



Tennessee Valley Authority, Post Office Box 2000, Spring City, Tennessee 37381-2000

MAR 03 2000

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

Gentlemen:

In the Matter of  
Tennessee Valley Authority

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Docket No. 50-390

WATTS BAR NUCLEAR PLANT (WBN) UNIT 1 - STEAM GENERATOR TUBE  
INSPECTION REPORT

This letter provides the Steam Generator Tube Inspection Report in accordance with the requirements of Technical Specification 5.9.9. The enclosed report addresses the examinations performed during the Cycle 2 refueling outage for WBN Unit 1. Technical Specification 5.9.9 also requires the submittal of a report which identifies the tubes that were plugged based on the inspections performed during the Cycle 2 refueling outage. That report was previously submitted on April 7, 1999.

If you have any questions concerning this matter, please call me at (423) 365-1824.

Sincerely,

P. L. Pace  
Manager, Licensing and Industry Affairs

Enclosure  
cc: See page 2

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cc (Enclosure):

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**Enclosure**

**Watts Bar Nuclear Plant**

**Unit 1 Cycle 2 Refueling Outage**

**May 5, 1999**

**RESULTS OF STEAM GENERATOR TUBE INSERVICE INSPECTION  
(AS REQUIRED BY TECHNICAL SPECIFICATION SECTION 5.9.9)**

Table 1

**CLASSIFICATION OF INSPECTION RESULTS  
WATTS BAR NUCLEAR PLANT UNIT 1 CYCLE 2 SG INSPECTION  
PAGE 1 OF 2**

<u>Initial Eddy Current Exam</u>	<u>SG1</u>	<u>SG2</u>	<u>SG3</u>	<u>SG4</u>
Full Length Bobbin Coil	4667	4674	4672	4667
U-Bend Plus Point	137	137	137	137
Top of Tubesheet RPC	4667	4674	4672	4667
Dented TSP Plus Point	0	3	2	9
Freespan Ding Plus Point	16	22	30	40
Diagnostic Plus Point	25	27	37	19
<hr/>				
<u>Expansion</u>	<u>SG1</u>	<u>SG2</u>	<u>SG3</u>	<u>SG4</u>
Full Length Bobbin Coil	0	0	0	0
U-Bend Plus Point	0	0	0	0
Top of Tubesheet RPC	0	0	0	0
Dented TSP Plus Point	0	0	0	0
Freespan Ding Plus Point	0	0	0	0
<hr/>				
Total Exams Completed	9512	9537	9550	9539
Total Tubes Examined	4667	4674	4672	4667
<hr/>				
<u>Indications</u>	<u>SG1</u>	<u>SG2</u>	<u>SG3</u>	<u>SG4</u>
AVB Wear	3	4	2	13
PWSCC HTS Axial	0	1	0	0
Loose Parts Damage	11	1	0	1
<hr/>				
Total Indications	14	6	2	14
<hr/>				
<u>Plugging Status</u>	<u>SG1</u>	<u>SG2</u>	<u>SG3</u>	<u>SG4</u>
Previously Plugged Tubes	7	0	2	7
<hr/>				
<u>Plugged Current Outage by Damage Mechanism</u>				
AVB Wear	0	0	0	0
PWSCC HTS Axial	0	1	0	0
Loose Parts Damage	11	1	0	1
Plugged Preventively	2	5	0	0
<hr/>				
Total	20	7	2	8

**Table 1**

**CLASSIFICATION OF INSPECTION RESULTS  
WATTS BAR NUCLEAR PLANT UNIT 1 CYCLE 2 SG INSPECTION  
PAGE 2 OF 2**

<u>Classification of Inspection Results</u>	<u>SG1</u>	<u>SG2</u>	<u>SG3</u>	<u>SG4</u>
Full Length Bobbin Coil	C-2	C-2	C-1	C-2
U-Bend Plus Point	C-1	C-1	C-1	C-1
Top of Tubesheet RPC	C-1	C-2	C-1	C-1
Dented Plus Point	C-1	C-1	C-1	C-1
Freespan Ding Plus Point	C-1	C-1	C-1	C-1

Inspection Classification Category	Inspection Results
C-1	Less than 5% of the total tubes inspected are degraded tubes and none of the inspected tubes are defective.
C-2	One or more tubes, but not more than 1% of the total tubes inspected are defective, or between 5 and 10% of the total tubes inspected are degraded tubes.
C-3	More than 10% of the total tubes inspected are degraded tubes or more than 1% of the inspected tubes are defective.

Table 2

**Resolution of Defective Tubes and All  
Service-Induced Wall Loss Indications**

WBN Unit 1 Cycle 2

Date: 05-May-99

<u>SG</u>	<u>ROW</u>	<u>COL</u>	<u>IND</u>	<u>LOCATION</u>	<u>CHARACTERIZATION</u>	<u>RESOLUTION</u>
<b>Sample: 0</b>						
1	18	7	TBP	+0.00	OBSTRUCTED TUBE	PLUG
1	35	63	19	C05 +.67	LOOSE PARTS DAMAGE	PLUG
1	37	47	18	AV4 +.00	AVB WEAR	(1)
1	39	61	16	C05 +2.17	LOOSE PARTS DAMAGE	PLUG
1	41	61	7	C05 +2.50	LOOSE PARTS DAMAGE	PLUG
1	42	22	13	AV1 +.00	AVB WEAR	(1)
1	42	61	14	C05 +2.42	LOOSE PARTS DAMAGE	PLUG
1	42	81	20	AV1 +.00	AVB WEAR	(1)
1	44	61	16	C05 +.35	LOOSE PARTS DAMAGE	PLUG
1	46	61	21	C05 +.46	LOOSE PARTS DAMAGE	PLUG
1	47	61	25	C05 +.35	LOOSE PARTS DAMAGE	PLUG
1	47	63	31	C05 +4.96	LOOSE PARTS DAMAGE	PLUG
1	48	61	4	C05 +.38	PREVENTIVELY PLUGGED	PLUG
1	48	63	31	C05 +4.93	LOOSE PARTS DAMAGE	PLUG
1	48	64	28	C05 +6.24	LOOSE PARTS DAMAGE	PLUG
1	49	64	34	C05 +6.12	LOOSE PARTS DAMAGE	PLUG

(1) Retest Future Outage

Table 2

Resolution of Defective Tubes and All  
Service-Induced Wall Loss Indications

WBN Unit 1 Cycle 2

Date: 05-May-99

<u>SG</u>	<u>ROW</u>	<u>COL</u>	<u>IND</u>	<u>LOCATION</u>	<u>CHARACTERIZATION</u>	<u>RESOLUTION</u>
Sample: 0						
2	5	65	SAI	HTS-2.77	PWSCC HTS AXIAL	PLUG
2	8	11	TBP	+0.00	OBSTRUCTED TUBE	PLUG
2	18	56	15	AV3+.00	AVB WEAR	(1)
2	25	19	18	AV1+1.79	AVB WEAR	(1)
2	35	57	15	AV2+.00	AVB WEAR	(1)
2	45	25	54	H04+.69	LOOSE PARTS DAMAGE	PLUG
2	45	74	22	AV2+.00	AVB WEAR	(1)

(1) Retest Future Outage

**Table 2**

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Service-Induced Wall Loss Indications**

WBN Unit 1 Cycle 2

Date: 05-May-99

<u>SG</u>	<u>ROW</u>	<u>COL</u>	<u>IND</u>	<u>LOCATION</u>	<u>CHARACTERIZATION</u>	<u>RESOLUTION</u>
<b>Sample: 0</b>						
3	37	96	21	AV2 +.00	AVB WEAR	(1)
3	40	93	16	H08 +35.66	AVB WEAR	(1)

(1) Retest Future Outage



**Table 2**

**Resolution of Defective Tubes and All  
Service-Induced Wall Loss Indications**

WBN Unit 1 Cycle 2

Date: 05-May-99

<u>SG</u>	<u>ROW</u>	<u>COL</u>	<u>IND</u>	<u>LOCATION</u>	<u>CHARACTERIZATION</u>	<u>RESOLUTION</u>
<b>Sample: 0</b>						
4	14	3	SVI	H01 +.73	LOOSE PARTS DAMAGE	PLUG
4	23	85	23	AV3 +.00	AVB WEAR	(1)
4	28	37	12	AV4 +.00	AVB WEAR	(1)
4	32	34	16	AV4 +.00	AVB WEAR	(1)
4	32	86	24	AV4-.22	AVB WEAR	(1)
4	36	74	21	AV4 +.09	AVB WEAR	(1)
4	36	86	17	AV4 +.16	AVB WEAR	(1)
4	38	17	23	AV4-.06	AVB WEAR	(1)
4	40	81	20	AV3 +.09	AVB WEAR	(1)
4	41	31	23	AV2 +.00	AVB WEAR	(1)
4	41	31	20	AV4 +.00	AVB WEAR	(1)
4	42	49	21	AV2 +.08	AVB WEAR	(1)
4	42	49	27	AV3 +.00	AVB WEAR	(1)
4	42	49	18	AV4 +.08	AVB WEAR	(1)

(1) Retest Future Outage

### Table 3

#### Listing of Acronyms

<u>Acronym</u>	<u>Title</u>
AVB	Antivibration Bar
COL	Column
HTS	Hot Tubesheet
IND	Indication
PWSCC	Primary Water Stress Corrosion Cracking
RPC	Rotating Pancake Coil
TBP	To Be Plugged
TSP	Tube Support Plate
SAI	Single Axial Indication
SG	Steam Generator
SVI	Single Volumetric Indication