S.I				101	S/W	2.49	2	14 TTS-HL	+ 5.24	TTS-HL	TE-HL	14	B2860	590
BOBBIN				101	69	9.72	1	24 TE-HL	+ 15.61	FL	TE-HL	32	B4260	610
H/L S.I	*	6	57	101	S/W	3.45	2	0 TE-HL	+ 13.07	TTS-HL	TE-HL	12	S7675	590
BOBBIN				101	S/W	8.98	1	15 TE-HL	+ 12.97	FL	TE-HL	33	B5371	610
H/L S.I	*	11	22	101	S/W	1.83	2	0 TE-HL	+ 7.87	TTS-HL	TE-HL	12	S7675	590
BOBBIN				101	S/W	6.30	1	14 TE-HL	+ 7.92	FL	TE-HL	76	W4892	610
SEC SLV		13	18	101	S/W	0.61	1	31 TTS-HL	+ 11.24	1ST TSP	TE-HL	2	W6871	360
PRI SLV				101	S/W	0.61	1	31 TTS-HL	+ 11.24	1ST TSP	TE-HL	2	B3720	360
H/L S.I	*	16	79	001	S/W	0.49	2	12 TE-HL	+ 14.69	TTS-HL	TE-HL	2	B8259	590
BOBBIN				101	40	7.33	1	16 TE-HL	+ 15.51	FL	TE-HL	59	L4332	610
H/L S.I				101	S/W	0.50	2	27 TE-HL	+ 7.88	TTS-HL	TE-HL	2	B8259	590
H/L S.I	*			101	S/W	0.35	2	17 TE-HL	+ 12.04	TTS-HL	TE-HL	2	B8259	590
H/L S.I				101	S/W	0.27	2	22 TE-HL	+ 16.97	TTS-HL	TE-HL	2	B8259	590
H/L S.I				101	S/W	0.49	2	38 TE-HL	+ 7.16	TTS-HL	TE-HL	2	B5371	590
BOBBIN				101	S/W	10.14	1	13 TE-HL	+ 12.20	FL	TE-HL	58	W6871	610
H/L S.I				101	S/W	2.78	2	35 TE-HL	+ 12.35	TTS-HL	TE-HL	2	B8259	590
H/L S.I	*	17	73	101	S/W	1.30	2	29 TE-HL	+ 10.31	TTS-HL	TE-HL	2	B4260	590
BOBBIN				101	98	16.40	1	42 TE-HL	+ 12.59	FL	TE-HL	58	L4332	610
BOBBIN				101	48	6.12	1	19 TE-HL	+ 10.71	FL	TE-HL	58	L4332	610
H/L S.I				101	S/W	3.48	17	12 TE-HL	+ 3.36	TTS-HL	TE-HL	2	B4260	590
BOBBIN				101	63	11.75	1	25 TE-HL	+ 4.63	FL	TE-HL	58	B5371	610
H/L S.I	*	17	79	101	S/W	4.27	1	26 TE-HL	+ 14.60	TTS-HL	TE-HL	14	B5926	590
H/L S.I				101	S/W	1.18	2	47 TE-HL	+ 17.48	TTS-HL	TE-HL	2	B8259	590
H/L S.I	*	17	81	101	S/W	1.07	2	36 TE-HL	+ 0.62	TTS-HL	TE-HL	2	B4260	590
BOBBIN				101	63	8.17	1	25 TE-HL	+ 17.42	FL	TE-HL	58	B3720	610
H/L S.I	*	20	30	101	S/W	10.95	1	43 TE-HL	+ 11.24	TTS-HL	TE-HL	14	B5926	590
BOBBIN				101	S/W	3.64	1	147 TE-HL	+ 11.06	FL	TE-HL	21	R9615	610
BOBBIN				101	S/W	7.80	1	166 TE-HL	+ 14.96	FL	TE-HL	20	B2860	610
BOBBIN	*	21	34	101	S/W	3.72	1	158 TE-HL	+ 6.17	FL	TE-HL	20	W6871	610
H/L S.I				101	S/W	8.36	2	17 TE-HL	+ 5.35	TTS-HL	TE-HL	11	B8259	590
H/L S.I				101	S/W	9.56	2	29 TE-HL	+ 16.03	TTS-HL	TE-HL	11	B8259	590
BOBBIN	*	22	74	101	73	9.51	1	29 TE-HL	+ 4.74	FL	TE-HL	54	W4892	610
H/L S.I				101	S/W	6.94	2	0 TE-HL	+ 4.33	TTS-HL	TE-HL	4	B4260	590
BOBBIN	*	24	94	001	S/W	2.58	1	142 TE-CL	+ 9.51	FL	TE-HL	52	K7060	610
BOBBIN				101	S/W	2.58	1	142 TE-CL	+ 9.51	FL	TE-HL	52	B4260	610
BOBBIN	*	27	36	101	53	7.41	1	21 TE-HL	+ 17.16	FL	TE-HL	15	H4888	610
H/L S.I				101	S/W	1.02	17	29 TE-HL	+ 17.16	TTS-HL	TE-HL	10	W0942	590
BOBBIN	*	37	60	101	40	8.43	1	13 TE-HL	+ 12.52	FL	TE-HL	42	R9615	610
H/L S.I				101	S/W	1.77	2	23 TTS-HL	+ 9.28	TTS-HL	TE-HL	6	B5926	590
H/L S.I				101	S/W	2.62	2	0 TE-HL	+ 14.95	TTS-HL	TE-HL	7	B5926	590
H/L S.I				101	S/W	0.97	2	0 TE-HL	+ 19.00	TTS-HL	TE-HL	7	B5926	590
BOBBIN				101	50	6.07	1	20 TE-HL	+ 19.23	FL	TE-HL	4	B8259	610
BOBBIN				101	58	6.58	1	23 TE-HL	+ 15.33	FL	TE-HL	4	B8259	610
BOBBIN	*	47	49	101	S/W	6.13	1	13 TE-HL	+ 6.59	FL	TE-HL	2	W6871	610
H/L S.I				101	S/W	2.93	2	24 TE-HL	+ 6.53	TTS-HL	TE-HL	6	B5926	590
H/L S.I	*	48	42	101	S/W	2.64	1	33 TE-HL	+ 14.04	TTS-HL	TE-HL	14	B5926	590
BOBBIN				101	50	4.30	1	20 TE-HL	+ 12.39	FL	TE-HL	1	17072	610

TOTAL TUBES FOUND = 28  
TOTAL INDICATIONS FOUND = 64  
TOTAL TUBES IN INPUT FILE = 4674

\* = F\* Tube

Plant: Catawba Unit 1  
Outage: 04/91 RFOU

Steam Generator: D

QUERY: ATTACHMENT 4 F\* TUBES

TEST	ROW	COL	IND	NTW	VOLTS	CHN	DEG	LOCATION	EXTENT	LEG	TAPE	ANLST	PRB	COMMENTS
H/L TS	*	1	38	ID1	S/N	0.20	1	0 TTS-HL	- 3.16	1ST TSP	TE-HL	61	N0942	610
H/L TS	*			ID1	S/N	0.13	1	0 TTS-HL	- 3.16	1ST TSP	TE-HL	61	N0942	610
H/L TS				ID1	S/N	0.13	1	0 TTS-HL	- 3.16	1ST TSP	TE-HL	61	N0942	610
H/L TS				ID1	S/N	0.13	1	0 TTS-HL	- 3.16	1ST TSP	TE-HL	61	N0942	610
H/L TS				ID1	S/N	0.13	1	0 TTS-HL	- 3.16	1ST TSP	TE-HL	61	N0942	610
H/L TS				ID1	S/N	0.07	1	0 TTS-HL	- 3.16	1ST TSP	TE-HL	61	N0942	610
H/L TS				ID1	S/N	0.10	1	0 TTS-HL	- 3.16	1ST TSP	TE-HL	61	N0942	610
H/L TS	*	1	57	ID1	S/N	0.32		0 TTS-HL	- 5.00	1ST TSP	TE-HL	66	H8259	590
H/L TS				ID1	S/N	0.32		0 TTS-HL	- 13.93	1ST TSP	TE-HL	66	H8259	590
H/L TS				ID1	S/N	0.27		0 TTS-HL	- 14.00	1ST TSP	TE-HL	66	H8259	590
H/L TS		1	67	ID1	S/N	0.10	1	0 TTS-HL	+ 0.10	1ST TSP	TE-HL	55	K9933	610
H/L TS				ID1	S/N	0.10	1	0 TTS-HL	+ 0.03	1ST TSP	TE-HL	55	K9933	610
H/L TS		2	37	ID1	S/N	0.23	1	0 TTS-HL	+ 0.10	1ST TSP	TE-HL	61	S7675	610
H/L TS		2	38	ID1	S/N	0.17	1	0 TTS-HL	+ 0.00	1ST TSP	TE-HL	61	S7675	610
H/L TS				ID1	S/N	0.27	1	0 TTS-HL	+ 0.00	1ST TSP	TE-HL	61	S7675	610
H/L TS		2	39	ID1	S/N	0.16	1	0 TTS-HL	+ 0.00	1ST TSP	TE-HL	61	S7675	610
H/L TS				ID1	S/N	0.16	1	0 TTS-HL	+ 0.00	1ST TSP	TE-HL	61	S7675	610
H/L TS				ID1	S/N	0.16	1	0 TTS-HL	+ 0.00	1ST TSP	TE-HL	61	S7675	610
H/L TS		2	42	ID1	S/N	0.17	1	0 TTS-HL	+ 0.00	1ST TSP	TE-HL	61	S7675	610
H/L TS				ID1	S/N	0.17	1	0 TTS-HL	+ 0.00	1ST TSP	TE-HL	61	S7675	610
H/L TS				ID1	S/N	0.17	1	0 TTS-HL	+ 0.00	1ST TSP	TE-HL	61	S7675	610
H/L TS				ID1	S/N	0.21	1	0 TTS-HL	+ 0.00	1ST TSP	TE-HL	61	S7675	610
H/L TS		2	44	ID1	S/N	0.26	1	0 TTS-HL	+ 0.10	1ST TSP	TE-HL	61	W2218	610
H/L TS				ID1	S/N	0.20	1	0 TTS-HL	+ 0.07	1ST TSP	TE-HL	61	W2218	610
H/L TS		2	53	ID1	S/N	0.15		0 TTS-HL	+ 0.04	1ST TSP	TE-HL	60	K9933	610
H/L TS				ID1	S/N	0.23		0 TTS-HL	+ 0.04	1ST TSP	TE-HL	60	K9933	610
H/L TS		2	54	ID1	S/N	0.15		0 TTS-HL	+ 0.04	1ST TSP	TE-HL	60	K9933	610
H/L TS		2	55	ID1	S/N	0.16		0 TTS-HL	+ 0.00	1ST TSP	TE-HL	60	K9933	610
H/L TS		2	59	ID1	S/N	0.20	1	259 TTS-HL	- 0.13	1ST TSP	TE-HL	63	H8259	610
H/L TS				ID1	S/N	0.16	1	139 TTS-HL	- 0.16	1ST TSP	TE-HL	63	H8259	610
H/L TS				ID1	S/N	0.16	1	174 TTS-HL	- 0.16	1ST TSP	TE-HL	63	H8259	610
H/L TS				ID1	S/N	0.13	1	193 TTS-HL	- 0.16	1ST TSP	TE-HL	63	H8259	610
H/L TS				ID1	S/N	0.13	1	104 TTS-HL	- 0.19	1ST TSP	TE-HL	63	H8259	610
H/L TS		2	60	ID1	S/N	0.26		0 TTS-HL	+ 0.10	1ST TSP	TE-HL	62	B4260	610
H/L TS				ID1	S/N	0.22		0 TTS-HL	+ 0.03	1ST TSP	TE-HL	62	B4260	610
H/L TS				ID1	S/N	0.19		0 TTS-HL	+ 0.03	1ST TSP	TE-HL	62	B4260	610
H/L TS				ID1	S/N	0.16		0 TTS-HL	+ 0.03	1ST TSP	TE-HL	62	B4260	610
H/L TS				ID1	S/N	0.16		0 TTS-HL	+ 0.03	1ST TSP	TE-HL	62	B4260	610
H/L TS		2	61	ID1	S/N	0.16		0 TTS-HL	- 0.08	1ST TSP	TE-HL	62	W4892	610
H/L TS				ID1	S/N	0.16		0 TTS-HL	- 0.08	1ST TSP	TE-HL	62	W4892	610
H/L TS				ID1	S/N	0.16		0 TTS-HL	- 0.08	1ST TSP	TE-HL	62	W4892	610
H/L TS				ID1	S/N	0.09		0 TTS-HL	- 0.08	1ST TSP	TE-HL	62	W4892	610
H/L TS		2	62	ID1	S/N	0.25		0 TTS-HL	- 0.11	1ST TSP	TE-HL	62	W4892	610
H/L TS				ID1	S/N	0.19		0 TTS-HL	- 0.11	1ST TSP	TE-HL	62	W4892	610
H/L TS				ID1	S/N	0.22		0 TTS-HL	- 0.11	1ST TSP	TE-HL	62	W4892	610
H/L TS				ID1	S/N	0.16		0 TTS-HL	- 0.11	1ST TSP	TE-HL	62	W4892	610
H/L TS				ID1	S/N	0.03		0 TTS-HL	- 0.11	1ST TSP	TE-HL	62	W4892	610
H/L TS		3	1	ID1	S/N	0.15		0 TTS-HL	- 1.74	1ST TSP	TE-HL	60	K9933	610
H/L TS				ID1	S/N	0.23		0 TTS-HL	- 1.74	1ST TSP	TE-HL	60	K9933	610
H/L TS		3	4	ID1	S/N	0.14	1	0 TTS-HL	+ 0.00	1ST TSP	TE-HL	60	B3720	610
H/L TS		3	37	ID1	S/N	0.19		0 TTS-HL	+ 0.04	1ST TSP	TE-HL	60	K9933	610
H/L TS		3	38	ID1	S/N	0.12		0 TTS-HL	+ 0.00	1ST TSP	TE-HL	60	K9933	610
H/L TS		3	40	ID1	S/N	0.12		0 TTS-HL	+ 0.00	1ST TSP	TE-HL	60	S7675	610
H/L TS				ID1	S/N	0.20	1	0 TTS-HL	+ 0.00	1ST TSP	TE-HL	60	S7675	610
H/L TS		3	53	ID1	S/N	0.31		0 TTS-HL	+ 0.00	1ST TSP	TE-HL	60	K9933	610
H/L TS				ID1	S/N	0.15		0 TTS-HL	+ 0.00	1ST TSP	TE-HL	60	K9933	610
H/L TS				ID1	S/N	0.19		0 TTS-HL	+ 0.00	1ST TSP	TE-HL	60	K9933	610
H/L TS				ID1	S/N	0.19		0 TTS-HL	+ 0.00	1ST TSP	TE-HL	60	K9933	610
H/L TS		3	57	ID1	S/N	0.16	1	0 TTS-HL	+ 0.24	1ST TSP	TE-HL	58	L7871	610
H/L TS		3	58	ID1	S/N	0.13		0 TTS-HL	- 0.02	1ST TSP	TE-HL	63	H8259	610
H/L TS		3	60	ID1	S/N	0.24	1	0 TTS-HL	+ 0.13	1ST TSP	TE-HL	53	B4260	610
H/L TS				ID1	S/N	0.26	1	0 TTS-HL	+ 0.10	1ST TSP	TE-HL	53	B4260	610
H/L TS				ID1	S/N	0.20	1	0 TTS-HL	+ 0.03	1ST TSP	TE-HL	53	B4260	610
H/L TS				ID1	S/N	0.20	1	0 TTS-HL	+ 0.03	1ST TSP	TE-HL	53	B4260	610
H/L TS				ID1	S/N	0.20	1	0 TTS-HL	+ 0.03	1ST TSP	TE-HL	53	B4260	610
H/L TS				ID1	S/N	0.13	1	0 TTS-HL	+ 0.00	1ST TSP	TE-HL	53	B4260	610
H/L TS		4	36	ID1	S/N	0.16		0 TTS-HL	+ 0.03	1ST TSP	TE-HL	60	N0942	610
H/L TS				ID1	S/N	0.13		0 TTS-HL	+ 0.03	1ST TSP	TE-HL	60	N0942	610
H/L TS				ID1	S/N	0.25		0 TTS-HL	+ 0.03	1ST TSP	TE-HL	60	N0942	610
H/L TS		4	41	ID1	S/N	0.13		0 TTS-HL	+ 0.00	1ST TSP	TE-HL	60	K9933	610

\* = F\* Tube

Plant: Catawba Unit 1  
Outage: 04/91 RFOU

Steam Generator: D

QUERY: ATTACHMENT 4 F\* TUBES

TEST	ROW	COL	IND	XTW	VOLTS	CHN	DEG	LOCATION	EXTENT	LEG	TAPE	ANLST	PRB	COMMENTS
H/L TS			ID1	S/W	0.13		0	TTS-HL + 0.00	1ST TSP	TE-HL	60	K9933	610	
H/L TS			ID1	S/W	0.09		0	TTS-HL + 0.03	1ST TSP	TE-HL	60	K9933	610	
H/L TS	4	42	ID1	S/W	0.19		0	TTS-HL + 0.03	1ST TSP	TE-HL	60	K9933	610	
H/L TS			ID1	S/W	0.16		0	TTS-HL + 0.03	1ST TSP	TE-HL	60	K9933	610	
H/L TS			ID1	S/W	0.13		0	TTS-HL + 0.00	1ST TSP	TE-HL	60	K9933	610	
H/L TS			ID1	S/W	0.13		0	TTS-HL + 0.00	1ST TSP	TE-HL	60	K9933	610	
H/L TS	4	43	ID1	S/W	0.16		0	TTS-HL + 0.03	1ST TSP	TE-HL	60	K9933	610	
H/L TS			ID1	S/W	0.16		0	TTS-HL + 0.03	1ST TSP	TE-HL	60	K9933	610	
H/L TS			ID1	S/W	0.13		0	TTS-HL + 0.00	1ST TSP	TE-HL	60	K9933	610	
H/L TS	4	44	ID1	S/W	0.26		0	TTS-HL + 0.10	1ST TSP	TE-HL	60	K9933	610	
H/L TS			ID1	S/W	0.16		0	TTS-HL + 0.00	1ST TSP	TE-HL	60	K9933	610	
H/L TS			ID1	S/W	0.13		0	TTS-HL + 0.00	1ST TSP	TE-HL	60	K9933	610	
H/L TS			ID1	S/W	0.13		0	TTS-HL + 0.00	1ST TSP	TE-HL	60	K9933	610	
H/L TS	4	45	ID1	S/W	0.22		0	TTS-HL - 1.55	1ST TSP	TE-HL	60	K9933	610	
H/L TS			ID1	S/W	0.13		0	TTS-HL - 1.55	1ST TSP	TE-HL	60	K9933	610	
H/L TS	4	49	ID1	S/W	0.13		0	TTS-HL + 0.03	1ST TSP	TE-HL	60	K9933	610	
H/L TS			ID1	S/W	0.13		0	TTS-HL + 0.00	1ST TSP	TE-HL	60	K9933	610	
H/L TS			ID1	S/W	0.13		0	TTS-HL + 0.00	1ST TSP	TE-HL	60	K9933	610	
H/L TS	4	51	ID1	S/W	0.13		0	TTS-HL + 0.00	1ST TSP	TE-HL	60	K9933	610	
H/L TS			ID1	S/W	0.13		0	TTS-HL + 0.00	1ST TSP	TE-HL	60	K9933	610	
H/L TS	4	54	ID1	S/W	0.13		0	TTS-HL + 0.00	1ST TSP	TE-HL	60	K9933	610	
H/L TS	4	62	ID1	S/W	0.16	1	0	TTS-HL + 0.03	1ST TSP	TE-HL	53	B4260	610	
H/L TS			ID1	S/W	0.13	1	0	TTS-HL + 0.00	1ST TSP	TE-HL	53	B4260	610	
H/L TS			ID1	S/W	0.16	1	0	TTS-HL + 0.03	1ST TSP	TE-HL	53	B4260	610	
H/L TS	5	21	ID1	S/W	0.23	1	0	TTS-HL - 0.16	1ST TSP	TE-HL	59	H8259	610	
H/L TS	5	36	ID1	S/W	0.14	1	229	TTS-HL - 0.02	1ST TSP	TE-HL	59	H8259	610	
H/L TS			ID1	S/W	0.03	1	157	TTS-HL - 0.01	1ST TSP	TE-HL	59	H8259	610	
H/L TS			ID1	S/W	0.07	1	325	TTS-HL - 0.01	1ST TSP	TE-HL	59	H8259	610	
H/L TS	5	39	ID1	S/W	0.17	1	0	TTS-HL + 0.00	1ST TSP	TE-HL	59	T9924	610	
H/L TS			ID1	S/W	0.14	1	0	TTS-HL + 0.00	1ST TSP	TE-HL	59	T9924	610	
H/L TS			ID1	S/W	0.10	1	0	TTS-HL + 0.00	1ST TSP	TE-HL	59	T9924	610	
H/L TS			ID1	S/W	0.07	1	0	TTS-HL - 0.03	1ST TSP	TE-HL	59	T9924	610	
H/L TS			ID1	S/W	0.10	1	0	TTS-HL - 0.03	1ST TSP	TE-HL	59	T9924	610	
H/L TS			ID1	S/W	0.03	1	0	TTS-HL - 0.03	1ST TSP	TE-HL	59	T9924	610	
H/L TS	5	41	ID1	S/W	0.34	1	0	TTS-HL + 0.00	1ST TSP	TE-HL	59	T9924	610	
H/L TS			ID1	S/W	0.14	1	0	TTS-HL + 0.00	1ST TSP	TE-HL	59	T9924	610	
H/L TS			ID1	S/W	0.10	1	0	TTS-HL + 0.00	1ST TSP	TE-HL	59	T9924	610	
H/L TS			ID1	S/W	0.10	1	0	TTS-HL + 0.00	1ST TSP	TE-HL	59	T9924	610	
H/L TS			ID1	S/W	0.07	1	0	TTS-HL - 0.07	1ST TSP	TE-HL	59	T9924	610	
H/L TS	5	42	ID1	S/W	0.20		0	TTS-HL + 0.03	1ST TSP	TE-HL	59	H8259	610	
H/L TS			ID1	S/W	0.14		0	TTS-HL + 0.00	1ST TSP	TE-HL	59	H8259	610	
H/L TS			ID1	S/W	0.07		0	TTS-HL + 0.00	1ST TSP	TE-HL	59	H8259	610	
H/L TS			ID1	S/W	0.13		0	TTS-HL - 0.10	1ST TSP	TE-HL	59	H8259	610	
H/L TS			ID1	S/W	0.03		0	TTS-HL - 0.13	1ST TSP	TE-HL	59	H8259	610	
H/L TS	5	45	ID1	S/W	0.14	1	167	TTS-HL - 0.03	1ST TSP	TE-HL	59	H8259	610	
H/L TS			ID1	S/W	0.14	1	214	TTS-HL - 0.03	1ST TSP	TE-HL	59	H8259	610	
H/L TS			ID1	S/W	0.14	1	237	TTS-HL - 0.03	1ST TSP	TE-HL	59	H8259	610	
H/L TS	5	49	ID1	S/W	0.07	1	150	TTS-HL - 0.01	1ST TSP	TE-HL	59	H8259	610	
H/L TS			ID1	S/W	0.13	1	73	TTS-HL - 0.05	1ST TSP	TE-HL	59	H8259	610	
H/L TS			ID1	S/W	0.13	1	96	TTS-HL - 0.05	1ST TSP	TE-HL	59	H8259	610	
H/L TS			ID1	S/W	0.13	1	178	TTS-HL - 0.05	1ST TSP	TE-HL	59	H8259	610	
H/L TS			ID1	S/W	0.10	1	131	TTS-HL - 0.08	1ST TSP	TE-HL	59	H8259	610	
H/L TS	5	52	ID1	S/W	0.14	1	0	TTS-HL - 0.03	1ST TSP	TE-HL	59	H8259	610	
H/L TS	5	59	ID1	S/W	0.23		0	TTS-HL + 0.05	1ST TSP	TE-HL	63	H8259	610	
H/L TS			ID1	S/W	0.16		0	TTS-HL + 0.01	1ST TSP	TE-HL	63	H8259	610	
H/L TS			ID1	S/W	0.13		0	TTS-HL - 0.02	1ST TSP	TE-HL	63	H8259	610	
H/L TS	6	28	ID1	S/W	0.17	1	0	TTS-HL + 0.04	1ST TSP	TE-HL	58	H8259	610	
H/L TS	6	38	ID1	S/W	0.17	1	250	TTS-HL - 0.04	1ST TSP	TE-HL	58	H8259	610	
H/L TS			ID1	S/W	0.17	1	324	TTS-HL - 0.04	1ST TSP	TE-HL	58	H8259	610	
H/L TS			ID1	S/W	0.20	1	160	TTS-HL - 0.07	1ST TSP	TE-HL	58	H8259	610	
H/L TS			ID1	S/W	0.17	1	277	TTS-HL - 0.07	1ST TSP	TE-HL	58	H8259	610	
H/L TS			ID1	S/W	0.17	1	101	TTS-HL - 0.10	1ST TSP	TE-HL	58	H8259	610	
H/L TS			ID1	S/W	0.17	1	135	TTS-HL - 0.10	1ST TSP	TE-HL	58	H8259	610	
H/L TS			ID1	S/W	0.17	1	195	TTS-HL - 0.10	1ST TSP	TE-HL	58	H8259	610	
H/L TS			ID1	S/W	0.13	1	19	TTS-HL - 0.17	1ST TSP	TE-HL	58	H8259	610	
H/L TS	6	40	ID1	S/W	0.20	1	0	TTS-HL + 0.02	1ST TSP	TE-HL	58	L7871	610	
H/L TS	6	42	ID1	S/W	0.13	1	0	TTS-HL + 0.00	1ST TSP	TE-HL	58	W2218	610	
H/L TS	6	59	ID1	S/W	0.16	1	125	TTS-HL - 0.05	1ST TSP	TE-HL	63	H8259	610	
H/L TS			ID1	S/W	0.13	1	168	TTS-HL - 0.05	1ST TSP	TE-HL	63	H8259	610	
H/L TS			ID1	S/W	0.13	1	324	TTS-HL - 0.05	1ST TSP	TE-HL	63	H8259	610	

X = F\*Tube

Plant: Catawba Unit 1  
Outage: 04/91 RFOU

Steam Generator: D

QUERY: ATTACHMENT 4 F\* TUBES

TEST	ROW	COL	IND	NTW	VOLTS	CHN	DEG	LOCATION	EXT	LEG	TAPE	ANLST	PRB	COMMENTS
H/L TS			ID1	S/N	0.16	1	46	TTS-HL	-	0.08	1ST TSP	TE-HL	63	H8259 610
H/L TS			ID1	S/N	0.13	1	97	TTS-HL	-	0.08	1ST TSP	TE-HL	63	H8259 610
H/L TS			ID1	S/N	0.10	1	262	TTS-HL	-	0.08	1ST TSP	TE-HL	63	H8259 610
H/L TS	6	60	ID1	S/N	0.17	1	0	TTS-HL	+	0.03	1ST TSP	TE-HL	52	H8259 610
H/L TS	13	18	ID1	S/N	0.17	0	0	TTS-HL	+	0.00	1ST TSP	TE-HL	44	S7675 610
H/L TS	17	74	ID1	S/N	0.10	0	0	TTS-HL	-	0.01	1ST TSP	TE-HL	19	B2860 610
H/L TS	17	81	ID1	S/N	0.31	0	0	TTS-HL	-	3.21	1ST TSP	TE-HL	19	B2860 610
H/L TS *			ID1	S/N	0.28	0	0	TTS-HL	-	3.21	1ST TSP	TE-HL	19	B2860 610
H/L TS			ID1	S/N	0.24	0	0	TTS-HL	-	3.21	1ST TSP	TE-HL	19	B2860 610
H/L TS			ID1	S/N	0.17	0	0	TTS-HL	-	3.21	1ST TSP	TE-HL	19	B2860 610
H/L TS			ID1	S/N	0.14	0	0	TTS-HL	-	3.21	1ST TSP	TE-HL	19	B2860 610
H/L TS	18	75	ID1	S/N	0.13	0	0	TTS-HL	+	0.13	1ST TSP	TE-HL	18	N0942 610
H/L TS	18	76	ID1	S/N	0.13	0	0	TTS-HL	+	0.00	1ST TSP	TE-HL	18	B2860 610
H/L TS	18	79	ID1	S/N	0.17	0	0	TTS-HL	+	0.07	1ST TSP	TE-HL	18	B2860 610
H/L TS	20	15	ID1	S/N	0.20	1	0	TTS-HL	+	0.07	1ST TSP	TE-HL	39	H8259 610
H/L TS	22	75	ID1	S/N	0.19	0	0	TTS-HL	-	1.40	1ST TSP	TE-HL	15	N0942 610
H/L TS			ID1	S/N	0.06	0	0	TTS-HL	-	1.40	1ST TSP	TE-HL	15	N0942 610
H/L TS	23	18	ID1	S/N	0.26	0	0	TTS-HL	-	2.68	1ST TSP	TE-HL	37	W4892 610
H/L TS	23	69	ID1	S/N	0.31	0	0	TTS-HL	-	3.69	1ST TSP	TE-HL	14	N0942 610
H/L TS			ID1	S/N	0.35	0	0	TTS-HL	-	3.69	1ST TSP	TE-HL	14	N0942 610
H/L TS	27	36	ID1	S/N	0.20	0	0	TTS-HL	-	3.04	1ST TSP	TE-HL	34	W4892 610
H/L TS *			ID1	S/N	0.20	0	0	TTS-HL	-	3.04	1ST TSP	TE-HL	34	W4892 610
H/L TS			ID1	S/N	0.17	0	0	TTS-HL	-	3.04	1ST TSP	TE-HL	34	W4892 610
H/L TS			ID1	S/N	0.13	0	0	TTS-HL	-	3.04	1ST TSP	TE-HL	34	W4892 610
H/L TS			ID1	S/N	0.13	0	0	TTS-HL	-	3.04	1ST TSP	TE-HL	34	W4892 610
H/L TS			ID1	F/N	0.13	0	0	TTS-HL	-	3.04	1ST TSP	TE-HL	34	W4892 610
H/L TS	28	62	ID1	S/N	0.07	1	0	TTS-HL	+	0.07	1ST TSP	TE-HL	12	M0554 610
H/L TS	28	64	ID1	S/N	0.13	1	0	TTS-HL	-	1.66	1ST TSP	TE-HL	12	W2218 610
H/L TS			ID1	S/N	0.13	1	0	TTS-HL	-	1.66	1ST TSP	TE-HL	12	W2218 610
H/L TS			ID1	S/N	0.20	1	0	TTS-HL	-	1.66	1ST TSP	TE-HL	12	W2218 610
H/L TS	43	29	ID1	S/N	0.08	1	160	TTS-HL	-	0.90	1ST TSP	TE-HL	25	W6871 610
H/L TS	43	35	ID1	S/N	0.20	1	348	TTS-HL	-	1.96	1ST TSP	TE-HL	25	W6871 610
H/L TS			ID1	S/N	0.16	1	19	TTS-HL	-	1.96	1ST TSP	TE-HL	25	W6871 610
H/L TS			ID1	S/N	0.12	1	189	TTS-HL	-	1.96	1ST TSP	TE-HL	25	W6871 610
H/L TS			ID1	S/N	0.12	1	213	TTS-HL	-	1.96	1ST TSP	TE-HL	25	W6871 610
H/L TS			ID1	S/N	0.12	1	308	TTS-HL	-	1.96	1ST TSP	TE-HL	25	W6871 610
H/L TS	43	47	ID1	S/N	0.52	0	0	TTS-HL	-	0.10	1ST TSP	TE-HL	25	B4260 610
H/L TS	43	57	ID1	S/N	0.07	0	0	TTS-HL	+	0.00	1ST TSP	TE-HL	25	B2860 610
H/L TS *	46	41	ID1	S/N	0.03	1	0	TTS-HL	-	3.04	1ST TSP	TE-HL	23	R6452 610
H/L TS	49	68	ID1	S/N	0.14	0	0	TTS-HL	-	2.63	1ST TSP	TE-HL	1	N0942 610
H/L TS			ID1	S/N	0.21	0	0	TTS-HL	-	2.63	1ST TSP	TE-HL	1	N0942 610
H/L TS			ID1	S/N	0.25	0	0	TTS-HL	-	2.63	1ST TSP	TE-HL	1	N0942 610

TOTAL TUBES FOUND = 68  
TOTAL INDICATIONS FOUND = 182  
TOTAL TUBES IN INPUT FILE = 4674

\* = F\* Tube