



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

JAN 26 2007

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555-0001

Gentlemen:

In the Matter of) Docket No. 50-390
Tennessee Valley Authority)

WATTS BAR NUCLEAR PLANT (WBN) UNIT 1 - FIRST REVISED NRC ORDER
EA-03-009 ESTABLISHING INTERIM INSPECTION REQUIREMENTS FOR
REACTOR PRESSURE VESSEL HEADS AT PRESSURIZED WATER REACTORS
(PWRs) - BARE METAL INSPECTION RESULTS

- References:
- 1) TVA letter to NRC dated December 10, 2003, "Watts Bar Nuclear Plant (WBN) Unit 1 - NRC Order EA-03-009 - Interim Inspection Requirements for Reactor Pressure Vessel Heads (TAC No. MB 7667) and Bulletin 2003-02 - Leakage from Reactor Vessel Lower Head Penetrations and Reactor Coolant Pressure Boundary Integrity (TAC No. MC 0576)"
 - 2) NRC letter to TVA dated February 20, 2004, "Issuance of First Revised Order (EA-03-009) Establishing Interim Inspection Requirements for Reactor Pressure Vessel Heads at Pressurized Water Reactors"
 - 3) TVA letter to NRC dated March 11, 2004, "Watts Bar Nuclear Plant (WBN) Unit 1 - Response to Issuance of First Revised NRC Order (EA-03-009) Establishing Interim Inspection Requirements for Reactor Pressure Vessel (RPV) Heads at Pressurized Water Reactors (PWRs)"

A101

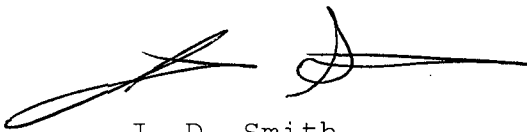
JAN 26 2007

This letter provides the WBN Unit 1 60-day response to the reporting requirements listed in Section IV, Paragraph E of the First Revised NRC Order EA-03-009 dated February 20, 2004. TVA consented to the First Revised Order for WBN in the Reference 3 letter. Enclosure 1 provides excerpts from the report entitled, "Watts Bar Unit 1, Cycle 07 Reactor Pressure Vessel Closure Head and Lower Head Remote Visual (VT-2) Examination Final Report - September 2006)" which documents the complete inspection of the reactor pressure vessel (RPV) closure head and lower head. The excerpts included in Enclosure 1 provide the details of the inspection results for the RPV closure head. This is the second bare metal visual inspection of the RPV closure head performed in accordance with NRC Order EA-03-009. The results of the first bare metal inspection of the RPV were provided in the Reference 1 letter. Section IV, Paragraph C(3) of the subject order for plants that fall within the low susceptibility category require a bare metal visual examination of 100 percent of the RPV head surface (including 360 degrees around each RPV head penetration nozzle) at least every third refueling outage or every 5 years.

The results of the WBN Unit 1 Cycle 7 outage inspection identified that no penetration indicated boron leakage in the area of the annulus associated with inside surface CRDM weld cracking. In addition, no boron was noted on the head surface with the origination point being from the penetrations. Each penetration was accessible and satisfactorily examined. Details of the closure head visual examination are provided in Enclosure 1.

There are no regulatory commitments associated with this submittal. If you have any questions concerning this matter, please call me at (423) 365-1824.

Sincerely,



J. D. Smith
Manager, Site Licensing
and Industry Affairs (Acting)

Enclosure

cc: See Page 2

JAN 26 2007

Enclosures

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ENCLOSURE 1

Excerpts from Report

"Watts Bar Unit 1, Cycle 07 Reactor Pressure Vessel Closure Head
and Lower Head Remote Visual (VT-2) Examination Final Report -
September 2006)"

ENCLOSURE 1

Excerpts from Report

"Watts Bar Unit 1, Cycle 07 Reactor Pressure Vessel Closure Head
and Lower Head Remote Visual (VT-2) Examination Final Report -
September 2006)"

WATTS BAR UNIT 1, CYCLE 07

REACTOR PRESSURE VESSEL

CLOSURE HEAD AND LOWER HEAD


REMOTE VISUAL (VT-2)

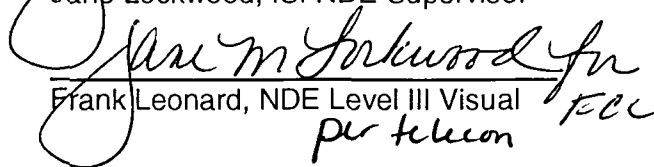
EXAMINATION

FINAL REPORT - SEPTEMBER 2006

Prepared for: Component Engineering

Prepared by: Inspection Services Organization


Jane Lockwood, ISI NDE Supervisor


Frank Leonard, NDE Level III Visual
per telecon FCC

9-22-06
Date

9-22-06
Date

Watts Bar Unit 1, Cycle 7 – RPV Closure Head REPORT
Remote Visual (VT-2) Penetration Examination Final Report

Section	Description
1.0	Examination Report
2.0	Exam Results: Sorted by Penetration I.D and Scan Paths
3.0	Photographs
4.0	Resolution Verification
5.0	Scan Path Map

**Watts Bar Unit 1, Cycle 7 – RPV Closure Head REPORT
Remote Visual (VT-2) Penetration Examination Final Report**

Visual Examination Report Summary

INTRODUCTION

During the Watts Bar Unit 1, Cycle 7 Refueling Outage, remote visual (VT) examinations were performed on the outside surface of the Reactor Pressure Vessel (RPV) Closure Head and penetrations. The examinations were performed from September 17 - 18, 2006 by Tennessee Valley Authority's (TVA's) Inspection Services Organization (ISO) and Vistas Corporation.

SUMMARY

The VT examinations were accomplished to address the integrity of the RPV closure head penetrations, including the Control Rod Drive mechanisms (CRD's), Upper Head Injection (UHI) and the Vent line. A total of 83 penetrations were examined, including (78) CRD's, (4) UHI's and (1) Vent line. The examinations were performed to address NRC Order EA-03-009, "Interim Inspection Requirements for Reactor Pressure Vessel Heads At Pressurized Water Reactors". The examination scenario was aimed at determining whether boric acid deposits were emanating from the annulus of the penetrations and identifying the presence of boric acid deposits on the RPV head.

The work was performed as part of the WEN/ISI program, augmented exam section, of 1-TRI-0-10, revision 13. In addition, the examinations fulfill NRC Order EA-03-009, Section 3 (a), Bare Metal Visual Examination of 100% of the RPV head penetration nozzles and surrounding head surface.

**Watts Bar Unit 1, Cycle 7 – RPV Closure Head REPORT
Remote Visual (VT-2) Penetration Examination Final Report**

TECHNICAL DISCUSSION

Remote VT Equipment

TVA contracted with Vistas Corporation to provide remote VT equipment to examine the RPV head penetrations. The remote examinations were performed with Vista's magnetic crawlers, outfitted with twin high resolution color cameras, each having adjustable LED lighting arrays. The cameras were located on the front and rear of the remote crawlers.

Access to the examination area was obtained by lifting the insulation shroud approximately 5 inches from the vessel head and installing temporary wooden wedges for stabilization. The remote crawler was installed on the head surface and guided between the rows of penetrations.

The examinations were recorded on Digital 8 video cassette's for archival and off-line review. All penetration annulus areas and the head surface in the area on the penetrations were examined and digitally recorded.

Procedure/Documentation

ISO provided Level III's certified in Visual examination to review and evaluate all data on-line. All acquired data also had an independent review by certified Level III VT examination personnel. Examination protocol was designed to incorporate the recommendations of the Electric Power Research Institute's (EPRI) Technical Report, entitled "Visual Examination for Leakage of PWR Reactor Head Penetrations on Top of RPV Head", Revision 2 of 1006296, including 2002 Inspection Results. The examination was conducted in accordance with TVA's Nondestructive Examination (NDE) Procedure N-VT-17, Revision 4, "Visual Examination for Leakage of PWR Head Penetrations".

The visual examination process utilized enhanced VT-2 methodology with camera resolution established on characters less than or equal to .105" high, representative of VT-3 sensitivity.

**Watts Bar Unit 1, Cycle 7 – RPV Closure Head REPORT
Remote Visual (VT-2) Penetration Examination Final Report**

Examination Process

An examination Scan Plan was developed in order to ensure that examinations were performed in a logical sequence, while minimizing radiation exposure and validating positional accuracy. A raster pattern was chosen as the most effective method for performing the examinations and consisted of 22 separate scans.

A total of 323 sequences were performed to examine all penetrations. With the exception of the outer scan rows, each penetration was examined during two scans which consisted of examining four, 90-degree + segments of each penetration to ensure 100% coverage of the annulus area. The outer scan rows, that included the peripheral penetrations, were examined using two scans that covered 180-degrees + of the penetration that resulted in 100% coverage. During the examination of each penetration, the head area adjacent to the penetrations was also visually examined for boron deposits.

Radiation work permit number 8071 was used for the inspection work. The data acquisition equipment staging area was located on top of Reactor Coolant Pump Plug No.2.

RESULTS

No penetrations indicated boron leakage in the area of the annulus associated with inside surface CRDM weld cracking. In addition, no boron was noted on the head surface with the origination point being from the penetration(s). All penetrations were satisfactorily examined. All penetrations were accessible with the Vista's magnetic crawlers.

Watts Bar Unit 1, Cycle 07
RPV Closure Head, Remote Visual (VT-2) Penetration Examination Results

Scan No.	Penetration ID	Location	Tape No.	Tape Count (min:sec)	Debris on Penetration	Debris on Head	Insulation Ring Interference	Boron on CRD (coming from above)	Boron "Streaking" (Horizontal)	Masked (Indeterminate)	Requires Cleaning	Other	NRI	Examiner Initials	Comments
1	74	L-180	1	00:00									X	RAS	
1	67	L-180	1	03:30									X	RAS	Wedge obstruction.
1	66	L-180	1	04:39									X	RAS	
2	62	L-90	1	06:47									X	RAS	
2	55	L-90	1	07:22									X	RAS	
2	74	R-90	1	08:26									X	RAS	
2	43	L-90	1	09:42									X	RAS	Out of sequence
2	67	R-90	1	09:08									X	RAS	Out of sequence
2	38	L-90	1	10:40									X	RAS	
2	42	L-90	1	11:19									X	RAS	
2	66	R-90	1	11:54									X	RAS	Called 54. Corrected to 42.
2	54	L-90	1	12:50									X	RAS	
2	UPIAH-D	L-90	1	13:25									X	RAS	
3	UPIAH-A	L-90	1	14:10									X	RAS	
3	51	L-90	1	14:32									X	RAS	No audio of penetration I.D. Location only stated
3	62	R-90	1	15:20									X	RAS	
3	31	L-31	1	16:02									X	RAS	
3	55	R-90	1	00:00									X	RAS	See note 1. Tape count re-zero.
3	23	L-90	1	00:37									X	RAS	See note 1
3	43	R-90	1	01:03									X	RAS	See note 1
3	18	L-90	1	01:32									X	RAS	See note 1
3	38	R-90	1	01:58									X	RAS	See note 1. Loose coating
3	22	L-90	1	02:55									X	RAS	See note 1
3	42	R-90	1	02:22									X	RAS	See note 1
3	30	L-90	1	03:18									X	RAS	See note 1
3	54	R-90	1	04:00									X	RAS	See note 1
3	50	L-90	1	04:37									X	RAS	See note 1
3	UPIAH-D	R-90	1	05:15									X	RAS	
3	65	L-90	1	05:43									X	RAS	

Watts Bar Unit 1, Cycle 07
RPV Closure Head, Remote Visual (VT-2) Penetration Examination Results

Scan No.	Penetration ID	Location	Tape No.	Tape Count (min:sec)	Debris on Penetration	Debris on Head	Insulation Ring Interference	Boron on CRD (coming from above)	Boron "Streaking" (Horizontal)	Masked (Indeterminate)	Requires Cleaning	Other	NRI	Examiner Initials	Comments
4	75	L-90	1	06:20				X					X	RAS	Streaks seen on CRDM, reported in RFO1.
4	56	L-90	1	08:33									X	RAS	
4	UPIAH-A	R-90	1	09:04									X	RAS	
4	32	L-90	1	09:31									X	RAS	
4	51	R-90	1	09:53									X	RAS	
4	15	L-90	1	10:23									X	RAS	
4	31	R-90	1	10:49									X	RAS	
4	23	R-90	1	11:22									X	RAS	
4	6	L-90	1	11:55									X	RAS	
4	18	R-90	1	12:21					X				X	RAS	
4	10	L-90	1	13:02									X	RAS	
4	22	R-90	1	13:33									X	RAS	
4	14	L-90	1	14:06									X	RAS	
4	30	R-90	1	14:41									X	RAS	
4	37	L-90	1	15:08									X	RAS	
4	50	R-90	1	15:51									X	RAS	
4	61	L-90	1	16:13									X	RAS	
4	65	R-90	1	16:47									X	RAS	
4	78	L-90	1	17:29									X	RAS	
5	68	L-90	1	18:31									X	RAS	Wedge in view- No obstruction
5	75	R-90	1	19:42									X	RAS	Wedge in view- No obstruction
5	44	L-90	1	20:27									X	RAS	
5	56	R-90	1	20:54									X	RAS	
5	24	L-90	1	21:25									X	RAS	
5	32	R-90	1	22:02									X	RAS	Loose coating
5	11	L-90	1	22:41									X	RAS	
5	15	R-90	1	23:13									X	RAS	Heavy coating at crevice. No Obstruction
5	3	L-90	1	24:40									X	RAS	See note 2.
5	6	R-90	1	25:08									X	RAS	

Watts Bar Unit 1, Cycle 07
RPV Closure Head, Remote Visual (VT-2) Penetration Examination Results

Scan No.	Penetration ID	Location	Tape No.	Tape Count (min:sec)	Debris on Penetration	Debris on Head	Insulation Ring Interference	Boron on CRD (coming from above)	Boron "Streaking" (Horizontal)	Masked (Indeterminate)	Requires Cleaning	Other	NRI	Examiner Initials	Comments
5	2	L-90	1	25:48									X	RAS	See note 3.
5	10	R-90	1	27:10									X	RAS	
5	14	R-90	1	27:56									X	RAS	
5	29	L-90	1	28:19									X	RAS	
5	37	R-90	1	29:26									X	RAS	Heavy coating at crevice. No Obstruction
5	49	L-90	1	30:17									X	RAS	
5	61	R-90	1	30:56									X	RAS	
5	73	L-90	1	31:14									X	RAS	
5	78	R-90	1	31:41									X	RAS	End of tape 1.
6	68	R-90	2	00:00									X	RAS	Start tape 2.
6	39	L-90	2	00:32									X	RAS	
6	44	R-90	2	01:02									X	RAS	
6	19	L-90	2	01:30									X	RAS	
6	24	R-90	2	01:56									X	RAS	
6	7	L-90	2	02:22									X	RAS	
6	11	R-90	2	02:48									X	RAS	
6	3	R-90	2	03:14									X	RAS	
6	Vent-1	360-Deg.	2	03:52									X	RAS	Obtained 180°. See Tape 4, TC 14:43 for remaining.
6	1	L-90	5	15:22									X	RAS	See note 3.
6	2	R-90	5	16:00									X	RAS	
6	9	L-90	5	16:12									X	RAS	
6	21	L-90	5	16:32									X	RAS	
6	29	R-90	5	17:12									X	RAS	
6	41	L-90	5	17:41									X	RAS	
6	49	R-90	5	17:12									X	RAS	
6	73	R-90	5	18:00									X	RAS	
7	69	L-90	2	06:20									X	RAS	
7	45	L-90	2	06:57									X	RAS	
7	39	R-90	2	07:17									X	RAS	

Watts Bar Unit 1, Cycle 07
RPV Closure Head, Remote Visual (VT-2) Penetration Examination Results

Scan No.	Penetration ID	Location	Tape No.	Tape Count (min:sec)	Debris on Penetration	Debris on Head	Insulation Ring Interference	Boron on CRD (coming from above)	Boron "Streaking" (Horizontal)	Masked (Indeterminate)	Requires Cleaning	Other	NRI	Examiner Initials	Comments
7	25	L-90	2	07:50									X	RAS	Heavy coating at crevice. No Obstruction
7	19	R-90	2	09:25									X	RAS	
7	7	R-90	2	09:45									X	RAS	
7	4	L-90	2	10:14									X	RAS	See note 3.
7	1	R-90	2	10:53									X	RAS	See note 3.
7	5	L-90	2	11:34									X	RAS	See Note 3.
7	13	L-90	2	12:32									X	RAS	
7	9	R-90	2	13:09									X	RAS	
7	28	L-90	2	13:30									X	RAS	
7	21	R-90	2	14:01									X	RAS	
7	48	L-90	2	14:21									X	RAS	
7	41	R-90	2	14:53									X	RAS	
7	72	L-90	2	15:32	X							X	X	RAS	Small debris in crevice. See note 4.
8	76	L-90	2	17:20									X	RAS	
8	69	R-90	2	17:59									X	RAS	
8	57	L-90	2	18:52									X	RAS	
8	45	R-90	2	19:35									X	RAS	
8	33	L-90	2	20:20									X	RAS	
8	25	R-90	2	20:49									X	RAS	
8	16	L-90	2	21:24									X	RAS	
8	12	L-90	2	21:52									X	RAS	
8	4	R-90	2	21:18									X	RAS	
8	8	L-90	2	23:02									X	RAS	See note 3.
8	5	R-90	2	23:54									X	RAS	See note 3.
8	17	L-90	2	24:28									X	RAS	
8	13	R-90	2	25:11									X	RAS	
8	36	L-90	2	25:37									X	RAS	
8	28	R-90	2	26:25									X	RAS	
8	60	L-90	2	26:45									X	RAS	

Watts Bar Unit 1, Cycle 07
RPV Closure Head, Remote Visual (VT-2) Penetration Examination Results

Scan No.	Penetration ID	Location	Tape No.	Tape Count (min:sec)	Debris on Penetration	Debris on Head	Insulation Ring Interference	Boron on CRD (coming from above)	Boron "Streaking" (Horizontal)	Masked (Indeterminate)	Requires Cleaning	Other	NRI	Examiner Initials	Comments
8	48	R-90	2	27:29									X	RAS	
8	72	R-90	2	28:03									X	RAS	See scan 7, tape 2, TC 15:32. End tape 2.
9	76	R-90	3	00:30									X	FCL	Called 63. Corrected to 76. Start tape 3.
9	63	L-90	3	01:10									X	FCL	Called 57. Corrected to 63.
9	57	R-90	3	01:40									X	FCL	
9	52	L-90	3	02:43									X	FCL	
9	33	R-90	3	04:04									X	FCL	
9	34	L-90	3	05:18									X	FCL	
9	16	R-90	3	06:58									X	FCL	
9	26	L-90	3	07:14									X	FCL	
9	12	R-90	3	08:23									X	FCL	
9	20	L-90	3	08:49									X	FCL	
9	8	R-90	3	10:06									X	FCL	
9	27	L-90	3	10:49									X	FCL	
9	35	L-90	3	11:11									X	FCL	
9	17	R-90	3	11:50									X	FCL	
9	53	L-90	3	12:25									X	FCL	
9	36	R-90	3	13:06									X	FCL	
9	UPIAH-C	L-90	3	12:27									X	FCL	
9	60	R-90	3	14:16									X	FCL	
10	63	R-90	3	16:17									X	FCL	Duct tape residue. Seen on tape 3, TC 01:10
10	UPIAH-B	L-90	3	15:05									X	FCL	
10	52	R-90	3	16:55									X	FCL	
10	58	L-90	3	19:00									X	FCL	
10	34	R-90	3	19:29									X	FCL	
10	46	L-90	3	20:55									X	FCL	
10	26	R-90	3	21:33									X	FCL	
10	40	L-90	3	21:55									X	FCL	
10	20	R-90	3	22:14									X	FCL	

Watts Bar Unit 1, Cycle 07
RPV Closure Head, Remote Visual (VT-2) Penetration Examination Results

Scan No.	Penetration ID	Location	Tape No.	Tape Count (min:sec)	Debris on Penetration	Debris on Head	Insulation Ring Interference	Boron on CRD (coming from above)	Boron "Streaking" (Horizontal)	Masked (Indeterminate)	Requires Cleaning	Other	NRI	Examiner Initials	Comments
10	47	L-90	3	22:35									X	FCL	
10	27	R-90	3	23:10									X	FCL	
10	59	L-90	3	23:30									X	FCL	
10	35	R-90	3	24:17									X	FCL	
10	64	L-90	3	24:45									X	FCL	
10	53	R-90	3	25:14									X	FCL	
10	UPIAH-C	R-90	3	25:47									X	FCL	
11	UPIAH-B	R-90	3	26:45									X	FCL	
11	58	R-90	3	29:20									X	FCL	Changed camera. Res check at T.C. 28:39
11	70	L-90	3	29:40									X	FCL	
11	46	R-90	3	20:09									X	FCL	
11	40	R-90	3	30:29									X	FCL	
11	71	L-90	3	31:30									X	FCL	
11	47	R-90	3	31:48									X	FCL	
11	77	L-90	3	32:09									X	FCL	
11	59	R-90	3	33:07									X	FCL	
11	64	R-90	3	33:28									X	FCL	
12	70	R-180	3	34:00									X	FCL	
12	71	R-180	3	34:57									X	FCL	
12	77	R-180	3	35:50									X	FCL	
13	UPIAH-D	R-90	3	36:37									X	FCL	
13	54	R-90	3	37:06									X	FCL	
13	66	L-90	3	37:30									X	FCL	
13	42	R-90	3	38:00									X	FCL	
13	38	R-90	3	38:16									X	FCL	
13	67	L-90	3	38:34									X	FCL	
13	43	R-90	3	38:48									X	FCL	
13	74	L-90	3	39:00									X	FCL	
13	55	R-90	3	39:29									X	FCL	

Watts Bar Unit 1, Cycle 07
RPV Closure Head, Remote Visual (VT-2) Penetration Examination Results

Scan No.	Penetration ID	Location	Tape No.	Tape Count (min:sec)	Debris on Penetration	Debris on Head	Insulation Ring Interference	Boron on CRD (coming from above)	Boron "Streaking" (Horizontal)	Masked (Indeterminate)	Requires Cleaning	Other	NRI	Examiner Initials	Comments
13	62	R-90	3	39:43									X	FCL	
14	65	R-90	3	40:08									X	FCL	
14	UPIAH-D	L-90	3	40:55									X	FCL	
14	50	R-90	3	41:08									X	FCL	
14	54	L-90	3	41:22									X	FCL	
14	30	R-90	3	41:48									X	FCL	
14	42	L-90	3	42:04									X	FCL	
14	22	R-90	3	42:16									X	FCL	
14	38	L-90	3	42:43									X	FCL	
14	18	R-90	3	42:56									X	FCL	
14	43	L-90	3	43:22									X	FCL	
14	23	R-90	3	43:51									X	FCL	
14	55	L-90	3	44:33									X	FCL	
14	31	R-90	3	45:10									X	FCL	
14	62	L-90	3	45:50									X	FCL	
14	51	R-90	3	46:09									X	FCL	
14	UPIAH-A	R-90	3	46:27									X	FCL	
15	78	R-90	3	46:59									X	FCL	
15	65	L-90	3	47:32									X	FCL	
15	61	R-90	3	47:50									X	FCL	
15	50	L-90	3	48:35									X	FCL	
15	37	R-90	3	49:08									X	FCL	
15	30	L-90	3	49:26									X	FCL	
15	14	R-90	3	49:54									X	FCL	
15	22	L-90	3	50:22									X	FCL	
15	10	R-90	3	50:35									X	FCL	
15	18	L-90	3	50:51									X	FCL	
15	6	R-90	3	51:30									X	FCL	
15	23	L-90	3	52:30									X	FCL	

Watts Bar Unit 1, Cycle 07
RPV Closure Head, Remote Visual (VT-2) Penetration Examination Results

Scan No.	Penetration ID	Location	Tape No.	Tape Count (min:sec)	Debris on Penetration	Debris on Head	Insulation Ring Interference	Boron on CRD (coming from above)	Boron "Streaking" (Horizontal)	Masked (Indeterminate)	Requires Cleaning	Other	NRI	Examiner Initials	Comments
15	31	L-90	3	52:52									X	FCL	
15	15	R-90	3	53:09									X	FCL	
15	51	L-90	3	54:40									X	FCL	
15	32	R-90	3	54:55									X	FCL	
15	UPIAH-A	L-90	3	55:12									X	FCL	
15	56	R-90	3	55:35									X	FCL	
15	75	R-90	3	56:02									X	FCL	End of tape 3.
16	78	L-90	4	01:07									X	FCL	Start tape 4.
16	73	R-90	4	02:10									X	FCL	
16	61	L-90	4	02:30									X	FCL	
16	49	R-90	4	03:06									X	FCL	
16	37	L-90	4	03:28									X	FCL	
16	29	R-90	4	04:11									X	FCL	
16	14	L-90	4	04:42									X	FCL	
16	10	L-90	4	04:52									X	FCL	
16	2	R-90	4	05:18									X	FCL	
16	6	L-90	4	05:51									X	FCL	
16	3	R-90	4	06:22									X	FCL	
16	15	L-90	4	06:51									X	FCL	
16	11	R-90	4	07:37									X	FCL	
16	32	L-90	4	08:00									X	FCL	
16	24	R-90	4	08:43									X	FCL	
16	56	L-90	4	09:03									X	FCL	
16	44	R-90	4	09:47									X	FCL	
16	75	L-90	4	10:06									X	FCL	
16	68	R-90	4	10:41									X	FCL	
17	73	L-90	4	11:20									X	FCL	
17	49	L-90	4	11:54									X	FCL	
17	41	R-90	4	12:09									X	FCL	

Watts Bar Unit 1, Cycle 07
RPV Closure Head, Remote Visual (VT-2) Penetration Examination Results

Scan No.	Penetration ID	Location	Tape No.	Tape Count (min:sec)	Debris on Penetration	Debris on Head	Insulation Ring Interference	Boron on CRD (coming from above)	Boron "Streaking" (Horizontal)	Masked (Indeterminate)	Requires Cleaning	Other	NRI	Examiner Initials	Comments
17	29	L-90	4	12:33									X	FCL	
17	21	R-90	4	12:59									X	FCL	
17	9	R-90	4	13:30									X	FCL	
17	2	L-90	4	13:57									X	FCL	
17	1	R-90	4	14:09									X	FCL	
17	3	L-90	4	27:00									X	FCL	
17	11	L-90	4	24:17									X	FCL	
17	7	R-90	4	24:35									X	FCL	
17	24	L-90	4	25:01									X	FCL	
17	19	R-90	4	25:29									X	FCL	
17	44	L-90	4	25:47									X	FCL	
17	39	R-90	4	26:06									X	FCL	
17	68	L-90	4	26:24									X	FCL	
18	72	R-90	4	15:58									X	FCL	
18	41	L-90	4	16:46									X	FCL	
18	48	R-90	4	17:42									X	FCL	
18	21	L-90	4	17:59									X	FCL	
18	28	R-90	4	18:36									X	FCL	
18	9	L-90	4	18:56									X	FCL	
18	13	R-90	4	19:16									X	FCL	
18	5	R-90	4	19:34									X	FCL	
18	1	L-90	4	20:04									X	FCL	
18	4	R-90	4	20:37									X	FCL	
18	7	L-90	4	21:03									X	FCL	
18	19	L-90	4	21:51									X	FCL	
18	25	R-90	4	22:23									X	FCL	
18	39	L-90	4	22:51									X	FCL	
18	45	R-90	4	23:15									X	FCL	
18	69	R-90	4	23:46									X	FCL	

Watts Bar Unit 1, Cycle 07
RPV Closure Head, Remote Visual (VT-2) Penetration Examination Results

Scan No.	Penetration ID	Location	Tape No.	Tape Count (min:sec)	Debris on Penetration	Debris on Head	Insulation Ring Interference	Boron on CRD (coming from above)	Boron "Streaking" (Horizontal)	Masked (Indeterminate)	Requires Cleaning	Other	NRI	Examiner Initials	Comments
19	72	L-90	4	28:25									X	FCL	
19	48	L-90	4	28:56									X	FCL	
19	60	R-90	4	29:26									X	FCL	
19	28	L-90	4	29:38									X	FCL	
19	36	R-90	4	30:48									X	FCL	
19	13	L-90	4	31:09									X	FCL	
19	17	R-90	4	32:04									X	FCL	
19	5	L-90	4	32:14									X	FCL	
19	8	R-90	4	32:29									X	FCL	
19	4	L-90	4	32:46									X	FCL	
19	12	R-90	4	33:08									X	FCL	
19	16	R-90	4	33:36									X	FCL	
19	25	L-90	4	34:06									X	FCL	
19	33	R-90	4	34:37									X	FCL	
19	45	L-90	4	35:16									X	FCL	
19	57	R-90	4	35:41									X	FCL	
19	69	L-90	4	36:11									X	FCL	
19	76	R-90	4	36:38									X	FCL	
20	UPIAH-C	R-90	4	37:15									X	FCL	
20	60	L-90	4	38:02									X	FCL	
20	36	L-90	4	38:48									X	FCL	
20	53	R-90	4	39:04									X	FCL	
20	17	L-90	4	39:40									X	FCL	
20	35	R-90	4	40:13									X	FCL	
20	27	R-90	4	40:43									X	FCL	
20	8	L-90	4	41:01									X	FCL	
20	20	R-90	4	41:41									X	FCL	
20	12	L-90	4	41:58									X	FCL	
20	26	R-90	4	42:19									X	FCL	

Watts Bar Unit 1, Cycle 07
RPV Closure Head, Remote Visual (VT-2) Penetration Examination Results

Scan No.	Penetration ID	Location	Tape No.	Tape Count (min:sec)	Debris on Penetration	Debris on Head	Insulation Ring Interference	Boron on CRD (coming from above)	Boron "Streaking" (Horizontal)	Masked (Indeterminate)	Requires Cleaning	Other	NRI	Examiner Initials	Comments
20	16	L-90	4	42:47									X	FCL	
20	34	R-90	4	43:03									X	FCL	
20	33	L-90	4	43:39									X	FCL	
20	52	R-90	4	43:49									X	FCL	
20	57	L-90	4	44:13									X	FCL	
20	63	R-90	4	44:53									X	FCL	
20	76	L-90	4	45:30									X	FCL	End of tape 4
21	UPIAH-C	L-90	5	00:30									X	RAS	Start tape 5
21	53	L-90	5	00:57									X	RAS	
21	64	R-90	5	02:16									X	RAS	
21	35	L-90	5	02:56									X	RAS	
21	59	R-90	5	03:29									X	RAS	
21	27	L-90	5	03:51									X	RAS	
21	47	R-90	5	04:23									X	RAS	
21	20	L-90	5	04:47									X	RAS	
21	40	R-90	5	05:05									X	RAS	
21	26	L-90	5	05:26									X	RAS	
21	46	R-90	5	06:05									X	RAS	
21	34	L-90	5	06:40									X	RAS	
21	58	R-90	5	07:38									X	RAS	
21	52	L-90	5	07:50									X	RAS	
21	UPIAH-B	R-90	5	08:36									X	RAS	
21	63	L-90	5	09:10									X	RAS	
22	64	L-90	5	10:20									X	RAS	
22	59	L-90	5	10:45									X	RAS	
22	77	R-90	5	11:05									X	RAS	
22	47	L-90	5	11:27									X	RAS	
22	71	R-90	5	11:47									X	RAS	
22	40	L-90	5	12:09									X	RAS	

Watts Bar Unit 1, Cycle 07
RPV Closure Head, Remote Visual (VT-2) Penetration Examination Results

Scan No.	Penetration ID	Location	Tape No.	Tape Count (min:sec)	Debris on Penetration	Debris on Head	Insulation Ring Interference	Boron on CRD (coming from above)	Boron "Streaking" (Horizontal)	Masked (Indeterminate)	Requires Cleaning	Other	NRI	Examiner Initials	Comments
7	1	R-90	2	10:53									X	RAS	See note 3.
17	1	R-90	4	14:09									X	FCL	
6	1	L-90	5	15:22									X	RAS	See note 3.
18	1	L-90	4	20:04									X	FCL	
6	2	R-90	5	16:00									X	RAS	
16	2	R-90	4	05:18									X	FCL	
5	2	L-90	1	25:48									X	RAS	See note 3.
17	2	L-90	4	13:57									X	FCL	
6	3	R-90	2	03:14									X	RAS	
16	3	R-90	4	06:22									X	FCL	
5	3	L-90	1	24:40									X	RAS	See note 2.
17	3	L-90	4	27:00									X	FCL	
8	4	R-90	2	21:18									X	RAS	
18	4	R-90	4	20:37									X	FCL	
7	4	L-90	2	10:14									X	RAS	See note 3.
19	4	L-90	4	32:46									X	FCL	
8	5	R-90	2	23:54									X	RAS	See note 3.
18	5	R-90	4	19:34									X	FCL	
7	5	L-90	2	11:34									X	RAS	See Note 3.
19	5	L-90	4	32:14									X	FCL	
5	6	R-90	1	25:08									X	RAS	
15	6	R-90	3	51:30									X	FCL	
4	6	L-90	1	11:55									X	RAS	
16	6	L-90	4	05:51									X	FCL	
7	7	R-90	2	09:45									X	RAS	
17	7	R-90	4	24:35									X	FCL	
6	7	L-90	2	02:22									X	RAS	
18	7	L-90	4	21:03									X	FCL	
9	8	R-90	3	10:06									X	FCL	

Watts Bar Unit 1, Cycle 07
RPV Closure Head, Remote Visual (VT-2) Penetration Examination Results

Scan No.	Penetration ID	Location	Tape No.	Tape Count (min:sec)	Debris on Penetration	Debris on Head	Insulation Ring Interference	Boron on CRD (coming from above)	Boron "Streaking" (Horizontal)	Masked (Indeterminate)	Requires Cleaning	Other	NRI	Examiner Initials	Comments
19	8	R-90	4	32:29									X	FCL	
8	8	L-90	2	23:02									X	RAS	See note 3.
20	8	L-90	4	41:01									X	FCL	
7	9	R-90	2	13:09									X	RAS	
17	9	R-90	4	13:30									X	FCL	
6	9	L-90	5	16:12									X	RAS	
18	9	L-90	4	18:56									X	FCL	
5	10	R-90	1	27:10									X	RAS	
15	10	R-90	3	50:35									X	FCL	
4	10	L-90	1	13:02									X	RAS	
16	10	L-90	4	04:52									X	FCL	
6	11	R-90	2	02:48									X	RAS	
16	11	R-90	4	07:37									X	FCL	
5	11	L-90	1	22:41									X	RAS	
17	11	L-90	4	24:17									X	FCL	
9	12	R-90	3	08:23									X	FCL	
19	12	R-90	4	33:08									X	FCL	
8	12	L-90	2	21:52									X	RAS	
20	12	L-90	4	41:58									X	FCL	
8	13	R-90	2	25:11									X	RAS	
18	13	R-90	4	19:16									X	FCL	
7	13	L-90	2	12:32									X	RAS	
19	13	L-90	4	31:09									X	FCL	
5	14	R-90	1	27:56									X	RAS	
15	14	R-90	3	49:54									X	FCL	
4	14	L-90	1	14:06									X	RAS	
16	14	L-90	4	04:42									X	FCL	
5	15	R-90	1	23:13									X	RAS	Heavy coating at crevice. No Obstruction
15	15	R-90	3	53:09									X	FCL	

Watts Bar Unit 1, Cycle 07
RPV Closure Head, Remote Visual (VT-2) Penetration Examination Results

Scan No.	Penetration ID	Location	Tape No.	Tape Count (min:sec)	Debris on Penetration	Debris on Head	Insulation Ring Interference	Boron on CRD (coming from above)	Boron "Streaking" (Horizontal)	Masked (Indeterminate)	Requires Cleaning	Other	NRI	Examiner Initials	Comments
4	15	L-90	1	10:23									X	RAS	
16	15	L-90	4	06:51									X	FCL	
9	16	R-90	3	06:58									X	FCL	
19	16	R-90	4	33:36									X	FCL	
8	16	L-90	2	21:24									X	RAS	
20	16	L-90	4	42:47									X	FCL	
9	17	R-90	3	11:50									X	FCL	
19	17	R-90	4	32:04									X	FCL	
8	17	L-90	2	24:28									X	RAS	
20	17	L-90	4	39:40									X	FCL	
4	18	R-90	1	12:21					X				X	RAS	
14	18	R-90	3	42:56									X	FCL	
3	18	L-90	1	01:32									X	RAS	See note 1
15	18	L-90	3	50:51									X	FCL	
7	19	R-90	2	09:25									X	RAS	
17	19	R-90	4	25:29									X	FCL	
6	19	L-90	2	01:30									X	RAS	
18	19	L-90	4	21:51									X	FCL	
10	20	R-90	3	22:14									X	FCL	
20	20	R-90	4	41:41									X	FCL	
9	20	L-90	3	08:49									X	FCL	
21	20	L-90	5	04:47									X	RAS	
7	21	R-90	2	14:01									X	RAS	
17	21	R-90	4	12:59									X	FCL	
6	21	L-90	5	16:32									X	RAS	
18	21	L-90	4	17:59									X	FCL	
4	22	R-90	1	13:33									X	RAS	
14	22	R-90	3	42:16									X	FCL	
3	22	L-90	1	02:55									X	RAS	See note 1

Watts Bar Unit 1, Cycle 07
RPV Closure Head, Remote Visual (VT-2) Penetration Examination Results

Scan No.	Penetration ID	Location	Tape No.	Tape Count (min:sec)	Debris on Penetration	Debris on Head	Insulation Ring Interference	Boron on CRD (coming from above)	Boron "Streaking" (Horizontal)	Masked (Indeterminate)	Requires Cleaning	Other	NRI	Examiner Initials	Comments
15	22	L-90	3	50:22									X	FCL	
4	23	R-90	1	11:22									X	RAS	
14	23	R-90	3	43:51									X	FCL	
3	23	L-90	1	00:37									X	RAS	See note 1
15	23	L-90	3	52:30									X	FCL	
6	24	R-90	2	01:56									X	RAS	
16	24	R-90	4	08:43									X	FCL	
5	24	L-90	1	21:25									X	RAS	
17	24	L-90	4	25:01									X	FCL	
8	25	R-90	2	20:49									X	RAS	
18	25	R-90	4	22:23									X	FCL	
7	25	L-90	2	07:50									X	RAS	Heavy coating at crevice. No Obstruction
19	25	L-90	4	34:06									X	FCL	
10	26	R-90	3	21:33									X	FCL	
20	26	R-90	4	42:19									X	FCL	
9	26	L-90	3	07:14									X	FCL	
21	26	L-90	5	05:26									X	RAS	
10	27	R-90	3	23:10									X	FCL	
20	27	R-90	4	40:43									X	FCL	
9	27	L-90	3	10:49									X	FCL	
21	27	L-90	5	03:51									X	RAS	
8	28	R-90	2	26:25									X	RAS	
18	28	R-90	4	18:36									X	FCL	
7	28	L-90	2	13:30									X	RAS	
19	28	L-90	4	29:38									X	FCL	
6	29	R-90	5	17:12									X	RAS	
16	29	R-90	4	04:11									X	FCL	
5	29	L-90	1	28:19									X	RAS	
17	29	L-90	4	12:33									X	FCL	

Watts Bar Unit 1, Cycle 07
RPV Closure Head, Remote Visual (VT-2) Penetration Examination Results

Scan No.	Penetration ID	Location	Tape No.	Tape Count (min:sec)	Debris on Penetration	Debris on Head	Insulation Ring Interference	Boron on CRD (coming from above)	Boron "Streaking" (Horizontal)	Masked (Indeterminate)	Requires Cleaning	Other	NRI	Examiner Initials	Comments
4	30	R-90	1	14:41									X	RAS	
14	30	R-90	3	41:48									X	FCL	
3	30	L-90	1	03:18									X	RAS	See note 1
15	30	L-90	3	49:26									X	FCL	
4	31	R-90	1	10:49									X	RAS	
14	31	R-90	3	45:10									X	FCL	
15	31	L-90	3	52:52									X	FCL	
3	31	L-31	1	16:02									X	RAS	
5	32	R-90	1	22:02									X	RAS	Loose coating
15	32	R-90	3	54:55									X	FCL	
4	32	L-90	1	09:31									X	RAS	
16	32	L-90	4	08:00									X	FCL	
9	33	R-90	3	04:04									X	FCL	
19	33	R-90	4	34:37									X	FCL	
8	33	L-90	2	20:20									X	RAS	
20	33	L-90	4	43:39									X	FCL	
10	34	R-90	3	19:29									X	FCL	
20	34	R-90	4	43:03									X	FCL	
9	34	L-90	3	05:18									X	FCL	
21	34	L-90	5	06:40									X	RAS	
10	35	R-90	3	24:17									X	FCL	
20	35	R-90	4	40:13									X	FCL	
9	35	L-90	3	11:11									X	FCL	
21	35	L-90	5	02:56									X	RAS	
9	36	R-90	3	13:06									X	FCL	
19	36	R-90	4	30:48									X	FCL	
8	36	L-90	2	25:37									X	RAS	
20	36	L-90	4	38:48									X	FCL	
5	37	R-90	1	29:26									X	RAS	Heavy coating at crevice. No Obstruction

Watts Bar Unit 1, Cycle 07
RPV Closure Head, Remote Visual (VT-2) Penetration Examination Results

Scan No.	Penetration ID	Location	Tape No.	Tape Count (min:sec)	Debris on Penetration	Debris on Head	Insulation Ring Interference	Boron on CRD (coming from above)	Boron "Streaking" (Horizontal)	Masked (Indeterminate)	Requires Cleaning	Other	NRI	Examiner Initials	Comments
15	37	R-90	3	49:08									X	FCL	
4	37	L-90	1	15:08									X	RAS	
16	37	L-90	4	03:28									X	FCL	
3	38	R-90	1	01:58									X	RAS	See note 1. Loose coating
13	38	R-90	3	38:16									X	FCL	
2	38	L-90	1	10:40									X	RAS	
14	38	L-90	3	42:43									X	FCL	
7	39	R-90	2	07:17									X	RAS	
17	39	R-90	4	26:06									X	FCL	
6	39	L-90	2	00:32									X	RAS	
18	39	L-90	4	22:51									X	FCL	
11	40	R-90	3	30:29									X	FCL	
21	40	R-90	5	05:05									X	RAS	
10	40	L-90	3	21:55									X	FCL	
22	40	L-90	5	12:09									X	RAS	
7	41	R-90	2	14:53									X	RAS	
17	41	R-90	4	12:09									X	FCL	
6	41	L-90	5	17:41									X	RAS	
18	41	L-90	4	16:46									X	FCL	
3	42	R-90	1	02:22									X	RAS	See note 1
13	42	R-90	3	38:00									X	FCL	
2	42	L-90	1	11:19									X	RAS	
14	42	L-90	3	42:04									X	FCL	
3	43	R-90	1	01:03									X	RAS	See note 1
13	43	R-90	3	38:48									X	FCL	
2	43	L-90	1	09:42									X	RAS	Out of sequence
14	43	L-90	3	43:22									X	FCL	
6	44	R-90	2	01:02									X	RAS	
16	44	R-90	4	09:47									X	FCL	

Watts Bar Unit 1, Cycle 07
RPV Closure Head, Remote Visual (VT-2) Penetration Examination Results

Scan No.	Penetration ID	Location	Tape No.	Tape Count (min:sec)	Debris on Penetration	Debris on Head	Insulation Ring Interference	Boron on CRD (coming from above)	Boron "Streaking" (Horizontal)	Masked (Indeterminate)	Requires Cleaning	Other	NRI	Examiner Initials	Comments
5	44	L-90	1	20:27									X	RAS	
17	44	L-90	4	25:47									X	FCL	
8	45	R-90	2	19:35									X	RAS	
18	45	R-90	4	23:15									X	FCL	
7	45	L-90	2	06:57									X	RAS	
19	45	L-90	4	35:16									X	FCL	
11	46	R-90	3	20:09									X	FCL	
21	46	R-90	5	06:05									X	RAS	
10	46	L-90	3	20:55									X	FCL	
22	46	L-90	5	12:23									X	RAS	
11	47	R-90	3	31:48									X	FCL	
21	47	R-90	5	04:23									X	RAS	
10	47	L-90	3	22:35									X	FCL	
22	47	L-90	5	11:27									X	RAS	
8	48	R-90	2	27:29									X	RAS	
18	48	R-90	4	17:42									X	FCL	
7	48	L-90	2	14:21									X	RAS	
19	48	L-90	4	28:56									X	FCL	
6	49	R-90	5	17:12									X	RAS	
16	49	R-90	4	03:06									X	FCL	
5	49	L-90	1	30:17									X	RAS	
17	49	L-90	4	11:54									X	FCL	
4	50	R-90	1	15:51									X	RAS	
14	50	R-90	3	41:08									X	FCL	
3	50	L-90	1	04:37									X	RAS	See note 1
15	50	L-90	3	48:35									X	FCL	
4	51	R-90	1	09:53									X	RAS	
14	51	R-90	3	46:09									X	FCL	
3	51	L-90	1	14:32									X	RAS	No audio of penetration I.D. Location only stated

Watts Bar Unit 1, Cycle 07
RPV Closure Head, Remote Visual (VT-2) Penetration Examination Results

Scan No.	Penetration ID	Location	Tape No.	Tape Count (min:sec)	Debris on Penetration	Debris on Head	Insulation Ring Interference	Boron on CRD (coming from above)	Boron "Streaking" (Horizontal)	Masked (Indeterminate)	Requires Cleaning	Other	NRI	Examiner Initials	Comments
15	51	L-90	3	54:40									X	FCL	
10	52	R-90	3	16:55									X	FCL	
20	52	R-90	4	43:49									X	FCL	
9	52	L-90	3	02:43									X	FCL	
21	52	L-90	5	07:50									X	RAS	
10	53	R-90	3	25:14									X	FCL	
20	53	R-90	4	39:04									X	FCL	
9	53	L-90	3	12:25									X	FCL	
21	53	L-90	5	00:57									X	RAS	
3	54	R-90	1	04:00									X	RAS	See note 1
13	54	R-90	3	37:06									X	FCL	
2	54	L-90	1	12:50									X	RAS	
14	54	L-90	3	41:22									X	FCL	
3	55	R-90	1	00:00									X	RAS	See note 1. Tape count re-zero.
13	55	R-90	3	39:29									X	FCL	
2	55	L-90	1	07:22									X	RAS	
14	55	L-90	3	44:33									X	FCL	
5	56	R-90	1	20:54									X	RAS	
15	56	R-90	3	55:35									X	FCL	
4	56	L-90	1	08:33									X	RAS	
16	56	L-90	4	09:03									X	FCL	
9	57	R-90	3	01:40									X	FCL	
19	57	R-90	4	35:41									X	FCL	
8	57	L-90	2	18:52									X	RAS	
20	57	L-90	4	44:13									X	FCL	
11	58	R-90	3	29:20									X	FCL	Changed camera. Res check at T.C. 28:39
21	58	R-90	5	07:38									X	RAS	
10	58	L-90	3	19:00									X	FCL	
22	58	L-90	5	13:00									X	RAS	

Watts Bar Unit 1, Cycle 07
RPV Closure Head, Remote Visual (VT-2) Penetration Examination Results

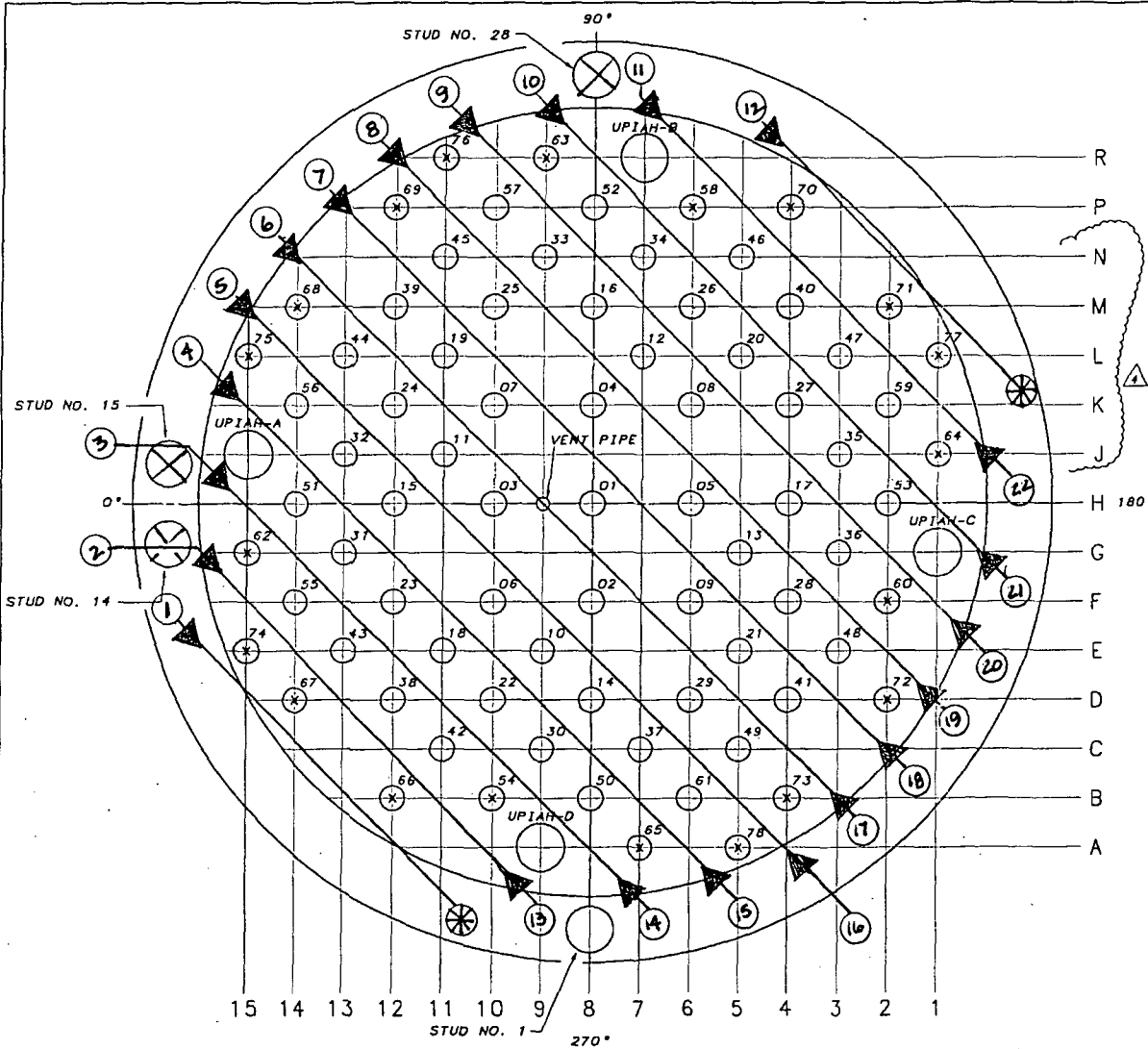
Scan No.	Penetration ID	Location	Tape No.	Tape Count (min:sec)	Debris on Penetration	Debris on Head	Insulation Ring Interference	Boron on CRD (coming from above)	Boron "Streaking" (Horizontal)	Masked (Indeterminate)	Requires Cleaning	Other	NRI	Examiner Initials	Comments
11	59	R-90	3	33:07									X	FCL	
21	59	R-90	5	03:29									X	RAS	
10	59	L-90	3	23:30									X	FCL	
22	59	L-90	5	10:45									X	RAS	
9	60	R-90	3	14:16									X	FCL	
19	60	R-90	4	29:26									X	FCL	
8	60	L-90	2	26:45									X	RAS	
20	60	L-90	4	38:02									X	FCL	
5	61	R-90	1	30:56									X	RAS	
15	61	R-90	3	47:50									X	FCL	
4	61	L-90	1	16:13									X	RAS	
16	61	L-90	4	02:30									X	FCL	
3	62	R-90	1	15:20									X	RAS	
13	62	R-90	3	39:43									X	FCL	
2	62	L-90	1	06:47									X	RAS	
14	62	L-90	3	45:50									X	FCL	
10	63	R-90	3	16:17									X	FCL	Duct tape residue. Seen on tape 3, TC 01:10
20	63	R-90	4	44:53									X	FCL	
9	63	L-90	3	01:10									X	FCL	Called 57. Corrected to 63.
21	63	L-90	5	09:10									X	RAS	
11	64	R-90	3	33:28									X	FCL	
21	64	R-90	5	02:16									X	RAS	
10	64	L-90	3	24:45									X	FCL	
22	64	L-90	5	10:20									X	RAS	
4	65	R-90	1	16:47									X	RAS	
14	65	R-90	3	40:08									X	FCL	
3	65	L-90	1	05:43									X	RAS	
15	65	L-90	3	47:32									X	FCL	
2	66	R-90	1	11:54									X	RAS	Called 54. Corrected to 42.

Watts Bar Unit 1, Cycle 07
RPV Closure Head, Remote Visual (VT-2) Penetration Examination Results

Scan No.	Penetration ID	Location	Tape No.	Tape Count (min:sec)	Debris on Penetration	Debris on Head	Insulation Ring Interference	Boron on CRD (coming from above)	Boron "Streaking" (Horizontal)	Masked (Indeterminate)	Requires Cleaning	Other	NRI	Examiner Initials	Comments
13	66	L-90	3	37:30									X	FCL	
1	66	L-180	1	04:39									X	RAS	
2	67	R-90	1	09:08									X	RAS	Out of sequence
13	67	L-90	3	38:34									X	FCL	
1	67	L-180	1	03:30									X	RAS	Wedge obstruction.
6	68	R-90	2	00:00									X	RAS	Start tape 2.
16	68	R-90	4	10:41									X	FCL	
5	68	L-90	1	18:31									X	RAS	Wedge in view- No obstruction
17	68	L-90	4	26:24									X	FCL	
8	69	R-90	2	17:59									X	RAS	
18	69	R-90	4	23:46									X	FCL	
7	69	L-90	2	06:20									X	RAS	
19	69	L-90	4	36:11									X	FCL	
22	70	R-90	5	12:45									X	RAS	
12	70	R-180	3	34:00									X	FCL	
11	70	L-90	3	29:40									X	FCL	
22	71	R-90	5	11:47									X	RAS	
12	71	R-180	3	34:57									X	FCL	
11	71	L-90	3	31:30									X	FCL	
8	72	R-90	2	28:03									X	RAS	See scan 7, tape 2, TC 15:32. End tape 2.
18	72	R-90	4	15:58									X	FCL	
7	72	L-90	2	15:32	X							X	X	RAS	Small debris in crevice. See note 4.
19	72	L-90	4	28:25									X	FCL	
6	73	R-90	5	18:00									X	RAS	
16	73	R-90	4	02:10									X	FCL	
5	73	L-90	1	31:14									X	RAS	
17	73	L-90	4	11:20									X	FCL	
2	74	R-90	1	08:26									X	RAS	
13	74	L-90	3	39:00									X	FCL	

Watts Bar Unit 1, Cycle 07
RPV Closure Head, Remote Visual (VT-2) Penetration Examination Results

Scan No.	Penetration ID	Location	Tape No.	Tape Count (min:sec)	Debris on Penetration	Debris on Head	Insulation Ring Interference	Boron on CRD (coming from above)	Boron "Streaking" (Horizontal)	Masked (Indeterminate)	Requires Cleaning	Other	NRI	Examiner Initials	Comments
1	74	L-180	1	00:00									X	RAS	
5	75	R-90	1	19:42									X	RAS	Wedge in view- No obstruction
15	75	R-90	3	56:02									X	FCL	End of tape 3.
4	75	L-90	1	06:20				X					X	RAS	Streaks seen on CRDM, reported in RFO1.
16	75	L-90	4	10:06									X	FCL	
9	76	R-90	3	00:30									X	FCL	Called 63. Corrected to 76. Start tape 3.
19	76	R-90	4	36:38									X	FCL	
8	76	L-90	2	17:20									X	RAS	
20	76	L-90	4	45:30									X	FCL	End of tape 4
22	77	R-90	5	11:05									X	RAS	
12	77	R-180	3	35:50									X	FCL	
11	77	L-90	3	32:09									X	FCL	
5	78	R-90	1	31:41									X	RAS	End of tape 1.
15	78	R-90	3	46:59									X	FCL	
4	78	L-90	1	17:29									X	RAS	
16	78	L-90	4	01:07									X	FCL	Start tape 4.
4	UPIAH-A	R-90	1	09:04									X	RAS	
14	UPIAH-A	R-90	3	46:27									X	FCL	
3	UPIAH-A	L-90	1	14:10									X	RAS	
15	UPIAH-A	L-90	3	55:12									X	FCL	
11	UPIAH-B	R-90	3	26:45									X	FCL	
21	UPIAH-B	R-90	5	08:36									X	RAS	
10	UPIAH-B	L-90	3	15:05									X	FCL	
22	UPIAH-B	L-90	5	13:16									X	RAS	
10	UPIAH-C	R-90	3	25:47									X	FCL	
20	UPIAH-C	R-90	4	37:15									X	FCL	
9	UPIAH-C	L-90	3	12:27									X	FCL	
21	UPIAH-C	L-90	5	00:30									X	RAS	Start tape 5
3	UPIAH-D	R-90	1	05:15									X	RAS	



REFERENCE DRAWINGS
 CONTRACT NO. 71C62-54114-1
 DRAWING NO. 30738-1539
 686J487

- NOTES:
1. ALL CRDM NUMBERS ARE PRECEDED BY CRDW FOR THE WELD NUMBERS.
 2. FOR PENETRATION DETAILS SEE SHEET 2.
 3. THE REACTOR VESSEL D* IS 180° OUT OF PHASE FROM THE REACTOR BUILDING 0*.

ASME CC-1 (EQUIVALENT)

(X) - PERIPHERAL HOUSINGS

RVCLHEAD (RV CLOSURE HEAD PENETRATIONS, AUGMENTED EXAM) TOP VIEW

4	PHB	REC	TLH	MOD	04-07-04
ROTATE VIEW 180 TO MATCH ORIENTATION DURING EXAM. REVISE NUMBERING TO MATCH PLANT SYSTEM PER FCOT 04-01					
3	PHB	REC	TLH	MOD	7-30-03
ADD GRID AND RVCLHEAD IDENTIFIER					
2	PHB	REC	CLB	RDB	2-7-98
MOVE CRD & VENT ID'S TO SHEET 2, DELETE UNIT ID, HIGHLIGHT PERIPHERAL HOUSINGS, REV. TITLE BLOCK					
1	RPC	PHB	REC	CLB	4-28-93
ADD CRD UP'S, & VENT PENETRATION ID'S, ADD SH-2, CHANGE NOTE 3, CHANGE DRAWING TITLE, & MADE CAD					
REV.	BY	CHECKED	SUBMITTED	APPROVED	DATE
TENNESSEE VALLEY AUTHORITY					
WATTS BAR NUCLEAR PLANT UNIT 1 CLOSURE HEAD PENETRATIONS					
DRAWN: KEY	DATE:	SCALE: NOT TO SCALE			
CHECKED: JGG	APPROVED: CLB	CAD MAINTAINED DRAWING REV			
SUBMITTED:	CHM-2684-C-01				04

15-20'
↑