

Steam Generator Inspection Summary Report

McGuire Unit 1 August 1993 Tube Leak Outage

Location: Hwy. 73, Cowans Ford, North Carolina 28216

NRC Docket No. 50-369

National Board No. 44

Commercial Service Date: December 1, 1981

Owner: Duke Energy Corporation
526 South Church St.
Charlotte, N.C. 28201-1006

Revision 0

Prepared By: *Arnold W. Cump* Date: *2/29/00*

Reviewed By: *R & Cope* Date: *2/29/00*

Approved By: *Thomas Sample* Date: *2/29/00*

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Hartford Steam Boiler
Inspection and Insurance
Company (AIA)

3

State of North Carolina
Department of Labor
C/o J. M. Givens, Jr.

FORM NIS-1 OWNER'S DATA REPORT FOR INSERVICE INSPECTIONS

As required by the Provisions of the ASME Code Rules

1. Owner: Duke Energy Corporation, 526 S. Church St., Charlotte, NC 28201-1006
(Name and Address of Owner)
2. Plant: McGuire Nuclear Station, Highway 73, Cowans Ford, N. C. 28216
(Name and Address of Plant)
3. Plant Unit: 1 4. Owner Certificate of Authorization (if required) N/A
5. Commercial Service Date: December 1, 1981
6. National Board Number for Unit 44
7. Components Inspected:

<u>Component</u>	<u>Manufacturer</u>	<u>Manufacturer Serial No.</u>	<u>State or Province No.</u>	<u>National Board No.</u>
Steam Generator 1A	Westinghouse	1461	NC-178375	68-107
Steam Generator 1B	Westinghouse	1462	NC-178376	68-108
Steam Generator 1C	Westinghouse	1463	NC-178377	68-109
Steam Generator 1D	Westinghouse	1464	NC-178378	68-110

Note: Supplemental sheets in form of lists, sketches, or drawings may be used provided (1) size is 8¹/₂ in. x 11 in., (2) information in items 1 through 6 on this data report is included on each sheet, and (3) each sheet is numbered and the number of sheets is recorded at the top of this form.

FORM NIS-1 (Back)

- 8. Examination Dates August 22, 1993 to September 26, 1993
- 9. Inspection Period Identification: 1st Period of the 2nd Interval
- 10. Inspection Interval Identification: 2nd Interval
- 11. Applicable Edition of Section XI 1986 Addenda None
- 12. Date/Revision of Inspection Plan: Tech Spec 3-4.4.5 Steam Generator 7/19/93 Revision

- 13. Abstract of Examinations and Test. Reference attached Inspection Summary Report dated 2/28/00.
- 14. Abstract of Results of Examination and Tests. Reference attached Inspection Summary Report dated 2/28/00.
- 15. Abstract of Corrective Measures. Reference attached Inspection Summary Report dated 2/28/00.

We certify that a) the statements made in this report are correct b) the examinations and tests meet the Inspection Plan as required by the ASME Code, Section XI, and c) corrective measures taken conform to the rules of the ASME Code, Section XI.

Certificate of Authorization No. (if applicable) NA Expiration Date NA
Date 7-29 20 00 Signed Duke Energy Corp. By Mours Sample
Owner

CERTIFICATE OF INSERVICE INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and the State of Province of North Carolina employed by *The HSBI&I Co. of Hartford, Ct. have inspected the components described in this Owner's Report during the period 8-22-1993 to 9-26-1993, and state that to the best of my knowledge and belief, the Owner has performed examinations and tests and taken corrective measures described in the Owner's Report in accordance with the Inspection Plan and as required by the ASME Code, Section XI.

By signing this certificate neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the examinations, test, and corrective measures described in this Owner's Report. Furthermore, neither the Inspector nor his employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection

[Signature] Commissions KB 7728, NC 853, N-I
Inspector's Signature National Board, State, Province, and Endorsements
Date 3-1 2000

* The Hartford Steam Boiler Inspection & Insurance Co.
200 Ashford Center North
Suite 300
Atlanta, GA. 30338

February 28, 2000

Gerald W Crump

Subject: McGuire Nuclear Station
Unit 1 Steam Generator
August, 1993, Leaker Outage

Dear Sir,

1. The following quantity of tubes were inspected from either side of the generator.

<u>Steam Generator</u>	<u>Tubes Inspected Full Length</u>
A	77
B	67
C	0
D	21

2. The following information is submitted concerning tube indications of imperfections. (The attached list identifies the tubes with imperfections, their locations and their size.)

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

3. The following tubes were removed from service by plugging.

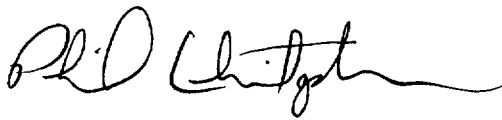
Steam Generator

Attachment

A	5
B	6
C	7
D	8

If further information is required, please call me at 875-5584.

Sincerely,



P D Christopher
Eddy Current Data Administrator

PDC:pd

Bobbin,C/L Special Interest,H/L Special Interest,SPECIAL INTEREST,Sleeve Crosswound,U-Be

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ATTACHMENT #1 - INDICATIONS OF IMPERFECTIONS

INDS OF IMPERFECTIONS - SGA

ROW COL OUTAGE TEST TYPE

IND %TW VOLTS LOCATION

ROW	COL	OUTAGE	TEST TYPE	IND	%TW	VOLTS	LOCATION	
2	32	8/93	L U-Bend	MAI		2.27	8TH TSP	+2.22
2	55	8/93	L C/L Special Interest	NQI		0.67	9TH TSP	+0.45
3	114	8/93	L Bobbin	ADI		3.84	TTS-HL	+5.18
		8/93	L Bobbin	ADI		4.41	TTS-HL	+10.61
		8/93	L Bobbin	DNT		2.00	7TH TSP	+0.24
		8/93	L Bobbin	DNT		4.17	7TH TSP	-0.14
		8/93	L Bobbin	DNT		4.83	6TH TSP	+35.47
		8/93	L Bobbin	DNT		7.78	9TH TSP	+38.70
		8/93	L Bobbin	DNT		8.70	6TH TSP	+36.61
4	3	8/93	L H/L Special Interest	DNT		5.95	4TH TSP	-6.43
		8/93	L C/L Special Interest	NQI		0.83	12TH TSP	-2.67
4	86	8/93	L Sleeve Crosswound	SAI		17.22	TTS-HL	+11.14
4	112	8/93	L Bobbin	IDI	40	6.91	TE-HL	+5.18
		8/93	L Bobbin	DNT		2.55	3RD TSP	+11.31
		8/93	L H/L Special Interest	SAI		2.15	TE-HL	+5.67
4	114	8/93	L Bobbin	DNT		3.10	6TH TSP	+32.45
5	109	8/93	L Bobbin	SKR		51.61	TE-CL	+3.44
		8/93	L Bobbin	SKR		81.13	TE-CL	+4.53
6	42	8/93	L C/L Special Interest	NQI		1.29	18TH TSP	+6.13
6	109	8/93	L Bobbin	DNT		2.07	6TH TSP	+38.70
		8/93	L Bobbin	DNT		2.37	9TH TSP	+41.01
		8/93	L Bobbin	DNT		3.37	9TH TSP	+41.84
		8/93	L Bobbin	DNT		5.70	9TH TSP	+38.54
		8/93	L Bobbin	DNT		6.86	9TH TSP	+39.22
6	110	8/93	L Bobbin	ADI		3.90	2ND TSP	+36.02
6	111	8/93	L Bobbin	DNT		2.46	7TH TSP	+0.08
7	78	8/93	L Sleeve Crosswound	ODI	40	8.22	TTS-HL	+10.83
7	109	8/93	L Bobbin	DNT		5.37	9TH TSP	+30.35
8	111	8/93	L Bobbin	DNT		6.19	9TH TSP	+34.07
8	112	8/93	L Bobbin	DNT		4.44	8TH TSP	-0.49
		8/93	L Bobbin	DNT		5.70	9TH TSP	+39.12
		8/93	L Bobbin	DNT		5.85	9TH TSP	+37.89
		8/93	L Bobbin	DNT		7.67	6TH TSP	+42.95
		8/93	L Bobbin	DNT		8.31	6TH TSP	+38.95
		8/93	L Bobbin	DNT		9.72	6TH TSP	+38.42
		8/93	L Bobbin	DNT		9.79	6TH TSP	+33.83
		8/93	L Bobbin	DNT		14.54	7TH TSP	+0.83
		8/93	L Bobbin	DNT		20.80	6TH TSP	+40.68
		8/93	L Bobbin	DNT		22.26	6TH TSP	+39.95
8	113	8/93	L Bobbin	DNT		6.04	9TH TSP	+38.39
		8/93	L Bobbin	DNT		7.30	6TH TSP	+39.74
9	112	8/93	L Bobbin	DNT		6.84	7TH TSP	+0.63
9	113	8/93	L Bobbin	DNT		4.05	9TH TSP	+13.52
		8/93	L Bobbin	DNT		4.08	6TH TSP	+35.26
		8/93	L Bobbin	DNT		4.82	9TH TSP	+36.45
		8/93	L Bobbin	DNT		4.96	7TH TSP	+0.57
		8/93	L Bobbin	DNT		6.00	7TH TSP	-1.01
		8/93	L Bobbin	DNT		6.49	7TH TSP	+1.19
		8/93	L Bobbin	DNT		7.04	6TH TSP	+35.80
		8/93	L Bobbin	DNT		7.75	7TH TSP	-0.43
		8/93	L Bobbin	DNT		20.90	9TH TSP	+24.54
		8/93	L Bobbin	DNT		28.21	9TH TSP	+25.52
11	35	8/93	L C/L Special Interest	NQI		0.67	TTS-CL	+18.43
13	42	8/93	L C/L Special Interest	NQI		0.52	11TH TSP	+23.65
19	107	8/93	L C/L Special Interest	DNT		1.66	8TH TSP	-10.82 to -7.75
25	66	8/93	L C/L Special Interest	PRM		94.97	9TH TSP	+1.67 to +4.12
34	35	8/93	L C/L Special Interest	NQI		0.57	13TH TSP	+5.79
36	37	8/93	L C/L Special Interest	NQI		0.95	11TH TSP	+3.76
37	70	8/93	L Bobbin	ADI		5.98	7TH TSP	+62.85
37	71	8/93	L Bobbin	SKR		93.17	TE-CL	+2.08
38	26	8/93	L H/L Special Interest	PRM			5TH TSP	-0.17
		8/93	L H/L Special Interest	PRM		7.14	5TH TSP	-22.61 to +9.97
38	72	8/93	L Bobbin	SKR		40.94	TE-CL	+5.42
		8/93	L Bobbin	DNT		6.28	9TH TSP	+19.37
38	78	8/93	L Sleeve Crosswound	ODI	40	6.58	TTS-HL	+10.09

Bobbin, C/L Special Interest, H/L Special Interest, SPECIAL INTEREST, Sleeve Crosswound, U-Be

ATTACHMENT #2 - INDICATIONS OF IMPERFECTIONS
 INDS OF IMPERFECTIONS - SGB

ROW	COL	OUTAGE	TEST TYPE	IND	%TW	VOLTS	LOCATION	
15	8	08/93	C/L Special Interest	NQI		0.94	TTS-CL	+4.43
16	65	08/93	H/L Special Interest	PRM		1.23	7TH TSP	-18.07
20	59	08/93	Bobbin	NQI		0.74	9TH TSP	+18.96
20	63	08/93	Bobbin	DNT		4.17	6TH TSP	+1.79
22	16	08/93	C/L Special Interest	DNT		4.85	17TH TSP	+17.85
22	67	08/93	Bobbin	IDI	40	14.68	TTS-HL	-8.17
		08/93	H/L Special Interest	MAI		5.47	TTS-HL	-7.67
23	67	08/93	Bobbin	ADI		2.57	2ND TSP	+25.74
		08/93	H/L Special Interest	DNT		0.48	2ND TSP	+26.59
30	31	08/93	C/L Special Interest	NQI		0.44	20TH TSP	+4.85
30	64	08/93	H/L Special Interest	DNT		0.20	1ST TSP	+13.80
33	13	08/93	H/L Special Interest	NQI		0.32	TTS-HL	+4.82
41	43	08/93	Bobbin	DNT		6.33	7TH TSP	-2.53
		08/93	Bobbin	DNT		13.75	7TH TSP	-1.64
		08/93	U-Bend	SCI		2.67	8TH TSP	+8.74
		08/93	U-Bend	SCI		6.93	8TH TSP	+8.47
		08/93	Bobbin	ODI	10	2.79	8TH TSP	+8.74
		08/93	C/L Special Interest	SCI		5.74	8TH TSP	+8.69
41	44	08/93	Bobbin	WAR	13	0.43	3AVB	+0.00
		08/93	Bobbin	WAR	18	0.67	4AVB	+0.00
		08/93	Bobbin	WAR	23	0.94	2AVB	+0.00
42	45	08/93	Bobbin	ODI	8	0.59	12TH TSP	-5.02
43	44	08/93	Bobbin	DNT		3.68	8TH TSP	+7.05
45	43	08/93	C/L Special Interest	DNT		1.19	16TH TSP	+1.58

Total Indications Found = 24
 Total Tubes Found = 15

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McGuire Nuclear Station - Unit One
S/G C
08/93 LKR

Bobbin,C/L Special Interest,H/L Special Interest,Sleeve Crosswound,U-Bend

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ATTACHMENT #3 - INDICATIONS OF IMPERFECTIONS
INDS OF IMPERFECTIONS - SGC

ROW	COL	OUTAGE	TEST TYPE	IND	%TW	VOLTS	LOCATION	
5	78	08/93	Sleeve Crosswound	ODI	40	7.42	TTS-HL	+12.15
7	7	08/93	H/L Special Interest	PRM		30.57	1ST TSP	-0.34
10	5	08/93	H/L Special Interest	PRM		1.51	7TH TSP	-3.61
11	2	08/93	U-Bend	DNT		13.28	8TH TSP	+0.12
21	80	08/93	U-Bend	DNT		0.62	7TH TSP	+0.25
27	29	08/93	H/L Special Interest	DNT		0.22	TTS-HL	+15.83
30	105	08/93	H/L Special Interest	DNT		0.98	2ND TSP	+20.90
33	49	08/93	Sleeve Crosswound	SSA		2.43	TTS-HL	+15.59
34	64	08/93	Sleeve Crosswound	SSA		8.29	TTS-HL	+14.95
36	40	08/93	H/L Special Interest	NQI		0.22	1ST TSP	+0.08
42	37	08/93	H/L Special Interest	PRM		2.27	1ST TSP	-0.06
46	42	08/93	H/L Special Interest	NQI		0.22	1ST TSP	+0.45
49	84	08/93	H/L Special Interest	DNT		1.51	3RD TSP	+8.86

Total Indications Found = 13
Total Tubes Found = 13

Bobbin,C/L Special Interest,H/L Special Interest,SPECIAL INTEREST,Sleeve Crosswound,U-Be

ATTACHMENT #4 - INDICATIONS OF IMPERFECTIONS
 INDS OF IMPERFECTIONS - SGD
 ROW COL OUTAGE TEST TYPE

IND	%TW	VOLTS	LOCATION					
4	2	08/93	Bobbin	NQI	0.38	3RD TSP	+0.06	
		08/93	H/L Special Interest	SAI	0.09	3RD TSP	+0.08	
4	3	08/93	Bobbin	SKR	*****	TE-HL	+4.35	
		08/93	H/L Special Interest	SAI	0.35	TE-HL	+4.30	
		08/93	H/L Special Interest	SAI	0.76	TE-HL	+1.17	
4	4	08/93	Bobbin	NQI	0.50	4TH TSP	+0.03	
5	4	08/93	Bobbin	IDI	40	11.14	TE-HL	+15.41
		08/93	H/L Special Interest	SAI	5.10	TTS-HL	-6.08	
5	5	08/93	Bobbin	SKR	*****	TE-HL	+7.22	
		08/93	H/L Special Interest	MAI	1.38	TTS-HL	-12.19	
6	4	08/93	Bobbin	ADI	10.05	TTS-CL	+6.97	
8	2	08/93	Bobbin	SKR	71.83	TE-HL	+15.11	
8	4	08/93	Bobbin	IDI	40	4.87	TE-HL	+12.91
		08/93	H/L Special Interest	SAI	2.20	TTS-HL	-7.40	
8	86	08/93	H/L Special Interest	DNT	2.20	7TH TSP	-0.09	
8	102	08/93	H/L Special Interest	DNT	0.45	6TH TSP	+40.37	
9	13	08/93	Sleeve Crosswound	ODI	40	7.22	TTS-HL	+10.56
11	80	08/93	U-Bend	NQI	0.15	8TH TSP	+0.69	
14	89	08/93	C/L Special Interest	NQI	0.18	9TH TSP	+41.47	
18	54	08/93	Sleeve Crosswound	ODI	40	2.74	TTS-HL	-3.74
22	20	08/93	H/L Special Interest	NQI	0.15	6TH TSP	+25.00	
		08/93	H/L Special Interest	SAI	1.16	5TH TSP	+0.35	
33	29	08/93	C/L Special Interest	DNT	5.43	8TH TSP	-0.15	
33	50	08/93	H/L Special Interest	DNT	4.11	4TH TSP	+20.58	
33	92	08/93	U-Bend	SAI	0.80	8TH TSP	+4.63	
36	52	08/93	H/L Special Interest	PRM	37.12	5TH TSP	-5.23	
42	37	08/93	H/L Special Interest	DNT	1.04	5TH TSP	+14.22	
44	46	08/93	H/L Special Interest	DNT	16.71	2ND TSP	+10.99	
48	74	08/93	U-Bend	DNT	3.62	7TH TSP	+9.77	
		08/93	U-Bend	DNT	4.79	7TH TSP	+10.22	
48	75	08/93	H/L Special Interest	SAI	1.35	1ST TSP	-0.70	

Total Indications Found = 31
 Total Tubes Found = 23

ATTACHMENT #5 - PLUGGED TUBES
COUNT ROW COL

COUNT ROW COL

1.	2	32
2.	2	55
3.	2	114
4.	4	3
5.	6	42
6.	6	114
7.	7	77
8.	7	78
9.	7	111
10.	11	35
11.	11	112
12.	12	59
13.	12	95
14.	12	113
15.	13	42
16.	13	44
17.	15	76
18.	15	112
19.	16	83
20.	16	92
21.	19	101
22.	21	110
23.	23	51
24.	24	57
25.	24	65
26.	24	71
27.	24	100
28.	24	105
29.	26	85
30.	28	39
31.	28	103
32.	30	86
33.	30	94
34.	34	35
35.	36	37
36.	36	77
37.	38	26
38.	38	72
39.	38	78
40.	38	87
41.	39	58
42.	39	72
43.	41	71
44.	46	81

Total Data Items Found = 44

FTI TUBAN II (Version 2.3) 02/29/2000 09:26:53
McGuire Nuclear Station - Unit One
S/G A
8/93 LKR

ATTACHMENT #5 - PLUGGED TUBES
COUNT ROW COL

COUNT ROW COL

Total Tubes Found = 44

FTI TUBAN II (Version 2.3) 02/29/2000 10:48:42
McGuire Nuclear Station - Unit One
S/G B
08/93 LKR

Page 1

ATTACHMENT #6 - PLUGGED TUBES
COUNT ROW COL

COUNT ROW COL

1.	10	36
2.	15	8
3.	18	46
4.	19	49
5.	20	35
6.	20	36
7.	20	39
8.	21	34
9.	21	56
10.	21	61
11.	21	66
12.	22	66
13.	24	43
14.	30	31
15.	32	45
16.	33	13
17.	38	98
18.	40	31
19.	41	39
20.	41	43
21.	41	87
22.	49	48
23.	49	78

Total Data Items Found = 23
Total Tubes Found = 23

FTI TUBAN II (Version 2.3) 02/29/2000 10:50:44
McGuire Nuclear Station - Unit One
S/G C
08/93 LKR

ATTACHMENT #7 - PLUGGED TUBES
COUNT ROW COL

COUNT ROW COL

1.	2	95
2.	3	106
3.	5	63
4.	5	69
5.	5	75
6.	5	78
7.	6	95
8.	6	98
9.	8	109
10.	16	96
11.	16	97
12.	18	75
13.	18	81
14.	19	68
15.	19	78
16.	21	65
17.	21	68
18.	22	69
19.	25	53
20.	27	104
21.	36	40
22.	46	42

Total Data Items Found = 22
Total Tubes Found = 22

ATTACHMENT #8 - PLUGGED TUBES
COUNT ROW COL

COUNT ROW COL

1.	3	3
2.	4	2
3.	4	35
4.	5	13
5.	5	42
6.	6	3
7.	7	9
8.	7	34
9.	9	13
10.	10	12
11.	11	80
12.	12	55
13.	14	89
14.	16	16
15.	16	65
16.	18	49
17.	20	94
18.	21	12
19.	21	36
20.	22	20
21.	22	45
22.	23	31
23.	23	66
24.	25	39
25.	28	57
26.	29	61
27.	29	70
28.	30	51
29.	33	92
30.	34	61
31.	36	52
32.	38	17
33.	41	27
34.	41	52
35.	42	94
36.	48	75
37.	49	32
38.	49	33
39.	49	68

Total Data Items Found = 39
Total Tubes Found = 39