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August 31, 2006

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

Subject: Duke Power Company LLC d/b/a Duke Energy
Carolinas, LLC (Duke)
Catawba Nuclear Station, Unit 2
Docket Number 50-414
Steam Generator Outage Summary 180-Day
Report for End of Cycle 14 Refueling
Outage

Pursuant to Technical Specification 5.6.8, please find attached the subject report which provides the results of the steam generator inspection effort associated with the subject outage.

There are no regulatory commitments contained in this letter or its attachment.

If you have any questions concerning this material, please call L.J. Rudy at (803) 831-3084.

Very truly yours,

D.M. Jamil

LJR/s

Attachment

A001

Document Control Desk
Page 2
August 31, 2006

xc (with attachment):

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Attachment

Steam Generator Tube Inspection Report

Catawba Unit 2 2006
Outage EOC 14

Technical Specification 5.6.8

Steam Generator Tube Inspection Report

*Catawba Unit 2 2006
Outage EOC 14*

Technical Specification 5.6.8

Prepared By: *CB Caution* Date: *8/24/06*

Reviewed By: *hjk* Date: *28 Aug '06*

Approved By: *P. W. Downing* Date: *8/28/06*

Number Steam Generator Tubes Inspected Catawba Unit 2 EOC14

Tech Spec 5.6.8a (Scope of Inspection):

The following describes the scope of the inspection performed at Catawba Unit 2 for EOC-14 in March 2006:

A bobbin coil eddy current inspection was performed at Catawba Unit 2 EOC-14 in March 2006. The tubes selected for the bobbin inspection included tubes with previous indications, tubes on the periphery of the bundle two rows deep, tubes surrounding plugged tubes and a minimum sample of 20 % of remaining tubes including all tubes not inspected with bobbin since EOC -10. During the outage additional tubes were added to the inspection plan to bound possible loose parts identified by eddy current and visual inspection. The total tubes inspected by bobbin per steam generator can be found in Table 1.

The tubesheet region was inspected with the array probe. The tubes selected for the inspection included a 20 % random sample, all periphery tubes, all of the historical overexpansions and 20 % of the newly identified overexpansions. Relative to the latter, there was a new criterion developed to more consistently identify overexpansions. The tubesheet inspection was performed from two inches above the top of tubesheet through the tube end. The total number of tubes inspected by the array probe in the tubesheet region per steam generator can be found in Table 1.

Small radius u bends were also inspected by the array. The tubes selected include a 20 % sample of rows one, two and ten. The tubes selected by the bobbin plan in row 3 and 4 were also inspected with the array. Row ten is the first row that was not stressed relieved after bending and was sampled for monitoring purposes. The total number of tubes inspected by the array in the u-bends per steam generator can be found in Table 1.

Bobbin coil indications of special interest were also inspected by the array probe. The indication selected for array special interest were degradation identified during the inspection (I-codes, PLP, and permeability variations), 50% of previously identified dents greater than two volts, new dents and new wear. The number of tubes inspected for special interest per steam generator can be found in Table 1.

Preheater expansions were also inspected by the array probe. The tubes selected for the inspection include 20 % of the tubes expanded at the 17C and 18C tube support plate. The total number of tubes inspected by the array in this region per steam generator can be found in Table 1.

Tubes were inspected at baffle 18 C by the array probe. This region acts as a loose parts collector since it is at the bottom of the preheater. The total number of tubes inspected by the array probe in this region per steam generator can be found in Table 1.

Rolled plugs were inspected with a rotating coil probe on the hot leg. Twenty percent of the rolled plugs installed on the hot leg were inspected. The total number of tubes with rolled plug examinations per steam generator can be found in Table 1.

All plugs were inspected visually on both the hot and cold leg sides. The total number of plugged tubes visually inspected per steam generator can be found in Table 1.

There are 4578 tubes in each steam generator.

**Table 1
Tubes Inspected by Steam Generator
By Inspection Plan**

Scope	SG A	SG B	SG C	SG D
Bobbin	2508	2499	2376	2601
Tubesheet (array)	1508	1159	1091	1265
Small radius u bends (array)	186	204	177	197
Preheater expansions at 17 C and 18C (array)	28	28	28	28
18 C baffle region (array)	97	134	190	130
Special Interest of bobbin (array)	560	359	362	521
Plug (rpc)	11	7	7	8
Plug (visual)	68	90	53	85

Tech Spec 5.6.8b (Active Degradation):

Service induced degradation identified in the Unit 2 Steam Generators includes wear at support structures, volumetric wear from foreign objects, and SCC in the tubesheet region. All SCC identified during EOC14 inspection was below the H* dimension of 17" and were not plugged as allowed with alternate repair criteria approved by Tech Spec amendment #224.

Tech Spec 5.6.8.c (NDE Techniques):

NDE techniques listed below are taken from the CNS 2EOC14 Degradation Assessment and represent techniques qualified for the CNS examination. The bobbin (B) rotating pancake (Pan) and array (XP) were the only probes utilized during the inspection.

Mechanism	Location	Probe	ETSS
Wear		B XP	96004.2 rev 9 Site Qualified
MBM's		B	96001.1 Rev 10
Mechanism	Location	Probe	ETSS
OD IGA	Freespan & Non Dented TSP	B	96007.1 rev 10
	@ Dents(See ODSCC)		

PWSCC	Low Row U-bend	XP	23513.2 rev 2 23513.3 rev 2
	Expansion Transition	XP	20500.1 rev 3 20500.2 rev 3 20501.1 rev 3 20501.2 rev 3
	Dents (<2.00 volts @ support structures)	XP	20502.1 rev 3 20502.2 rev 3

Mechanism	Location	Probe	ETSS
ODSCC	1. Roll Transition (Includes Plugs) 2. TSP 3. Tube Sheet	B PAN	96008.1 rev 13 21401.1 rev 3 21402.1 rev 3
	1. Roll Transition 2. TSP 3. Tube Sheet	XP	20400.1 rev 4 20400.2 rev 4 20402.1 rev 4 20402.2 rev 4
	Freespan	B	96007.1 rev 10
		XP	20403.1 rev 4 20403.2 rev 4
Pitting	Presence of copper	B	96005.1 rev 8

Probe	Application
B (Bobbin)	Used to provide volumetric examination to meet ASME Code requirements
PAN (Rotating Pancake) (0.115" or 0.080") +Pt (Rotating Plus Point)	Used to provide: – supplemental information for indications reported with a bobbin probe – or qualified exams at specific areas of the tubing where bobbin is not considered a qualified technique for detection, i.e. roll transitions, low row u-bends, etc
XP (Array X-Probe)	Non-surface riding probe consisting of an array of coils arranged 360° around the probe body. Used to replace rotating coil exams.

Tech Spec 5.6.8.d (Location of Service Induced Indications)

A listing of all service induced indications reported during the unit 2 EOC14 tube inspection is included as attachments A -D.

Tech Spec 5.6.8 (Number of Tubes Plugged)**Steam Generator 2A Tubes Plugged EOC14 = 1 Total Tubes Plugged = 69 %Plugged= 1.5**

Tube Row	Tube Column	Repair Method	Reason for plugging
17	82	Cold leg stabilized & mech plugged	Preventative measure for an over-roll condition at top of tubesheet.

Steam Generator 2B Tubes Plugged EOC14 = 9 Total Tubes Plugged = 99 %Plugged= 2.16

Tube Row	Tube Column	Repair Method	Reason for plugging
15	27	Mech plugged & Hot leg stabilized	Loose Part, 1st TSP
15	29	Mech plugged & Hot leg stabilized	Loose Part, 1st TSP
16	27	Mech plugged & Hot leg stabilized	Loose Part, 1st TSP
16	28	Mech plugged & Hot leg stabilized	Loose Part, 1st TSP
16	30	Mech plugged & Hot leg stabilized	Loose Part, 1st TSP
16	31	Mech plugged & Hot leg stabilized	Loose Part, 1st TSP
17	27	Mech plugged & Hot leg stabilized	Loose Part, 1st TSP
18	28	Mech plugged & Hot leg stabilized	Loose Part, 1st TSP
30	12	Mech plugged & Cold Leg tube Hard Rolled	Cold Leg tube not expanded.

Steam Generator 2C Tubes Plugged EOC14 = 2 Total Tubes Plugged = 55 %Plugged= 1.2

Tube Row	Tube Column	Repair Method	Reason for plugging
7	109	Mech plugged & hot leg stabilized	Loose Part, 4th TSP
11	93	Mech plugged & Cold leg stabilized	Preventative measure for an over-roll condition at top of tubesheet

Steam Generator 2D Tubes Plugged EOC14 = 2 Total Tubes Plugged = 87 %Plugged= 1.9

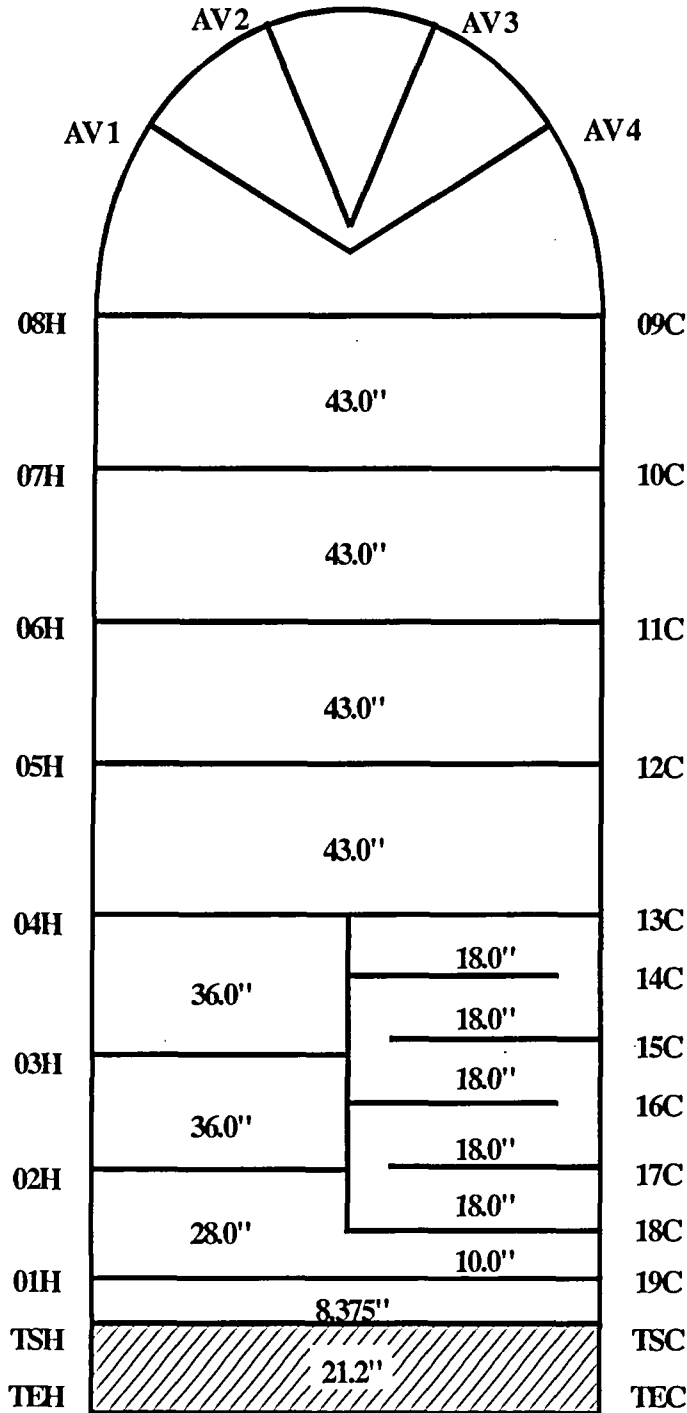
Tube Row	Tube Column	Repair Method	Reason for plugging
1	57	Mech plugged & hot leg stabilized	Preventative measure for tube expansion geometry at top of tubesheet.
41	60	Mech plugged & Cold leg stabilized	Preventative measure for an over-roll condition at top of tubesheet

Tech Spec 5.6.8.g (Results of Condition Monitoring, including tube pulls and In-situ test):

The evaluation was performed according to NEI 97-06 using the EPRI Tube Integrity Assessment Guidelines. The only observed tubing degradation at EOC 14 not exempted by alternate repair criteria was wear. All CM requirements were met. OA issues include a small population of tubes which were last inspected at EOC 11 and will not be inspected again until EOC 15 and growth of the wear scars left in service at EOC 14. Conservatively projected worst case depths meet the limiting 1.4 FLB structural integrity requirement of 3969 psi with at least 0.95 probability with 50% confidence. Since burst or leakage will not occur at 1.4 FLB, leakage integrity at an accident differential pressure of 2560 psi is also demonstrated.

No tube pulls or in-situ testing were performed during unit 2 EOC14.

Landmark Sketch to assist in locating eddy current information reported in attachments A-D.



D5 STEAM GENERATOR SPECIFICATIONS

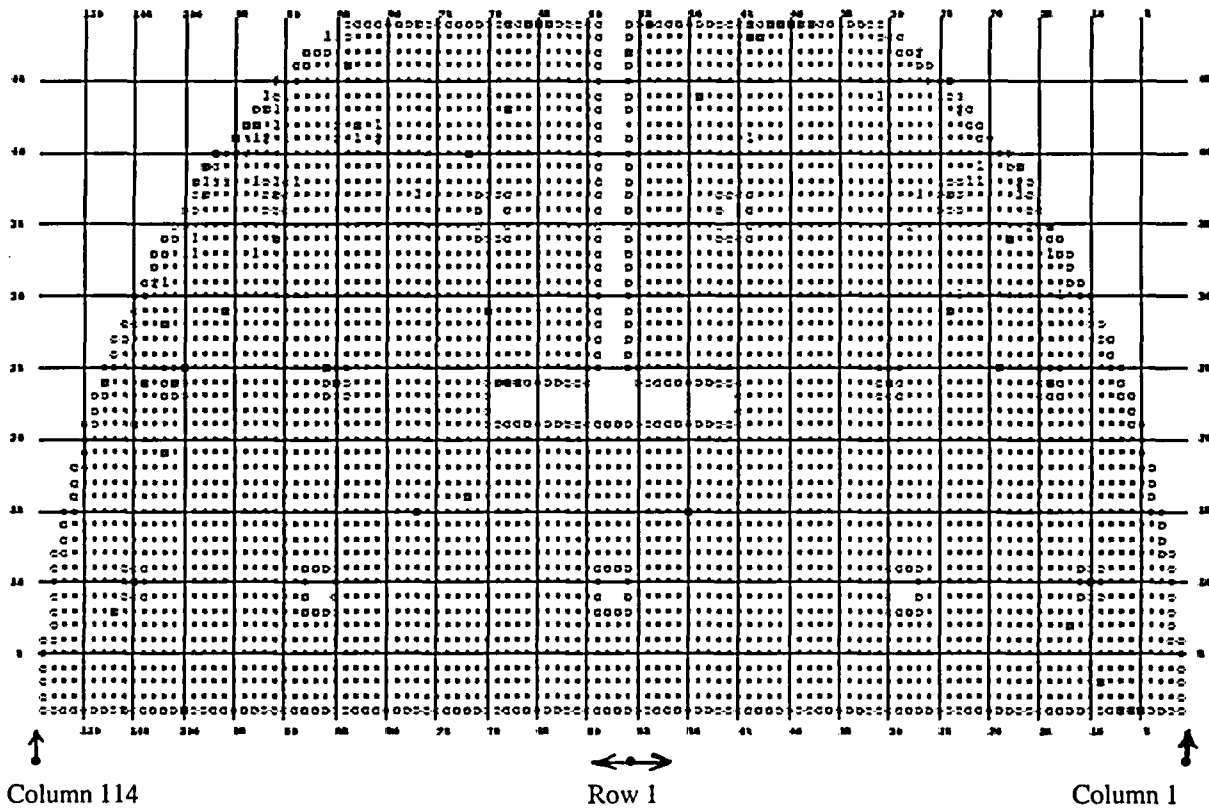
TUBE INFORMATION:
 NO. OF TUBES = 4578
 MATERIAL = Inconel 600
 NOMINAL DIA. = 0.750"
 NOMINAL WALL = 0.043"
 ROW 1 RADIUS = 2.250"
 STRAIGHT LENGTH = 305.0"
 TUBE PITCH = 1.0625"

TUBE SUPPORT INFORMATION:
 TYPES = Drilled / Quatrafoil
 MATERIAL=405 Stainless Steel
 THICKNESS = 0.75"/ 1.12"

AVB INFORMATION:
 MATERIAL = Chrome Plated Inconel
 THICKNESS = 0.296"

NOTE: Dimensions are to the centerline of the tube support structures.

Tube Sheet Layout:



Attachments:

- A SG 2A Eddy Current Indications and Anomalies
- B SG 2B Eddy Current Indications and Anomalies
- C SG 2C Eddy Current Indications and Anomalies
- D SG 2D Eddy Current Indications and Anomalies

Attachment A
SG 2A Eddy Current Indications and Anomalies

Indication Codes

SG – A

Catawba Unit 2 D5 EOC14

Ind Type Description

SAI Indication Single Axial Indication

TWD Through Wall

WAR Wear

Note: The reported tube indications are for those that were determined to be active in that they are service related. All original baseline indications are not reported here.

Active degradation for Steam Generator A											
<u>SG</u>	<u>ROW</u>	<u>COL</u>	<u>VOLTS</u>	<u>DEG</u>	<u>CHN</u>	<u>IND</u>	<u>%TW</u>	<u>LOCATION</u>		<u>UTIL 1</u>	<u>UTIL 2</u>
A	7	23	1.59	65	170	SAI		TEH	+0.00		
	30	13	1.45	0	P4	TWD	19	AV3	0.09	WAR	
	30	23	0.89	0	P4	TWD	12	AV2	0.15	WAR	
	31	102	0.78	0	P4	TWD	10	AV4	-0.05	WAR	
			0.62	0	P4	TWD	11	AV2	-0.05	WAR	
	31	103	2.07	0	P4	TWD	24	AV2	-0.09	WAR	
	32	15	0.82	0	P4	TWD	13	AV2	0.03	WAR	
	33	14	0.41	0	P4	TWD	6	AV4	0.09	WAR	
	33	93	1.03	0	P4	TWD	16	AV2	0.05	WAR	
	33	99	0.53	0	P4	TWD	10	AV2	-0.08	WAR	
	33	100	1.33	0	P4	TWD	18	AV3	0.00	WAR	
	34	99	0.81	0	P4	TWD	13	AV4	0.00	WAR	
			0.62	0	P4	TWD	10	AV3	0.00	WAR	
	35	16	1.65	0	P4	TWD	21	AV3	0.15	WAR	
			1.19	0	P4	TWD	17	AV2	0.15	WAR	
	35	28	1.85	0	P4	TWD	23	AV3	0.00	WAR	
	37	17	1.19	0	P4	TWD	17	AV3	0.12	WAR	
			0.69	0	P4	TWD	11	AV2	0.09	WAR	
	37	27	1.01	0	P4	TWD	17	AV2	-0.03	WAR	
	37	39	0.63	0	P4	TWD	8	AV2	0.19	WAR	
	37	77	1.18	0	P4	TWD	17	AV4	0.00	WAR	
			1.41	0	P4	TWD	19	AV3	0.07	WAR	
			1.54	0	P4	TWD	20	AV2	0.19	WAR	
	38	17	1.18	0	P4	TWD	17	AV4	0.09	WAR	
			1.37	0	P4	TWD	18	AV3	0.17	WAR	
			1.15	0	P4	TWD	16	AV1	0.03	WAR	
	38	21	1.31	0	P4	TWD	18	AV2	0.00	WAR	
	38	22	0.85	0	P4	TWD	13	AV3	-0.09	WAR	
			0.94	0	P4	TWD	14	AV2	-0.18	WAR	
	38	23	0.7	0	P4	TWD	11	AV2	0.08	WAR	
	38	25	0.9	0	P4	TWD	14	AV3	0.00	WAR	
	38	89	0.84	0	P4	TWD	14	AV3	-0.08	WAR	
			0.94	0	P4	TWD	15	AV2	0.08	WAR	
	38	91	0.87	0	P4	TWD	14	AV4	0.00	WAR	
			0.92	0	P4	TWD	15	AV2	0.00	WAR	
			0.41	0	P4	TWD	9	AV4	-0.05	WAR	
			0.9	0	P4	TWD	16	AV2	0.00	WAR	
	38	93	1.16	0	P4	TWD	17	AV2	-0.05	WAR	
	38	96	0.55	0	P4	TWD	10	AV4	-0.19	WAR	
			1.15	0	P4	TWD	17	AV3	0.00	WAR	
			2.8	0	P4	TWD	28	AV2	-0.24	WAR	
	38	97	1.18	0	P4	TWD	17	AV4	0.00	WAR	
			1.73	0	P4	TWD	22	AV3	-0.16	WAR	
			4.15	0	P4	TWD	35	AV2	0.00	WAR	
	38	98	0.73	0	P4	TWD	12	AV4	-0.08	WAR	
			0.99	0	P4	TWD	15	AV3	-0.05	WAR	
			1.19	0	P4	TWD	17	AV2	-0.16	WAR	
	39	21	0.71	0	P4	TWD	10	AV2	-0.03	WAR	

<u>SG</u>	<u>ROW</u>	<u>COL</u>	<u>VOLTS</u>	<u>DEG</u>	<u>CHN</u>	<u>IND</u>	<u>%TW</u>	<u>LOCATION</u>	<u>UTIL 1</u>	<u>UTIL 2</u>
A	40	18	3.08	0	P4	TWD	30	AV3 0.00	WAR	
	40	94	0.72	0	P4	TWD	12	AV4 0.00	WAR	
			2.11	0	P4	TWD	25	AV2 -0.03	WAR	
	40	95	1.33	0	P4	TWD	18	AV4 -0.03	WAR	
			1.76	0	P4	TWD	22	AV2 0.00	WAR	
	41	30	0.63	0	P4	TWD	10	AV2 0.03	WAR	
	41	44	0.74	0	P4	TWD	11	AV3 0.00	WAR	
			1.34	0	P4	TWD	17	AV2 0.06	WAR	
			1.48	0	P4	TWD	18	AV1 0.00	WAR	
	41	81	0.79	0	P4	TWD	13	AV4 0.00	WAR	
			1.47	0	P4	TWD	20	AV3 0.00	WAR	
			2.15	0	P4	TWD	25	AV2 0.00	WAR	
	41	83	1.09	0	P4	TWD	16	AV4 0.00	WAR	
			1.67	0	P4	TWD	21	AV3 0.00	WAR	
			1.47	0	P4	TWD	20	AV2 0.00	WAR	
	41	85	1.94	0	P4	TWD	23	AV3 0.00	WAR	
	41	90	0.96	0	P4	TWD	15	AV3 0.00	WAR	
	41	92	0.63	0	P4	TWD	10	AV4 -0.10	WAR	
			1.65	0	P4	TWD	21	AV3 0.00	WAR	
	41	93	0.66	0	P4	TWD	12	AV4 -0.05	WAR	
			0.99	0	P4	TWD	15	AV3 0.00	WAR	
	41	94	0.82	0	P4	TWD	13	AV4 -0.05	WAR	
			2.99	0	P4	TWD	30	AV3 0.03	WAR	
			1.67	0	P4	TWD	21	AV2 0.05	WAR	
	42	81	0.36	0	P4	TWD	10	AV4 0.12	WAR	
			0.82	0	P4	TWD	16	AV2 -0.25	WAR	
	42	85	1.06	0	P4	TWD	19	AV3 0.00	WAR	
			2.36	0	P4	TWD	28	AV2 0.00	WAR	
	42	91	1.02	0	P4	TWD	16	AV3 0.00	WAR	
	43	23	0.94	0	P4	TWD	15	AV2 0.12	WAR	
			0.73	0	P4	TWD	10	AV1 0.00	WAR	
	43	91	1.44	0	P4	TWD	19	AV4 0.00	WAR	
			1.07	0	P4	TWD	16	AV3 0.00	WAR	
			1.12	0	P4	TWD	17	AV2 0.00	WAR	
			0.63	0	P4	TWD	11	AV1 0.00	WAR	
			1.32	0	P4	TWD	20	AV4 -0.05	WAR	
			0.94	0	P4	TWD	16	AV3 -0.03	WAR	
			0.99	0	P4	TWD	17	AV2 0.08	WAR	
			0.48	0	P4	TWD	10	AV1 0.05	WAR	
	44	23	1.4	0	P4	TWD	19	AV4 0.13	WAR	
			5.26	0	P4	TWD	38	AV3 0.00	WAR	
			2.06	0	P4	TWD	24	AV2 -0.03	WAR	
			1.34	0	P4	TWD	17	AV1 0.14	WAR	
	44	25	1.15	0	P4	TWD	17	AV3 0.09	WAR	
			1.18	0	P4	TWD	17	AV2 0.09	WAR	
	44	31	0.64	0	P4	TWD	8	AV2 0.12	WAR	
	44	90	0.63	0	P4	TWD	10	AV3 0.00	WAR	
	44	92	0.65	0	P4	TWD	11	AV4 0.00	WAR	
			1.1	0	P4	TWD	16	AV3 0.00	WAR	

<u>SG</u>	<u>ROW</u>	<u>COL</u>	<u>VOLTS</u>	<u>DEG</u>	<u>CHN</u>	<u>IND</u>	<u>%TW</u>	<u>LOCATION</u>	<u>UTIL 1</u>	<u>UTIL 2</u>
A	45	26	2.34	0	P4	TWD	26	AV3 0.12	WAR	
			0.9	0	P4	TWD	13	AV2 0.00	WAR	
	45	90	1.19	0	P4	TWD	17	AV3 0.00	WAR	
	45	91	1.9	0	P4	TWD	23	AV4 0.00	WAR	
			1.11	0	P4	TWD	16	AV3 -0.05	WAR	
			1.15	0	P4	TWD	17	AV2 -0.03	WAR	
	47	27	2.7	0	P4	TWD	29	AV3 -0.04	WAR	
			1.05	0	P4	TWD	18	AV2 -0.03	WAR	
	48	85	0.96	0	P4	TWD	15	AV4 0.00	WAR	
			0.7	0	P4	TWD	12	AV3 0.00	WAR	
	48	86	0.53	0	P4	TWD	13	AV4 0.00	WAR	
			0.51	0	P4	TWD	12	AV3 0.00	WAR	
	49	35	0.68	0	P4	TWD	10	AV1 0.07	WAR	
	49	70	0.67	0	P4	TWD	12	AV1 0.00	WAR	

Attachment B
SG 2B Eddy Current Indications and Anomalies

Indication Codes

SG - B

Catawba Unit 2 D5 EOC14

Ind Type	Description
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CHG	Change in Indication
MAI	Indication Multiple Axial Indication
NEX	Anomaly No Expansion
NQI	Indication Non-Quantifiable Indication
OR	Data Quality
SAI	Indication Single Axial Indication
SCI	Indication Single Circumferential Indication
SVI	Indication Single Volumetric Indication
TWD	Through Wall
WAR	Wear

These codes are used in the following eddy current report for steam generator 2B.

Note: The reported tube indications are for those that were determined to be active in that they are service related. All original baseline indications are not reported here.

Active degradation for Steam Generator B										
<u>SG</u>	<u>ROW</u>	<u>COL</u>	<u>VOLTS</u>	<u>DEG</u>	<u>CHN</u>	<u>IND</u>	<u>%TW</u>	<u>LOCATION</u>	<u>UTIL 1</u>	<u>UTIL 2</u>
B	1	21	10.82	15	94	SCI		TEH +0.03		
	1	42	7.68	28	70	MAI		TEH +0.09		
	1	91	5.76	58	182	SAI		TEH +0.09		
	2	32	1.67	24	158	MAI		TEH +0.12		
	2	70	3.11	31	166	SAI		TEH +0.30		
	2	82	3.44	17	26	SAI		TEH +0.03		
	2	83	2.57	18	38	SAI		TEH +0.03		
	3	21	9.81	24	162	SAI		TEH +0.06		
	3	29	6.35	39	162	SAI		TEH +0.35		
	3	55	4.56	129	170	SAI		TEH +0.04		
	4	34	3.38	21	150	SAI		TEH +0.27		
	5	31	2.45	17	38	SAI		TEH +0.04		
	5	82	6.74	15	122	SAI		TEH +0.07		
	6	81	1.41	42	26	SAI		TEH +0.24		
	6	82	2.01	62	170	SAI		TEH +0.07		
	9	76	8.22	9	38	SAI		TEH +0.09 TO+0.23		
	10	81	3.29	28	162	SAI		TEH +0.06		
	11	82	1.06	18	146	SAI		TEH +0.10		
	12	82	1.06	25	122	SAI		TEH +0.06		
	12	92	3.46	35	182	SAI		TEH +0.06		
	14	81	1.21	18	58	SAI		TEH +0.24		
	15	27	0.28	98	54	SVI		01H +0.64		
	15	29	0.88	145	134	SVI		01H +0.51		
	15	56	1.22	0	P4	TWD	19	AV4 0.24	WAR	
	16	27	1	107	58	SVI		01H +0.59		
			0.41	132	10	SVI		01H +0.47		
			0.79	115	P1	NQI		01H 0.59		CHG
	16	28	0.47	122	P1	NQI		01H 0.40		
			0.82	88	118	SVI		01H +0.52		
	16	30	0.33	110	P1	NQI		01H 0.49		
			0.85	132	6	SVI		01H +0.54		
	16	31	0.28	86	158	SVI		01H +0.64		
	20	32	3.9	16	158	SAI		TEH +0.05		
	24	63	3.29	15	70	SAI		TEH +0.10		
	25	31	1.57	40	26	SAI		TEH +0.06		
	27	60	1.71	0	P4	TWD	22	AV2 0.24	WAR	
	30	12	3.11	32	193	NEX		TEC 1.00 TO 21.20		
	30	21	0.68	61	10	SAI		TEH +0.06		OR
	30	104	0.75	0	P4	TWD	13	AV3 0.12	WAR	
			0.64	0	P4	TWD	11	AV1 -0.03	WAR	
	32	103	1.01	0	P4	TWD	17	AV4 0.08	WAR	
			0.85	0	P4	TWD	15	AV3 0.11	WAR	
			0.92	0	P4	TWD	16	AV2 0.19	WAR	
	36	98	0.74	0	P4	TWD	13	AV4 0.00	WAR	
	36	99	0.5	0	P4	TWD	11	AV4 0.06	WAR	
	37	99	0.94	0	P4	TWD	16	AV4 0.15	WAR	
	38	75	0.82	0	P4	TWD	15	AV2 0.00	WAR	
	39	59	0.3	0	P4	TWD	7	AV4 0.00	WAR	
	44	91	1.17	0	P4	TWD	19	AV2 0.00	WAR	

<u>SG</u>	<u>ROW</u>	<u>COL</u>	<u>VOLTS</u>	<u>DEG</u>	<u>CHN</u>	<u>IND</u>	<u>%TW</u>	<u>LOCATION</u>	<u>UTIL 1</u>	<u>UTIL 2</u>
B	45	24	0.52	0	P4	TWD	11	AV4 -0.03	WAR	
	47	27	1.02	0	P4	TWD	16	AV4 0.00	WAR	
			1.47	0	P4	TWD	20	AV3 0.03	WAR	
			0.47	0	P4	TWD	10	AV2 -0.06	WAR	
	47	88	0.81	0	P4	TWD	14	AV4 0.00	WAR	
			0.86	0	P4	TWD	15	AV2 0.00	WAR	

Attachment C
SG 2C Eddy Current Indications and Anomalies

Indication Codes

SG - C

Catawba Unit 2 D5 EOC14

Ind Type Description

CHG	Change in Indication
NQI	Indication Non-Quantifiable Indication
SAI	Indication Single Axial Indication
SVI	Indication Single Volumetric Indication
TWD	Through Wall
VOL	Volumetric
WAR	Wear

These codes are used in the following eddy current report for steam generator 2C.

Note: The reported tube indications are for those that were determined to be active in that they are service related. All original baseline indications are not reported here.

Active degradation for Steam Generator C										
<u>SG</u>	<u>ROW</u>	<u>COL</u>	<u>VOLTS</u>	<u>DEG</u>	<u>CHN</u>	<u>IND</u>	<u>%TW</u>	<u>LOCATION</u>	<u>UTIL 1</u>	<u>UTIL 2</u>
C	1	19	2.58	26	58	SAI		TEH +0.25		
	3	51	6.2	167	146	SAI		TEH +0.09		
	7	109	0.82	84	186	SVI		04H -0.75		
			1.23	127	195	NQI		04H -0.89	CHG	
	27	9	2.62	0	P4	TWD	26	AV2 -0.03	WAR	
	28	10	1.01	0	P4	TWD	15	AV2 0.00	WAR	
	28	11	0.8	0	P4	TWD	12	AV2 -0.08	WAR	
	28	105	1.23	0	P4	TWD	18	AV3 0.00	WAR	
	29	10	0.8	0	P4	TWD	13	AV3 -0.05	WAR	
			0.75	0	P4	TWD	12	AV2 -0.15	WAR	
	29	12	0.84	0	P4	TWD	13	AV3 0.08	WAR	
			1.13	0	P4	TWD	16	AV2 0.03	WAR	
	29	14	0.81	0	P4	TWD	13	AV3 -0.08	WAR	
	30	15	1.4	0	P4	TWD	18	AV4 0.15	WAR	
	31	11	0.62	0	P4	TWD	9	AV1 0.03	WAR	
	31	12	1.65	0	P4	TWD	21	AV3 0.14	WAR	
	33	12	1.37	0	P4	TWD	19	AV2 -0.13	WAR	
			1	0	P4	TWD	16	AV1 0.00	WAR	
	33	14	1.02	0	P4	TWD	15	AV3 -0.08	WAR	
			1.72	0	P4	TWD	22	AV2 -0.13	WAR	
	33	55	1.77	0	P4	TWD	23	AV3 0.00	WAR	
	33	100	0.77	0	P4	TWD	13	AV2 0.14	WAR	
	33	102	0.7	0	P4	TWD	12	AV2 0.13	WAR	
	36	25	0.42	0	P4	TWD	8	AV2 0.03	WAR	
	36	37	0.41	0	P4	TWD	9	AV2 0.06	WAR	
	36	98	1.08	0	P4	TWD	16	AV2 0.11	WAR	
	38	17	0.59	0	P4	TWD	9	AV4 -0.05	WAR	
			1.47	0	P4	TWD	18	AV2 -0.08	WAR	
			0.65	0	P4	TWD	10	AV1 0.00	WAR	
	38	23	0.53	0	P4	TWD	10	AV4 0.05	WAR	
			0.58	0	P4	TWD	11	AV2 0.00	WAR	
	38	34	0.8	0	P4	TWD	14	AV2 0.30	WAR	
	38	97	1.16	0	P4	TWD	18	AV2 -0.05	WAR	
	38	99	3.33	0	P4	TWD	31	AV4 0.21	WAR	
			1.13	0	P4	TWD	17	AV3 0.02	WAR	
	39	17	0.52	0	P4	TWD	9	AV1 0.00	WAR	
	39	18	1.19	0	P4	TWD	18	AV2 -0.03	WAR	
	39	27	0.96	0	P4	TWD	15	AV3 -0.03	WAR	
			0.76	0	P4	TWD	13	AV2 0.21	WAR	
	39	94	1.23	0	P4	TWD	18	AV3 0.00	WAR	
	39	97	0.97	0	P4	TWD	16	AV4 0.00	WAR	
			0.51	0	P4	TWD	11	AV3 0.00	WAR	
			0.74	0	P4	TWD	14	AV2 0.00	WAR	
	40	20	1.67	0	P4	TWD	23	AV2 -0.05	WAR	
	40	22	0.61	0	P4	TWD	12	AV2 -0.05	WAR	
	40	27	0.95	0	P4	TWD	15	AV2 0.05	WAR	
	41	20	0.51	0	P4	TWD	10	AV3 0.05	WAR	
			0.63	0	P4	TWD	12	AV2 -0.03	WAR	
			0.65	0	P4	TWD	12	AV1 -0.03	WAR	

<u>SG</u>	<u>ROW</u>	<u>COL</u>	<u>VOLTS</u>	<u>DEG</u>	<u>CHN</u>	<u>IND</u>	<u>%TW</u>	<u>LOCATION</u>	<u>UTIL 1</u>	<u>UTIL 2</u>
C	43	93	0.48	0	P4	TWD	10	AV4 0.00	WAR	
			0.39	0	P4	TWD	9	AV3 0.00	WAR	
			0.83	0	P4	TWD	15	AV2 0.00	WAR	
	44	81	0.55	0	P4	TWD	12	AV4 0.00	WAR	
			2.75	0	P4	TWD	29	AV2 0.30	WAR	
			1.48	0	P4	TWD	21	AV3 0.27	WAR	
	48	48	0.62	77	P19	VOL		AV1 +0.00	WAR	
			0.88	143	P2	VOL		AV4 +0.00	WAR	
	49	59	1.48	102	P30	TWD	21	13C +0.00	WAR	
			2.55	117	P23	VOL		13C +0.34	WAR	
			2.61	0	P2	NQI		13C 0.28	WAR	
	49	76	1.99	0	P4	TWD	26	AV1 0.00	WAR	

Attachment D
SG 2D Eddy Current Indications and Anomalies

Indication Codes

SG - D

Catawba Unit 2 D5 EOC14

Ind Type Description

MAI	Indication Multiple Axial Indication
NQI	Indication Non-Quantifiable Indication
SCI	Indication Single Circumferential Indication
TWD	Through Wall
VOL	Indication Volumetric
WAR	Wear

These codes are used in the following eddy current report for steam generator 2D.

Note: The reported tube indications are for those that were determined to be active in that they are service related. All original baseline indications are not reported here.

Active degradation for Steam Generator D

<u>SG</u>	<u>ROW</u>	<u>COL</u>	<u>VOLTS</u>	<u>DEG</u>	<u>CHN</u>	<u>IND</u>	<u>%TW</u>	<u>LOCATION</u>	<u>UTIL 1</u>	<u>UTIL 2</u>
D	25	107	2.06	0 P4		TWD	18	AV2 0.00	WAR	
			0.77	0 P4		TWD	8	AV3 0.00	WAR	
	27	107	1.49	0 P4		TWD	14	AV2 0.27	WAR	
	28	10	0.92	0 P4		TWD	10	AV4 0.00	WAR	
			0.65	0 P4		TWD	8	AV3 0.00	WAR	
	28	16	1.87	0 P4		TWD	17	13C -0.47	WAR	
	28	71	1.79	0 P4		TWD	18	AV2 -0.31	WAR	
	28	105	1.49	0 P4		TWD	14	AV2 0.00	WAR	
	29	104	1.02	0 P4		TWD	10	AV2 0.10	WAR	
	30	102	2.43	0 P4		TWD	21	AV3 0.09	WAR	
	33	13	1.13	0 P4		TWD	12	AV4 0.00	WAR	
			2.3	0 P4		TWD	20	AV2 0.00	WAR	
			1.54	0 P4		TWD	15	AV3 0.00	WAR	
	33	79	1.09	0 P4		TWD	11	AV2 -0.03	WAR	
	34	98	1.82	0 P4		TWD	18	AV2 0.00	WAR	
	34	99	1.22	0 P4		TWD	13	AV2 0.09	WAR	
	34	100	1.11	0 P4		TWD	12	AV3 -0.03	WAR	
	35	14	1.5	0 P4		TWD	15	AV4 0.00	WAR	
			4.84	0 P4		TWD	32	AV2 0.00	WAR	
	35	17	6.55	43	98	SCI		TEH +0.31		
	35	43	4.29	135	98	SCI		TEH +0.42		
	35	96	0.54	0 P4		TWD	6	AV2 0.09	WAR	
	36	16	1.35	0 P4		TWD	13	AV4 0.00	WAR	
			1.12	0 P4		TWD	11	AV3 -0.06	WAR	
			4.82	0 P4		TWD	31	AV2 0.00	WAR	
			1.37	0 P4		TWD	13	AV1 0.00	WAR	
	36	65	2.31	0 P4		TWD	20	AV3 0.33	WAR	
	36	93	1.22	0 P4		TWD	13	AV2 0.03	WAR	
	36	94	1.06	0 P4		TWD	11	AV2 0.00	WAR	
			0.61	0 P4		TWD	7	AV1 0.00	WAR	
	36	96	0.77	0 P4		TWD	9	AV3 0.00	WAR	
			1.48	0 P4		TWD	15	AV2 -0.03	WAR	
	36	97	1.59	0 P4		TWD	15	AV2 0.00	WAR	
	36	98	1.32	0 P4		TWD	14	AV3 0.06	WAR	
	37	17	1.71	0 P4		TWD	17	AV4 0.00	WAR	
			1.67	0 P4		TWD	17	AV2 -0.03	WAR	
	38	18	2.24	0 P4		TWD	19	AV4 0.00	WAR	
			2.56	0 P4		TWD	21	AV2 0.14	WAR	
	38	19	1.41	0 P4		TWD	13	AV2 0.09	WAR	
	38	20	1.72	0 P4		TWD	16	AV4 0.00	WAR	
			1.5	0 P4		TWD	14	AV2 0.00	WAR	
	38	21	1.51	0 P4		TWD	14	AV2 0.00	WAR	
	38	26	1.08	0 P4		TWD	11	AV2 0.38	WAR	
	38	64	1.99	0 P4		TWD	17	AV2 0.00	WAR	
	38	78	1.82	0 P4		TWD	17	AV3 -0.12	WAR	
	38	90	1.06	0 P4		TWD	12	AV2 -0.12	WAR	
	38	93	2.53	0 P4		TWD	21	AV2 0.00	WAR	
			0.89	0 P4		TWD	10	AV3 0.06	WAR	
	39	81	0.87	0 P4		TWD	10	AV2 0.21	WAR	

<u>SG</u>	<u>ROW</u>	<u>COL</u>	<u>VOLTS</u>	<u>DEG</u>	<u>CHN</u>	<u>IND</u>	<u>%TW</u>	<u>LOCATION</u>	<u>UTIL 1</u>	<u>UTIL 2</u>
D	39	96	1.4	0	P4	TWD	14	AV3 0.00	WAR	
	39	98	0.95	0	P4	TWD	10	AV1 0.12	WAR	
	40	93	1.09	0	P4	TWD	12	AV2 0.15	WAR	
	40	94	1.52	0	P4	TWD	15	AV3 0.17	WAR	
			1.54	0	P4	TWD	16	AV2 0.00	WAR	
	40	97	0.93	0	P4	TWD	10	AV3 -0.06	WAR	
			0.85	0	P4	TWD	10	AV1 0.06	WAR	
	41	20	1.46	0	P4	TWD	15	AV4 0.00	WAR	
	41	59	4.57	33		138 MAI		TEH +0.37		
			2.83	11		34 SCI		TEH +0.77		
	41	60	3.35	81		138 MAI		TEH +0.31		
			2.82	14		46 SCI		TEH +0.55		
	41	77	0.77	0	P4	TWD	9	AV3 -0.03	WAR	
			2.04	0	P4	TWD	19	AV2 0.24	WAR	
	42	23	1.49	0	P4	TWD	14	AV4 0.00	WAR	
			2.63	0	P4	TWD	21	AV2 0.00	WAR	
	42	30	1.48	0	P4	TWD	14	AV2 0.30	WAR	
	42	32	1.47	0	P4	TWD	14	AV2 0.15	WAR	
	42	64	1.01	110		58 VOL		13C -0.15		
			3.05	98	P2	NQI		13C 0.06	WAR	
	42	85	1.04	0	P4	TWD	11	AV3 -0.03	WAR	
			1.21	0	P4	TWD	13	AV2 0.03	WAR	
	43	22	2.29	0	P4	TWD	21	AV4 0.00	WAR	
			0.98	0	P4	TWD	11	AV2 0.00	WAR	
			3.37	0	P4	TWD	26	AV3 0.00	WAR	
	43	29	1.2	0	P4	TWD	13	AV2 0.00	WAR	
	43	78	4.58	0	P4	TWD	31	AV3 0.00	WAR	
			2.58	0	P4	TWD	22	AV2 -0.06	WAR	
			0.89	0	P4	TWD	9	AV1 0.18	WAR	
	44	24	1.65	0	P4	TWD	15	AV3 -0.25	WAR	
	44	46	2.22	0	P4	TWD	20	AV3 -0.21	WAR	
	44	90	0.43	0	P4	TWD	5	AV1 0.00	WAR	
	44	91	0.71	0	P4	TWD	8	AV4 0.21	WAR	
	45	52	2.32	0	P2	TWD	18	15C -0.46	WAR	
	45	91	0.76	0	P4	TWD	9	AV4 0.00	WAR	
			0.62	0	P4	TWD	7	AV2 0.21	WAR	
	47	87	0.85	0	P4	TWD	9	AV4 0.10	WAR	
	48	78	4.52	0	P4	TWD	31	AV4 -0.31	WAR	
	48	82	0.86	0	P4	TWD	9	AV1 0.00	WAR	
	49	37	0.69	0	P4	TWD	10	AV1 -0.03	WAR	
	49	74	1.08	0	P4	TWD	12	AV4 0.24	WAR	
	49	84	0.67	0	P4	TWD	8	AV1 0.13	WAR	