

WOLF CREEK

NUCLEAR OPERATING CORPORATION

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FEB 15 2000

ET 00-0006

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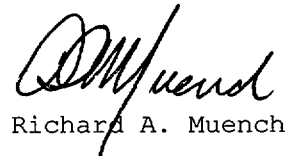
Subject: Docket No. 50-482: Special Report 99-002 - Ninth
Steam Generator Tube Inservice Inspection Results

Gentlemen:

The attached Special Report is submitted in accordance with Wolf Creek Generating Station Technical Specifications 4.4.5.5.b and 6.9.2 (Improved Technical Specification 5.6.10.b). Special Report 99-002 provides the results of Wolf Creek Generating Station's Ninth Steam Generator Tube Inservice Inspection. This report includes the number and extent of tubes inspected, location and percent of wall-thickness penetration for each indication of an imperfection, and identification of tubes plugged. No commitments are contained in this document. Attachment I provides Special Report 99-002.

If you have any questions concerning this matter, please contact me at (316) 364-4034, or Mr. Michael J. Angus, at (316) 364-4077.

Very truly yours,



Richard A. Muench

RAM/rlr

Attachments: I - Special Report 99-002

cc: J. N. Donohew (NRC), w/a
W. D. Johnson (NRC), w/a
E. W. Merschoff (NRC), w/a
Senior Resident Inspector (NRC), w/a

**SPECIAL REPORT 99-002
NINTH STEAM GENERATOR TUBE INSPECTION RESULTS**

This report is being submitted pursuant to Technical Specification 4.4.5.5.b and 6.9.2 (Improved Technical Specifications 5.6.10.b) to report the results of the Ninth Steam Generator Tube Inservice Inspection. Additional information established by NEI 97-06, "Steam Generator Program Guidelines," is also included with this report.

Summary

The Ninth Steam Generator Tube Inservice Inspection was completed by Westinghouse Electric Corporation on April 24, 1999, during Refuel 10. Section 1 of this report describes the inspection programs, which were completed in Steam Generators "B" and "C" including: 100% bobbin coil except the U-bend portion of row 1 and row 2, 55% Rotating Pancake Coil (RPC) top of tube sheet on the hot leg side, 50% RPC row 1 and 2 U-bends, and a special interest program. The inspection results, which include the location and percent of wall-thickness penetration for each indication of an imperfection, are listed in Section 2 of this report.

Mechanical plugging was necessary due to indications of anti-vibration bar wear found during the inservice inspection. Of the 5605 tubes inspected in Steam Generator "B", a total of one tube was plugged due to indications that exceeded the 40 percent through wall Technical Specification acceptance criteria. Additionally, five of the 5615 tubes inspected in Steam Generator "C" were plugged due to indications that exceeded the 40 percent through wall Technical Specification acceptance criteria. Identification of tubes plugged, as well as the total number and percentage of tubes plugged to date for each steam generator, is included in Section 3 of this report.

The results of the Ninth Steam Generator Tube Inservice Inspection have been classified as Category C-2. Category C-2 is defined in Technical Specification 3.4.5 as inspection results that indicate "one or more tubes, but not more than 1 percent of the total tubes inspected are defective, or between 5 percent and 10 percent of the total tubes inspected are degraded tubes." Steam Generator "B" had 1.98 percent degraded tubes and 0.018 percent defective tubes. Steam Generator "C" had 1.28 percent degraded tubes and 0.089 percent defective tubes.

Technical Specification Required Reports

Section 1: Number and Extent of Tubes Inspected:

- A. Steam Generator "B": A total of 5605 tubes were inspected
- B. Steam Generator "C": A total of 5615 tubes were inspected

Test Extent	Steam Generator B	Steam Generator C
Bobbin Full Length	5240	5249
Bobbin Cold Leg Straight Length	365	366
Bobbin U-bend	122	122
Bobbin Hot Leg Straight Length	365	366
RPC Hot Leg Top of Tubesheet (+3 inches)	3080	3086
RPC Row 1 and 2 U-bends	122	122

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Section 2: Location and Percent of Wall Thickness Penetration for
Each Indication of an Imperfection.

Note: Multiple listings of the same tube are the result of more than one indication in that tube.

Key for Indication Lists

#H, #C	(# = number) of Support Plate(s) Hot Leg or Cold Leg Side
AV#	Anti-Vibration Bar (# = number)
TSH	Tube Sheet Hot Leg
TSC	Tube Sheet Cold Leg
FBH	Flow Baffle Hot Leg
FBC	Flow Baffle Cold Leg
P	Tube Plugged (following percent of Wall Thickness Loss)
Indication	Percent of Wall Thickness Loss
Inch (+,-) from Location	Distance Measured from Reference Point (AV Bar, Baffle Plate, Tube Support Plate, etc.)

All indications of degradation were sized using the bobbin coil technique. No additional degradation was identified during the RPC examinations.

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Tube Indications on Steam Generator "B"

<u>Row</u>	<u>Column</u>	<u>Indication (% of Wall Thickness)</u>	<u>Location</u>	<u>Inch (+/-) From Location</u>
27	8	25	AV1	0.00
27	9	9	AV1	0.00
27	9	11	AV5	0.00
28	9	11	AV5	0.00
29	9	14	AV2	0.00
30	9	17	AV2	-0.03
30	10	20	AV5	0.00
32	12	15	AV4	0.00
32	12	14	AV5	0.00
33	12	11	AV2	0.00
33	12	19	AV5	0.00
33	12	10	AV6	0.00
32	14	10	AV5	0.00
34	16	10	AV5	0.00
45	22	18	AV5	0.00
45	22	29	AV6	0.00
42	23	16	AV2	0.00
42	23	19	AV3	0.00
42	23	21	AV4	0.00
45	24	11	AV2	0.00
47	24	18	AV5	0.00
47	24	18	AV6	0.00
46	25	15	AV2	0.00
46	25	25	AV3	0.00
46	25	31	AV4	0.00
46	25	29	AV5	0.00
46	25	22	AV6	0.00
48	25	15	AV5	0.00
48	25	14	AV6	0.00
49	27	18	AV6	0.00
49	28	13	AV4	0.00
49	28	25	AV5	0.00
49	28	15	AV6	0.00
44	30	11	AV4	0.00
44	30	11	AV5	0.00
1	31	4	FBC	-0.23
30	31	14	AV2	0.00
49	31	17	AV2	+0.38
49	31	28	AV5	0.00
49	31	18	AV6	0.00
1	32	3	FBC	+0.26
1	32	6	FBC	-0.18

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Tube Indications on Steam Generator "B"

<u>Row</u>	<u>Column</u>	<u>Indication (% of Wall Thickness)</u>	<u>Location</u>	<u>Inch (+/-) From Location</u>
48	32	16	AV5	0.00
48	32	12	AV6	0.00
1	33	3	FBC	+0.12
1	33	5	FBC	-0.09
45	33	19	AV3	+0.38
49	33	17	AV2	0.00
49	33	23	AV3	0.00
49	33	20	AV4	0.00
49	33	32	AV5	0.00
49	33	17	AV6	0.00
44	34	17	AV2	0.00
49	34	14	AV3	0.00
36	35	12	AV2	0.00
36	35	10	AV3	0.00
36	35	15	AV4	0.00
53	35	15	AV2	0.00
53	35	23	AV4	0.00
53	35	31	AV5	0.00
53	35	18	AV6	0.00
36	36	14	AV3	0.00
42	36	18	AV2	0.00
42	36	18	AV4	0.00
49	36	15	AV3	0.00
49	36	25	AV4	0.00
49	36	15	AV5	0.00
49	36	13	AV6	+0.03
36	37	12	AV4	+0.12
49	37	20	AV2	0.00
49	37	16	AV3	0.00
49	37	22	AV4	0.00
49	37	21	AV5	0.00
49	37	17	AV6	0.00
50	37	32	AV4	0.00
50	37	26	AV5	0.00
54	37	15	AV3	0.00
54	37	17	AV5	0.00
36	38	14	AV2	0.00
47	38	22	AV3	0.00
48	38	21	AV2	0.00
48	38	26	AV3	0.00
48	38	24	AV4	0.00
48	38	35	AV5	0.00

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Tube Indications on Steam Generator "B"

<u>Row</u>	<u>Column</u>	<u>Indication (% of Wall Thickness)</u>	<u>Location</u>	<u>Inch (+/-) From Location</u>
50	38	17	AV3	0.00
50	38	20	AV4	0.00
50	38	19	AV5	0.00
52	38	12	AV2	0.00
52	38	12	AV3	0.00
52	38	20	AV4	0.00
52	38	17	AV5	0.00
36	39	27	AV1	0.00
39	39	12	AV2	0.00
41	39	12	AV2	0.00
42	39	12	AV2	0.00
42	39	10	AV3	0.00
42	39	11	AV4	0.00
45	39	11	AV2	0.00
50	39	22	AV2	0.00
50	39	28	AV3	0.00
50	39	26	AV4	0.00
50	39	22	AV5	0.00
50	39	14	AV6	0.00
36	40	12	AV1	0.00
42	40	15	AV2	0.00
42	40	19	AV3	0.00
42	40	12	AV6	0.00
47	40	11	AV2	0.00
54	40	10	AV2	0.00
55	40	12	AV4	0.00
41	41	16	AV3	0.00
42	41	10	AV3	0.00
42	41	14	AV5	0.00
42	41	12	AV6	0.00
39	42	15	AV4	0.00
37	43	9	AV2	0.00
37	43	15	AV3	0.00
44	43	12	AV3	0.00
46	43	13	AV6	0.00
47	43	10	AV2	0.00
56	43	16	AV5	0.00
44	45	12	AV3	0.00
44	45	11	AV4	0.00
47	45	10	AV1	0.00
47	45	11	AV2	0.00
47	45	10	AV4	0.00

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Tube Indications on Steam Generator "B"

<u>Row</u>	<u>Column</u>	<u>Indication</u> <u>(% of Wall Thickness)</u>	<u>Location</u>	<u>Inch (+/-)</u> <u>From</u> <u>Location</u>
48	45	31	AV4	0.00
48	45	21	AV5	0.00
48	45	13	AV6	0.00
49	45	28	AV2	0.00
49	45	13	AV3	0.00
49	45	24	AV4	0.00
49	45	27	AV5	0.00
49	45	22	AV6	0.00
52	45	12	AV3	0.00
52	45	13	AV5	+0.23
53	45	12	AV2	0.00
53	45	13	AV3	0.00
53	45	15	AV4	0.00
53	45	27	AV5	0.00
53	45	14	AV6	0.00
44	46	21	AV1	0.00
44	46	15	AV2	0.00
44	46	19	AV3	0.00
44	46	24	AV4	0.00
44	46	21	AV5	0.00
53	46	16	AV6	0.00
30	47	10	AV2	0.00
41	47	11	AV2	0.00
42	47	16	AV3	0.00
42	47	17	AV4	0.00
42	47	13	AV6	0.00
44	47	13	AV2	0.00
46	47	15	AV6	0.00
47	47	17	AV2	0.00
47	47	10	AV5	0.00
48	47	13	AV2	0.00
50	47	13	AV1	0.00
50	47	37	AV2	0.00
50	47	31	AV3	0.00
50	47	19	AV4	0.00
50	47	10	AV5	0.00
50	47	14	AV6	0.00
53	47	17	AV2	0.00
53	47	11	AV3	0.00
56	47	20	AV4	0.00
56	47	16	AV5	0.00
56	47	11	AV6	0.00

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Tube Indications on Steam Generator "B"

<u>Row</u>	<u>Column</u>	<u>Indication</u> <u>(% of Wall Thickness)</u>	<u>Location</u>	<u>Inch (+/-)</u> <u>From</u> <u>Location</u>
58	47	11	AV5	0.00
34	48	14	AV6	0.00
48	48	22	AV3	0.00
48	48	28	AV4	0.00
48	48	18	AV5	0.00
48	48	15	AV6	0.00
50	48	20	AV2	0.00
50	48	15	AV3	0.00
50	48	22	AV5	0.00
30	49	12	AV1	0.00
30	49	19	AV2	0.00
30	49	25	AV5	0.00
30	49	16	AV6	0.00
39	49	15	AV4	0.00
44	49	10	AV2	0.00
44	49	14	AV3	0.00
33	50	15	AV4	0.00
44	50	16	AV2	+0.23
44	50	15	AV3	0.00
44	50	14	AV4	0.00
45	50	20	AV4	0.00
47	50	20	AV2	0.00
47	50	27	AV3	0.00
47	50	16	AV5	0.00
53	50	20	AV1	0.00
53	50	21	AV2	0.00
53	50	28	AV3	0.00
53	50	24	AV4	0.00
53	50	28	AV5	0.00
55	50	17	AV5	0.00
44	51	13	AV2	0.00
44	51	19	AV3	0.00
46	51	17	AV2	0.00
50	51	13	AV2	0.00
50	51	15	AV3	0.00
50	51	28	AV4	0.00
50	51	34	AV5	0.00
25	52	18	AV5	0.00
25	52	21	AV6	0.00
35	52	14	AV2	0.00
35	52	13	AV4	0.00
40	52	17	AV4	0.00

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Tube Indications on Steam Generator "B"

<u>Row</u>	<u>Column</u>	<u>Indication</u> <u>(% of Wall Thickness)</u>	<u>Location</u>	<u>Inch (+/-)</u> <u>From</u> <u>Location</u>
40	52	11	AV5	0.00
45	52	20	AV1	0.00
45	52	38	AV2	0.00
45	52	27	AV4	0.00
50	52	15	AV1	0.00
50	52	19	AV2	0.00
37	53	14	AV4	+0.03
44	53	24	AV2	0.00
44	53	17	AV3	0.00
45	53	13	AV2	0.00
45	53	22	AV3	0.00
46	53	27	AV3	0.00
46	53	12	AV6	0.00
47	53	13	AV1	0.00
47	53	43P	AV3	0.00
47	53	24	AV4	0.00
47	53	13	AV5	0.00
49	53	18	AV4	0.00
49	53	26	AV5	0.00
42	54	22	AV1	0.00
42	54	22	AV2	0.00
42	54	18	AV3	0.00
42	54	17	AV4	0.00
42	54	30	AV5	0.00
42	54	19	AV6	0.00
45	54	17	AV2	0.00
45	54	28	AV3	0.00
45	54	24	AV4	0.00
46	54	19	AV4	0.00
47	54	21	AV1	0.00
47	54	18	AV2	0.00
47	54	16	AV3	0.00
47	54	16	AV5	0.00
50	54	20	AV3	0.00
50	54	20	AV4	0.00
50	54	19	AV5	0.00
51	54	21	AV4	0.00
51	54	15	AV5	0.00
40	55	14	AV4	0.00
43	55	23	AV2	0.00
43	55	21	AV3	0.00
43	55	26	AV4	0.00

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Tube Indications on Steam Generator "B"

<u>Row</u>	<u>Column</u>	<u>Indication</u> <u>(% of Wall Thickness)</u>	<u>Location</u>	<u>Inch (+/-)</u> <u>From</u> <u>Location</u>
45	55	11	AV2	0.00
46	55	11	AV2	0.00
47	55	13	AV3	0.00
51	55	17	AV5	+0.09
51	55	13	AV6	-0.20
32	56	14	AV2	-0.06
37	56	16	AV2	0.00
37	56	14	AV3	0.00
37	56	10	AV4	0.00
46	56	14	AV4	0.00
46	56	17	AV5	0.00
54	56	25	AV1	0.00
54	56	32	AV2	0.00
54	56	27	AV3	0.00
54	56	21	AV4	0.00
54	56	29	AV5	0.00
54	56	19	AV6	0.00
40	57	12	AV2	0.00
40	57	10	AV3	0.00
48	57	21	AV3	0.00
48	57	30	AV4	0.00
48	57	15	AV5	0.00
48	57	16	AV6	0.00
52	57	14	AV2	0.00
52	57	10	AV3	0.00
53	57	20	AV2	0.00
53	57	25	AV3	-0.03
36	58	22	AV2	+0.29
36	58	21	AV3	+0.20
36	58	15	AV4	+0.15
37	58	16	AV4	0.00
41	58	21	AV3	0.00
43	58	14	AV1	0.00
43	58	14	AV2	0.00
43	58	22	AV3	0.00
43	58	24	AV4	0.00
44	58	23	AV2	0.00
44	58	17	AV5	0.00
46	58	16	AV3	0.00
47	58	15	AV1	0.00
47	58	21	AV2	0.00
53	58	26	AV2	0.00

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Tube Indications on Steam Generator "B"

<u>Row</u>	<u>Column</u>	<u>Indication (% of Wall Thickness)</u>	<u>Location</u>	<u>Inch (+/-) From Location</u>
53	58	31	AV3	0.00
53	58	34	AV4	0.00
53	58	37	AV5	0.00
53	58	26	AV6	0.00
59	58	12	AV6	0.00
40	59	13	AV2	0.00
47	59	14	AV2	0.00
47	59	22	AV4	0.00
48	59	17	AV3	0.00
50	59	15	AV1	0.00
50	59	29	AV2	0.00
50	59	18	AV3	0.00
50	59	13	AV4	0.00
50	59	21	AV5	0.00
50	59	12	AV6	0.00
51	59	16	AV6	0.00
59	59	12	AV1	-0.06
40	60	18	AV2	0.00
40	60	23	AV3	0.00
42	60	13	AV2	0.00
44	60	18	AV3	0.00
46	60	27	AV5	0.00
46	60	17	AV6	0.00
47	60	23	AV3	0.00
48	60	29	AV4	0.00
48	60	33	AV5	0.00
50	60	13	AV2	0.00
52	60	18	AV5	0.00
42	61	10	AV3	0.00
46	61	13	AV1	0.00
46	61	22	AV3	0.00
46	61	27	AV4	0.00
46	61	17	AV6	0.00
47	61	14	AV2	0.00
47	61	12	AV4	0.00
48	61	21	AV4	0.00
48	61	26	AV5	0.00
50	61	15	AV2	0.00
50	61	22	AV3	0.00
50	61	15	AV5	0.00
52	61	12	AV2	-0.21
56	61	16	AV2	0.00

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Tube Indications on Steam Generator "B"

<u>Row</u>	<u>Column</u>	<u>Indication</u> <u>(% of Wall Thickness)</u>	<u>Location</u>	<u>Inch (+/-)</u> <u>From</u> <u>Location</u>
56	61	31	AV4	0.00
56	61	21	AV5	0.00
39	62	18	AV4	0.00
40	62	20	AV2	0.00
40	62	23	AV5	0.00
41	62	21	AV2	0.00
41	62	13	AV3	0.00
42	62	31	AV5	0.00
42	62	15	AV6	0.00
43	62	21	AV5	0.00
46	62	17	AV2	0.00
46	62	30	AV3	0.00
46	62	12	AV4	0.00
46	62	18	AV5	0.00
46	62	28	AV6	0.00
47	62	18	AV2	0.00
48	62	19	AV2	0.00
49	62	25	AV2	0.00
53	62	16	AV3	0.00
53	62	21	AV4	0.00
53	62	27	AV5	0.00
35	63	15	AV3	0.00
37	63	27	AV4	0.00
41	63	14	AV5	0.00
45	63	13	AV2	0.00
45	63	14	AV3	0.00
45	63	13	AV4	0.00
45	63	23	AV6	0.00
46	63	11	AV3	0.00
46	63	15	AV5	0.00
47	63	14	AV5	+0.06
48	63	15	AV3	0.00
48	63	11	AV5	0.00
49	63	17	AV3	0.00
53	63	16	AV2	0.00
53	63	14	AV3	0.00
53	63	11	AV4	-0.03
37	64	13	AV4	0.00
37	64	23	AV5	0.00
37	64	12	AV6	0.00
41	64	17	AV5	0.00
41	64	13	AV6	0.00

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Tube Indications on Steam Generator "B"

<u>Row</u>	<u>Column</u>	<u>Indication</u> <u>(% of Wall Thickness)</u>	<u>Location</u>	<u>Inch (+/-)</u> <u>From</u> <u>Location</u>
42	64	17	AV3	0.00
43	64	25	AV4	0.00
44	64	16	AV5	0.00
44	64	14	AV6	0.00
46	64	14	AV1	0.00
46	64	13	AV2	0.00
46	64	17	AV3	0.00
47	64	15	AV2	0.00
47	64	17	AV3	0.00
48	64	19	AV4	0.00
51	64	15	AV3	0.00
37	65	13	AV2	0.00
37	65	20	AV4	0.00
42	65	11	AV2	0.00
44	65	12	AV3	0.00
44	65	35	AV4	0.00
44	65	11	AV6	0.00
50	65	33	AV2	0.00
50	65	17	AV3	0.00
50	65	11	AV5	0.00
50	65	13	AV6	0.00
51	65	10	AV2	0.00
53	65	21	AV2	0.00
53	65	9	AV4	0.00
41	66	17	AV2	-0.26
46	66	16	AV3	0.00
47	66	19	AV2	0.00
47	66	20	AV3	0.00
47	66	24	AV4	0.00
47	66	18	AV5	0.00
44	67	14	AV4	0.00
44	67	10	AV5	0.00
42	68	13	AV6	0.00
45	68	20	AV5	0.00
50	68	17	AV2	0.00
50	68	19	AV3	0.00
42	69	10	AV3	0.00
45	69	14	AV4	0.00
45	69	17	AV5	0.00
45	69	10	AV6	0.00
50	69	20	AV3	0.00
54	70	17	AV2	0.00

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NINTH STEAM GENERATOR TUBE INSPECTION RESULTS

Tube Indications on Steam Generator "B"

<u>Row</u>	<u>Column</u>	<u>Indication</u> <u>(% of Wall Thickness)</u>	<u>Location</u>	<u>Inch (+/-)</u> <u>From</u> <u>Location</u>
36	71	16	AV4	0.00
41	71	14	AV2	0.00
41	71	12	AV3	0.00
49	71	15	AV2	0.00
49	71	21	AV3	0.00
37	72	14	AV3	0.00
40	72	23	AV2	0.00
40	72	23	AV5	0.00
44	72	19	AV5	0.00
50	72	14	AV2	0.00
50	72	15	AV6	0.00
40	73	14	AV5	0.00
44	73	13	AV2	0.00
44	73	15	AV4	0.00
44	73	15	AV5	0.00
45	73	15	AV5	0.00
49	73	15	AV3	0.00
49	73	16	AV4	0.00
49	73	15	AV5	0.00
37	74	15	AV3	0.00
37	74	13	AV6	0.00
42	74	17	AV2	0.00
44	74	15	AV2	0.00
44	74	34	AV4	+0.03
45	74	20	AV3	0.00
45	74	25	AV4	0.00
45	74	29	AV5	0.00
45	74	21	AV6	0.00
50	74	27	AV2	0.00
50	74	16	AV5	0.00
51	74	19	AV5	0.00
55	74	20	AV4	0.00
55	74	14	AV5	0.00
55	74	16	AV6	0.00
46	75	15	AV2	0.00
46	75	14	AV3	0.00
50	75	14	AV4	0.00
51	75	15	AV2	0.00
44	76	17	AV4	0.00
44	77	14	AV2	0.00
44	77	12	AV3	0.00
48	77	13	AV4	0.00

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NINTH STEAM GENERATOR TUBE INSPECTION RESULTS

Tube Indications on Steam Generator "B"

<u>Row</u>	<u>Column</u>	<u>Indication</u> <u>(% of Wall Thickness)</u>	<u>Location</u>	<u>Inch (+/-)</u> <u>From</u> <u>Location</u>
47	78	17	AV4	0.00
44	79	21	AV2	0.00
44	79	21	AV3	0.00
44	79	20	AV4	0.00
44	79	32	AV5	0.00
44	79	27	AV6	0.00
47	79	17	AV3	0.00
47	79	17	AV4	0.00
47	79	21	AV5	0.00
47	79	18	AV6	0.00
50	79	16	AV5	0.00
45	80	12	AV2	0.00
45	80	16	AV3	0.00
45	80	16	AV5	0.00
47	80	27	AV4	0.00
47	80	14	AV5	+0.03
47	80	15	AV6	0.00
35	81	16	AV1	0.00
36	81	17	AV4	0.00
36	81	22	AV5	0.00
40	81	30	AV2	0.00
40	81	27	AV3	0.00
40	81	19	AV5	0.00
44	81	18	AV2	0.00
44	81	16	AV3	0.00
47	81	12	AV2	0.00
47	81	16	AV3	0.00
47	81	23	AV4	0.00
47	82	16	AV4	0.00
48	83	13	AV2	0.00
47	84	15	AV4	0.00
45	85	14	AV5	0.00
51	85	16	AV3	0.00
51	85	26	AV4	0.00
51	85	19	AV5	0.00
51	85	11	AV6	0.00
37	86	18	AV4	0.00
44	86	17	AV3	0.00
44	86	18	AV4	0.00
50	86	16	AV3	0.00
50	86	15	AV4	0.00
50	86	17	AV5	0.00

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NINTH STEAM GENERATOR TUBE INSPECTION RESULTS

Tube Indications on Steam Generator "B"

<u>Row</u>	<u>Column</u>	<u>Indication</u> <u>(% of Wall Thickness)</u>	<u>Location</u>	<u>Inch (+/-)</u> <u>From</u> <u>Location</u>
44	87	12	AV4	0.00
44	87	17	AV5	0.00
54	87	15	AV6	0.00
42	88	15	AV3	0.00
44	88	15	AV5	0.00
50	88	15	AV3	0.00
50	88	17	AV5	0.00
45	89	15	AV4	0.00
52	89	13	AV5	0.00
23	90	19	AV6	0.00
45	90	23	AV3	0.00
50	90	16	AV3	0.00
50	90	22	AV4	0.00
50	90	17	AV5	0.00
53	90	18	AV6	0.00
47	91	13	AV4	0.00
47	91	15	AV5	0.00
50	91	14	AV5	0.00
50	91	13	AV6	0.00
45	92	17	AV5	0.00
45	92	16	AV6	0.00
44	93	14	AV5	0.00
44	94	16	AV5	0.00
46	94	23	AV3	0.00
46	94	19	AV4	0.00
50	94	11	AV2	0.00
42	95	11	AV4	0.00
46	95	13	AV2	0.00
46	95	14	AV3	0.00
46	95	13	AV4	0.00
46	95	15	AV5	0.00
48	95	18	AV6	0.00
49	95	15	AV6	0.00
38	96	13	AV6	0.00
45	96	15	AV3	0.00
45	96	17	AV4	0.00
46	96	10	AV5	-0.03
47	96	15	AV3	0.00
47	96	26	AV4	0.00
47	96	23	AV5	0.00
47	96	14	AV6	-0.06
48	96	17	AV6	0.00

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NINTH STEAM GENERATOR TUBE INSPECTION RESULTS**

Tube Indications on Steam Generator "B"

<u>Row</u>	<u>Column</u>	<u>Indication (% of Wall Thickness)</u>	<u>Location</u>	<u>Inch (+/-) From Location</u>
49	96	13	AV4	0.00
49	96	21	AV6	0.00
47	97	19	AV4	0.00
47	97	32	AV5	0.00
47	97	19	AV6	0.00
48	97	22	AV4	0.00
48	97	17	AV6	0.00
45	98	13	AV3	0.00
45	98	19	AV5	0.00
45	98	17	AV6	0.00
46	98	17	AV4	0.00
46	98	30	AV5	0.00
48	98	30	AV5	0.00
48	98	28	AV6	0.00
43	99	14	AV3	0.00
43	99	14	AV4	0.00
45	99	17	AV5	0.00
46	99	14	AV4	0.00
46	99	16	AV6	0.00
43	100	12	AV3	0.00
43	100	25	AV5	0.00
43	100	14	AV6	0.00
44	100	19	AV5	0.00
44	100	35	AV6	0.00
45	100	13	AV2	0.00
45	100	15	AV5	0.00
45	100	11	AV6	0.00
41	101	16	AV6	0.00
42	101	20	AV5	0.00
43	101	20	AV6	0.00
44	101	17	AV3	0.00
44	101	25	AV4	0.00
44	101	29	AV5	0.00
41	102	14	AV4	0.00
43	102	15	AV5	0.00
40	103	17	AV5	0.00
41	103	14	AV6	+0.06
42	103	21	AV5	0.00
43	103	20	AV5	0.00
40	104	17	AV6	0.00
41	104	20	AV5	0.00
41	104	30	AV6	0.00

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NINTH STEAM GENERATOR TUBE INSPECTION RESULTS

Tube Indications on Steam Generator "B"

<u>Row</u>	<u>Column</u>	<u>Indication</u> <u>(% of Wall Thickness)</u>	<u>Location</u>	<u>Inch (+/-)</u> <u>From</u> <u>Location</u>
37	105	12	AV5	0.00
38	105	19	AV3	0.00
38	105	19	AV6	0.00
39	105	12	AV5	0.00
39	105	18	AV6	0.00
41	105	15	AV6	0.00
38	107	17	AV5	0.00
36	109	17	AV4	-0.03
36	110	18	AV6	0.00
33	111	14	AV5	-0.03
33	111	13	AV6	0.00
28	113	16	AV5	+0.18

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NINTH STEAM GENERATOR TUBE INSPECTION RESULTS

Tube Indications on Steam Generator "C"

<u>Row</u>	<u>Column</u>	<u>Indication (% of Wall Thickness)</u>	<u>Location</u>	<u>Inch (+/-) From Location</u>
16	5	3	TSH	+0.43
3	13	4	TSH	+0.43
33	14	21	AV4	0.00
34	14	20	AV1	+0.19
34	14	20	AV3	0.00
34	14	23	AV4	+0.03
35	14	27	AV3	+0.08
35	14	24	AV4	0.00
35	15	29	AV2	0.00
35	15	16	AV4	-0.20
34	16	22	AV4	0.00
35	16	17	AV2	0.00
35	16	18	AV4	0.00
35	16	16	AV6	0.00
38	20	20	AV2	0.00
38	20	22	AV4	0.00
36	21	15	AV3	0.00
39	21	18	AV3	-0.11
46	25	11	AV2	-0.06
47	25	17	AV2	0.00
48	25	27	AV2	0.00
48	25	36	AV4	0.00
48	25	25	AV5	0.00
47	26	15	AV2	0.00
36	27	16	AV4	0.00
39	27	21	AV4	0.00
39	27	22	AV5	0.00
38	28	16	AV4	0.00
38	28	16	AV5	0.00
38	31	14	AV3	+0.14
1	32	6	FBC	-0.29
44	33	19	AV4	0.00
44	33	19	AV5	0.00
40	34	13	AV3	0.00
40	34	16	AV4	0.00
40	34	34	AV5	-0.22
40	34	12	AV6	0.00
38	35	22	AV3	0.00
38	35	17	AV4	0.00
38	35	24	AV5	0.00

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NINTH STEAM GENERATOR TUBE INSPECTION RESULTS**

Tube Indications on Steam Generator "C"

<u>Row</u>	<u>Column</u>	<u>Indication (% of Wall Thickness)</u>	<u>Location</u>	<u>Inch (+/-) From Location</u>
52	35	13	AV2	+0.08
54	35	12	AV4	0.00
28	36	13	AV5	0.00
37	37	17	AV3	0.00
37	37	17	AV4	0.00
43	37	12	TSH	+0.53
51	37	31	AV2	0.00
51	37	18	AV3	0.00
51	37	21	AV4	0.00
51	37	14	AV5	0.00
51	37	20	AV6	0.00
28	39	24	AV1	0.00
28	39	19	AV2	0.00
28	39	13	AV5	0.00
28	39	21	AV6	0.00
45	39	17	AV3	0.00
38	40	21	AV1	0.00
38	40	12	AV2	-0.30
38	40	19	AV3	0.00
38	40	17	AV4	0.00
38	40	15	AV5	0.00
42	40	20	AV1	0.00
42	40	14	AV2	0.00
42	40	24	AV3	0.00
42	40	24	AV4	0.00
42	40	15	AV5	0.00
51	40	15	AV3	0.00
51	40	26	AV4	0.00
51	40	14	AV5	0.00
51	40	16	AV6	-0.06
28	41	16	AV2	0.00
40	41	14	AV5	0.00
53	41	15	AV6	-0.11
27	44	22	AV2	0.00
27	44	19	AV5	0.00
31	44	19	AV2	0.00
31	44	19	AV5	0.00
31	44	18	AV6	0.00
39	45	27	AV4	0.00
39	45	23	AV5	0.00

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NINTH STEAM GENERATOR TUBE INSPECTION RESULTS

Tube Indications on Steam Generator "C"

<u>Row</u>	<u>Column</u>	<u>Indication (% of Wall Thickness)</u>	<u>Location</u>	<u>Inch (+/-) From Location</u>
39	45	13	AV6	0.00
49	46	17	AV1	0.00
58	46	17	AV4	0.00
28	47	13	AV5	0.00
31	48	11	AV1	+0.13
31	48	24	AV2	0.00
31	48	37	AV5	0.00
31	48	30	AV6	0.00
35	48	15	AV2	0.00
45	48	17	AV4	0.00
45	48	22	AV5	0.00
45	48	16	AV6	0.00
33	49	17	AV2	0.00
27	50	20	AV5	0.00
39	50	12	AV3	0.00
39	50	15	AV4	0.00
39	50	16	AV5	0.00
27	51	10	AV2	+0.27
56	51	9	TSH	+0.23
29	52	14	AV2	0.00
29	52	16	AV5	-0.03
19	54	17	AV1	0.00
19	54	16	AV6	-0.11
38	54	12	AV1	-0.06
38	54	24	AV2	0.00
38	54	28	AV3	0.00
38	54	27	AV4	0.00
38	54	20	AV5	0.00
28	55	16	AV2	0.00
29	55	19	AV2	0.00
31	55	12	AV2	0.00
45	55	18	AV2	0.00
45	55	19	AV3	0.00
45	55	19	AV4	0.00
45	55	20	AV5	0.00
26	57	14	AV2	0.00
26	57	19	AV5	0.00
27	57	17	AV2	0.00
29	57	17	AV2	0.00
44	57	14	AV4	-0.14

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Tube Indications on Steam Generator "C"

<u>Row</u>	<u>Column</u>	<u>Indication (% of Wall Thickness)</u>	<u>Location</u>	<u>Inch (+/-) From Location</u>
47	57	18	AV2	0.00
27	58	13	AV2	+0.08
37	58	18	AV2	0.00
37	58	19	AV5	0.00
46	58	5	TSH	+0.40
30	59	20	AV2	0.00
30	59	19	AV5	0.00
30	59	12	AV6	-0.11
44	59	15	AV2	0.00
44	59	15	AV3	0.00
44	59	13	AV6	-0.22
34	60	20	AV2	0.00
34	60	13	AV3	-0.30
34	60	11	AV5	-0.11
49	60	17	AV6	0.00
50	60	11	AV1	0.00
50	60	17	AV2	0.00
52	60	16	AV2	0.00
49	61	28	AV2	0.00
49	61	37	AV3	-0.20
49	61	25	AV4	0.00
30	62	20	AV2	0.00
50	62	16	AV3	0.00
50	62	22	AV4	0.00
50	62	22	AV5	0.00
50	63	34	AV2	0.00
50	63	28	AV3	0.00
50	63	27	AV4	0.00
50	63	17	AV5	0.00
45	64	22	AV2	0.00
45	64	22	AV3	0.00
50	64	28	AV2	0.00
50	64	29	AV3	0.00
50	64	13	AV4	0.00
35	65	12	AV2	0.00
45	65	17	AV1	0.00
45	65	30	AV2	0.00
45	65	30	AV3	0.00
45	65	25	AV4	0.00
50	66	22	AV2	0.00

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NINTH STEAM GENERATOR TUBE INSPECTION RESULTS**

Tube Indications on Steam Generator "C"

<u>Row</u>	<u>Column</u>	<u>Indication (% of Wall Thickness)</u>	<u>Location</u>	<u>Inch (+/-) From Location</u>
45	67	13	AV4	0.00
19	68	19	AV1	0.00
44	68	23	AV1	0.00
44	68	22	AV2	+0.03
44	68	20	AV3	+0.09
44	68	21	AV4	0.00
44	68	15	AV5	0.00
44	68	26	AV6	0.00
50	68	22	AV1	0.00
50	68	30	AV2	0.00
50	68	21	AV3	0.00
50	68	16	AV4	0.00
50	68	14	AV5	0.00
50	68	23	AV6	0.00
52	68	14	7H	+31.88
52	68	30	AV2	0.00
52	68	39	AV3	0.00
52	68	31	AV4	0.00
52	68	24	AV5	0.00
52	68	41P	AV6	0.00
45	69	21	AV1	0.00
45	69	31	AV2	0.00
45	69	35	AV4	0.00
45	69	21	AV5	0.00
50	69	15	AV2	-0.22
45	71	18	AV3	0.00
49	72	30	AV2	0.00
49	72	35	AV3	0.00
49	72	30	AV4	0.00
49	72	45P	AV5	0.00
33	73	14	AV2	0.00
29	75	17	AV2	0.00
43	75	24	AV2	0.00
43	75	16	AV3	0.00
43	75	21	AV4	0.00
43	75	27	AV6	0.00
49	75	18	AV4	0.00
51	76	19	AV3	0.00
35	77	25	AV2	0.00
35	77	11	AV4	0.00

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NINTH STEAM GENERATOR TUBE INSPECTION RESULTS**

Tube Indications on Steam Generator "C"

<u>Row</u>	<u>Column</u>	<u>Indication (% of Wall Thickness)</u>	<u>Location</u>	<u>Inch (+/-) From Location</u>
35	77	20	AV6	0.00
39	77	20	AV5	0.00
39	77	15	AV6	0.00
45	77	24	AV2	0.00
45	77	31	AV3	0.00
45	77	21	AV4	0.00
35	78	20	AV2	0.00
35	78	30	AV3	0.00
35	78	31	AV4	0.00
35	78	20	AV5	0.00
33	80	15	AV6	0.00
49	80	19	AV1	0.00
49	80	36	AV2	0.00
49	80	41P	AV3	0.00
49	80	32	AV4	0.00
49	80	38	AV5	0.00
49	80	22	AV6	0.00
20	81	21	AV1	-0.14
28	81	19	AV5	0.00
29	81	18	AV2	0.00
36	81	21	AV2	0.00
36	81	18	AV3	0.00
36	81	21	AV4	0.00
36	81	18	AV6	0.00
16	82	13	AV1	0.00
52	83	17	AV6	-0.40
40	84	23	AV2	0.00
40	84	21	AV4	0.00
45	84	35	AV2	0.00
45	84	57P	AV3	0.00
45	84	35	AV4	0.00
45	84	24	AV5	0.00
45	84	21	AV6	0.00
46	84	15	AV5	0.00
36	85	18	AV1	0.00
36	85	24	AV2	0.00
36	85	14	AV3	0.00
36	85	32	AV4	0.00
38	85	22	AV5	0.00
35	86	21	AV2	0.00

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NINTH STEAM GENERATOR TUBE INSPECTION RESULTS**

Tube Indications on Steam Generator "C"

<u>Row</u>	<u>Column</u>	<u>Indication (% of Wall Thickness)</u>	<u>Location</u>	<u>Inch (+/-) From Location</u>
35	86	20	AV5	0.00
40	86	37	AV2	0.00
40	86	24	AV4	0.00
40	86	19	AV5	0.00
44	86	15	AV4	0.00
30	87	14	AV1	0.00
30	87	12	AV2	-0.06
35	87	13	AV2	-0.03
39	88	31	AV6	0.00
1	91	5	FBC	-0.32
35	91	20	AV3	0.00
36	91	16	AV2	0.00
45	91	17	AV3	+0.11
45	91	19	AV4	+0.05
45	91	26	AV6	-0.22
47	91	19	AV6	-0.08
1	92	14	FBC	-0.24
30	92	28	AV2	0.00
30	92	25	AV5	0.00
30	92	23	AV6	0.00
35	92	20	AV2	0.00
38	92	26	AV3	0.00
38	92	18	AV6	0.00
39	92	16	AV3	0.00
39	92	18	AV5	0.00
39	92	19	AV6	0.00
1	93	8	FBC	-0.24
45	93	10	AV4	-0.11
36	94	11	AV3	0.00
39	94	15	AV4	0.00
39	94	12	AV5	0.00
48	94	13	AV3	0.00
48	94	10	AV4	+0.03
48	94	21	AV5	-0.17
48	94	13	AV6	-0.03
35	95	11	AV6	0.00
37	95	10	AV2	-0.03
38	95	10	AV3	0.00
43	95	41P	AV3	0.00
43	95	21	AV4	0.00

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NINTH STEAM GENERATOR TUBE INSPECTION RESULTS**

Tube Indications on Steam Generator "C"

<u>Row</u>	<u>Column</u>	<u>Indication (% of Wall Thickness)</u>	<u>Location</u>	<u>Inch (+/-) From Location</u>
43	95	40	AV5	0.00
44	96	9	AV2	0.00
44	96	21	AV3	0.00
44	96	18	AV4	0.00
44	96	16	AV5	0.00
48	96	10	AV5	0.00
39	97	12	AV3	0.00
39	97	11	AV6	0.00
44	97	19	AV2	0.00
44	97	17	AV3	0.00
44	97	18	AV4	0.00
44	97	15	AV5	0.00
48	98	12	AV3	0.00
48	98	16	AV6	0.00
39	99	11	AV4	0.00
40	99	15	AV4	0.00
40	99	25	AV5	0.00
40	99	16	AV6	0.00
45	99	12	AV6	0.00
35	100	20	AV2	0.00
36	100	18	AV2	0.00
36	100	15	AV6	0.00
39	100	15	AV4	0.00
39	101	11	AV4	0.00
40	101	24	AV3	0.00
40	101	23	AV4	0.00
40	101	21	AV5	0.00
41	101	7	TSH	+0.34
35	102	18	AV2	0.00
35	102	16	AV3	0.00
41	102	15	TSH	+0.46
42	102	7	TSH	+0.29
38	103	19	AV3	0.00
40	103	14	AV1	0.00
40	103	31	AV4	0.00
40	103	38	AV5	0.00
40	103	18	AV6	0.00
41	103	11	AV5	-0.14
30	105	13	AV5	0.00
35	106	15	AV4	0.00

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Tube Indications on Steam Generator "C"

<u>Row</u>	<u>Column</u>	<u>Indication (% of Wall Thickness)</u>	<u>Location</u>	<u>Inch (+/-) From Location</u>
40	106	15	AV6	0.00
32	107	17	AV2	0.00
32	107	22	AV6	0.00
38	107	20	AV2	0.00
38	107	29	AV3	0.00
38	107	25	AV4	0.00
38	107	21	AV5	0.00
38	107	21	AV6	0.00
39	107	13	AV6	0.00
33	108	16	AV4	0.00
35	108	15	AV2	0.00
35	108	15	AV6	0.00
36	108	16	AV1	0.00
36	108	34	AV3	0.00
36	108	37	AV4	0.00
36	108	18	AV5	0.00
36	108	23	AV6	0.00
37	108	21	AV5	0.00
34	109	15	AV3	0.00
34	109	20	AV4	0.00
34	109	18	AV5	0.00
35	109	15	AV3	0.00
35	109	28	AV4	0.00
35	109	29	AV5	0.00
33	110	15	AV1	0.00
33	110	14	AV5	0.00
36	110	12	AV3	0.00
36	110	11	AV4	0.00
36	110	11	AV5	0.00
28	113	20	AV5	0.00
28	114	20	AV2	0.00
28	114	15	AV5	0.00
28	114	15	AV6	0.00

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Section 3. Identification of Tubes Plugged

	Row	Column
A. Steam Generator "B":		
New pluggable indication	47	53
B. Steam Generator "C":		
New pluggable indication	52	68
	49	72
	49	80
	45	84
	43	95

Total number of Tubes Plugged in Each Steam Generator:

Steam Generator	Total Number of Tubes Plugged	Total Percentage Plugged
A	26	0.46%
B	22	0.39%
C	16	0.28%
D	51	0.91%

Summary of Tube Integrity Assessment

The inspection results confirm that the Wolf Creek Steam Generators currently meet all industry and regulatory structural and leakage integrity guidance.

The only operational degradation mechanisms observed during this inspection were tube wear at the anti-vibration bar (AVB) intersections and tube wear due to prior loose parts. No loose parts were detected at the location of the worn tubes.

A number of distorted plate signals were observed at the Flow Distribution Baffle plate. The locations of these signals are atypical with regard to any potential corrosion degradation. The prior inspection (1996) data for all of these signals were examined, and it was determined that there were no changes in the shape or size of these signals. In addition, all of the signals observed with the bobbin probe were inspected using the RPC probe. Seven signals were confirmed as wear indications. The seven confirmed signals were re-tested with the bobbin probe, set up using a baffle plate wear standard. Using this method, the largest indication was determined to be 4 percent through wall.

Based on data obtained during this inspection, and in accordance with the definition of an active damage mechanism from the Electric Power Research Institute (EPRI), "PWR Steam Generator Examination Guidelines," Revision 5, neither Steam Generator B nor C has an active AVB wear degradation mechanism. From the 1997 inspection (Refuel 9), Steam Generator A also does not have an active AVB wear degradation mechanism, however Steam Generator D does have such a mechanism.

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Satisfactory operation of Steam Generators B and C is expected through the end of Cycle 12, when they will be next inspected. Based on the results of this inspection, there is no data that would indicate unsatisfactory operation of Steam Generators A and D, through the end of Cycle 11 when they will be next inspected.