



River Bend Station
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David N. Lorfing
Manager, Licensing

RBG-46968

October 30, 2009

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

SUBJECT: Supplement to Requests for Relief from ASME Section XI Volumetric and Visual Examination Requirements – Second 10-Year Interval
River Bend Station
Docket No. 50-458
License No. NPF-47

Reference Letter; RBG-46916, Requests for Relief from ASME Section XI Volumetric and Visual Examination Requirements – Second 10-Year Interval, dated May 29, 2009 (TAC Numbers ME1466, ME1469, ME1470, ME1471, and ME1472)

Dear Sir or Madam:

In an application dated May 29, 2009, Entergy Operations, Inc. (Entergy) requested relief pursuant to 10CFR50.55a(g)(5)(iii), from American Society of Mechanical Engineers (ASME) code requirements.

The relief requests are associated with ISI activities performed and identified during the River Bend Station, Unit 1 (RBS) ASME Section XI second 10-Year Inservice Inspection Interval and requested relief from the requirements of the American Society of Mechanical Engineers (ASME), Boiler and Pressure Vessel (B&PV) Code, Section XI pertaining to volumetric and visual examinations at RBS.

Based on its review of the application, the NRC requested additional information. The requested information is supplied in Attachment 1.

This submittal contains no new commitment.

If you have any questions or require additional information, please contact me.

ADT
NRC

Sincerely



DNL/bmb

Attachments:

1. Additional information for Request for Relief RBS-ISI-007, RBS-ISI-008, RBS-ISI-009, RBS-ISI-010 and RBS-ISI-011

cc: Regional Administrator
U. S. Nuclear Regulatory Commission
Region IV
612 E. Lamar Blvd., Suite 400
Arlington, TX 76011-4125

NRC Senior Resident Inspector
P. O. Box 1050
St. Francisville, LA 70775

U. S. Nuclear Regulatory Commission
Attn: Mr. Alan B. Wang
MS O-7 D1
Washington, DC 20555-0001

Mr. Jeffrey P. Meyers
Louisiana Department of Environmental Quality
Office of Environmental Compliance
Attn. OEC - ERSD
P. O. Box 4312
Baton Rouge, LA 70821-4312

Attachment 1

RBG-46968

**Additional Information for Request for Relief
RBS-ISI-007, RBS-ISI-008, RBS-ISI-009, RBS-ISI-010 and RBS-ISI-011**

**Additional Information for Request for Relief
RBS-ISI-007, RBS-ISI-008, RBS-ISI-009, RBS-ISI-010 and RBS-ISI-011**

NRC Email June 29, 2009

1.0 SCOPE

By letter dated May 29, 2009, (Agency wide Documents Access & Management System (ADAMS) ML091560230), Entergy Operations, Inc. (the licensee), submitted its second 10-year inservice inspection (ISI) interval Requests for Relief (RR) RBS-ISI-007, RBS-ISI-008, RBS-ISI-009, RBS-ISI-010, and RBS-ISI-011 from the requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, for River Bend Station (RBS).

In accordance with Title 10 Code of Federal Regulations (10 CFR) 50.55a(g)(5)(iii), the licensee has submitted the subject requests for relief for limited examinations in multiple ASME Code Examination Categories. The ASME Code requires that 100% of the examination volumes, or surface areas, described in ASME Code, Section XI, Tables IWB-2500 and IWC-2500 be performed during each interval. The licensee stated that 100% of the ASME Code-required volumes, or surface areas, are impractical to obtain at RBS.

10 CFR 50.55a(g)(5)(iii) states that when licensees determine that conformance with ASME Code requirements are impractical at their facilities, they shall submit information to support this determination. The Nuclear Regulatory Commission (NRC) will evaluate such requests based on impracticality, and may impose alternatives, giving due consideration to public safety and the burden imposed on the licensee. Based on the staff's Office Instruction LIC-109 *Acceptance Review Procedures* (ADAMS ML081200811) review it was determined that additional information was required in order for the staff to begin its review of the licensee's submittal dated June 1, 2009.

2.0 REQUEST FOR ADDITIONAL INFORMATION

1. General – Information Required on All Requests for Relief

In most cases, the licensee has provided only general information regarding impracticality of obtaining ASME Code-required volumetric examination, as applicable. Statements such as "scanning obstructions and geometric surface conditions," "design configurations," "nozzle-to-head configuration," and "due to transition of the nozzle adjacent to the weld toe" are inadequate to explain the bases for not obtaining the ASME Code-required examination volumes. No sketches with dimensional information showing the causes of limited accessibility have been included.

The staff requests that the licensee submit detailed and specific information to support the bases for limited examination in all requests for relief, and therefore, demonstrate impracticality. The licensee shall:

- a) Include descriptions (written and/or sketches, as necessary) of the interferences to applied nondestructive examination (NDE) techniques.

- b) As applicable, describe NDE equipment (ultrasonic scanning apparatus), details of the listed obstructions (size, shape, proximity to the weld, etc.) to demonstrate accessibility limitations, and discuss whether alternative methods or advanced technologies could be employed to maximize ASME Code coverage.
- c) Fully clarify the wave modality and insonification angles used for all ultrasonic examinations.
- d) Show cross-sectional coverage plots to describe ASME Code volumes examined.
- e) If surface examination is required by the ASME Code in addition to the volumetric examination, state whether surface examinations were performed on any of the subject components and state examination coverage that was obtained.
- f) If not included, state whether any indications were discovered as a result of Code-required examinations, and how these indications have been dispositioned.

Entergy Response

The questions apply to the following relief requests. Attached are each of the items listed in each relief request. Responses to the NRC questions are noted in the tables provided and are labeled a) through f).

RBS-ISI-007	B – A Examinations
RBS-ISI-008	B – D Examinations
RBS-ISI-009	B – G – 1 Examinations
RBS-ISI-010	B – J Examinations
RBS-ISI-011	B – K Examinations

**RELIEF REQUEST
 Response to NRC Questions**

RBS-ISI-007, B-A Examinations				
Item Number	Item ID	Item Description	% Coverage	Response to NRC Questions
B1.40	B13-D001-AG	RPV Head to Flange Weld	50%	a) Scanning is limited to single side access due to configuration. Scanned from head side only. See attached sketch of scan coverage. b) Weld scanned manually with KBA, Megasonics and Staveley search units and Staveley Sonic 136 instrument. 100% of the ASME Code Required Volume cannot be examined using manual examination methods. No alternative NDE methods or advanced technologies could be practically employed to maximize ASME Code coverage. c) Modality – Shear and longitudinal. Insonification angles - 0°L, 45°S and 60°S d) See attached Examination Coverage Profile showing the Code Required Volume (CRV). e) Magnetic Particle surface examination performed with full coverage obtained. f) No relevant indications recorded for either the ultrasonic or the surface examinations.

RBS-ISI-008, B-D Examinations				
Item Number	Item ID	Item Description	% Coverage	Response to NRC Questions
B3.90	N03A-1	24" Main Steam, RPV Nozzle to Shell	50.0%	a) Scanning is limited to single side access due to nozzle configuration. Scanned from vessel side only. See attached sketches of nozzle locations and scan coverage. b) Weld scanned manually with KBA search unit and Staveley Sonic 136 instrument. 100% of the ASME Code Required Volume cannot be examined using manual examination methods. No alternative NDE methods or advanced technologies could be practically employed to maximize ASME Code coverage. c) Modality – Shear and longitudinal. Insonification angles - 0°L, 45°S and 60°S. d) See attached Examination Coverage Profile showing the Code Required Volume (CRV). e) Surface examination <u>not</u> required. f) No relevant indications recorded.
B3.90	N03B-1	24" Main Steam, RPV Nozzle to Shell	50.0%	a) Scanning is limited to single side access due to nozzle configuration. Scanned from vessel side only. See attached sketches of nozzle locations and scan coverage. b) Weld scanned manually with KBA search unit and Staveley Sonic 136 instrument. 100% of the ASME Code Required Volume cannot be examined using manual examination methods. No alternative NDE methods or advanced technologies could be practically employed to maximize ASME Code coverage. c) Modality – Shear and longitudinal. Insonification angles - 0°L, 45°S and 60°S. d) See attached Examination Coverage Profile showing the Code Required Volume (CRV). e) Surface examination <u>not</u> required. f) No relevant indications recorded.
B3.90	N03C-1	24" Main Steam, RPV Nozzle to Shell	50.0%	a) Scanning is limited to single side access due to nozzle configuration. Scanned from vessel side only. See attached sketches of nozzle locations and scan coverage. b) Weld scanned manually with KBA search unit and Staveley Sonic 136 instrument. 100% of the ASME Code Required Volume cannot be examined using manual examination methods. No alternative NDE methods or advanced technologies could be practically employed to maximize ASME Code coverage. c) Modality – Shear and longitudinal. Insonification angles - 0°L, 45°S and 60°S. d) See attached Examination Coverage Profile showing the Code Required Volume (CRV). e) Surface examination <u>not</u> required. f) No relevant indications recorded.

RBS-ISI-008, B-D Examinations				
Item Number	Item ID	Item Description	% Coverage	Response to NRC Questions
B3.90	N03D-1	24" Main Steam, RPV Nozzle to Shell	50.0%	a) Scanning is limited to single side access due to nozzle configuration. Scanned from vessel side only. See attached sketches of nozzle locations and scan coverage. b) Weld scanned manually with KBA search unit and Staveley Sonic 136 instrument. 100% of the ASME Code Required Volume cannot be examined using manual examination methods. No alternative NDE methods or advanced technologies could be practically employed to maximize ASME Code coverage. c) Modality – Shear and longitudinal. Insonification angles - 0°L, 45°S and 60°S. d) See attached Examination Coverage Profile showing the Code Required Volume (CRV). e) Surface examination <u>not</u> required. f) No relevant indications recorded.
B3.90	N16-1	12" RCS Inlet Nozzle to Vessel	50.0%	a) Scanning is limited to single side access due to nozzle configuration. Scanned from vessel side only. See attached sketches of nozzle locations, configurations and scan coverage. b) Weld scanned manually with KBA search unit and Staveley Sonic 136 instrument. 100% of the ASME Code Required Volume cannot be examined using manual examination methods. No alternative NDE methods or advanced technologies could be practically employed to maximize ASME Code coverage. c) Modality – Shear and longitudinal. Insonification angles - 0°L, 45°S and 60°S. d) See attached Examination Coverage Profile showing the Code Required Volume (CRV). e) Surface examination <u>not</u> required. f) No relevant indications recorded.
B3.90	N04A-1	12" Feedwater Nozzle to Vessel	50.0%	a) Scanning is limited to single side access due to nozzle configuration. Scanned from vessel side only. See attached sketches of nozzle locations, configurations and scan coverage. b) Weld scanned manually with KBA search unit and Staveley Sonic 136 instrument. 100% of the ASME Code Required Volume cannot be examined using manual examination methods. No alternative NDE methods or advanced technologies could be practically employed to maximize ASME Code coverage. c) Modality – Shear and longitudinal. Insonification angles - 0°L, 45°S and 60°S. d) See attached Examination Coverage Profile showing the Code Required Volume (CRV). e) Surface examination <u>not</u> required. f) No relevant indications recorded.

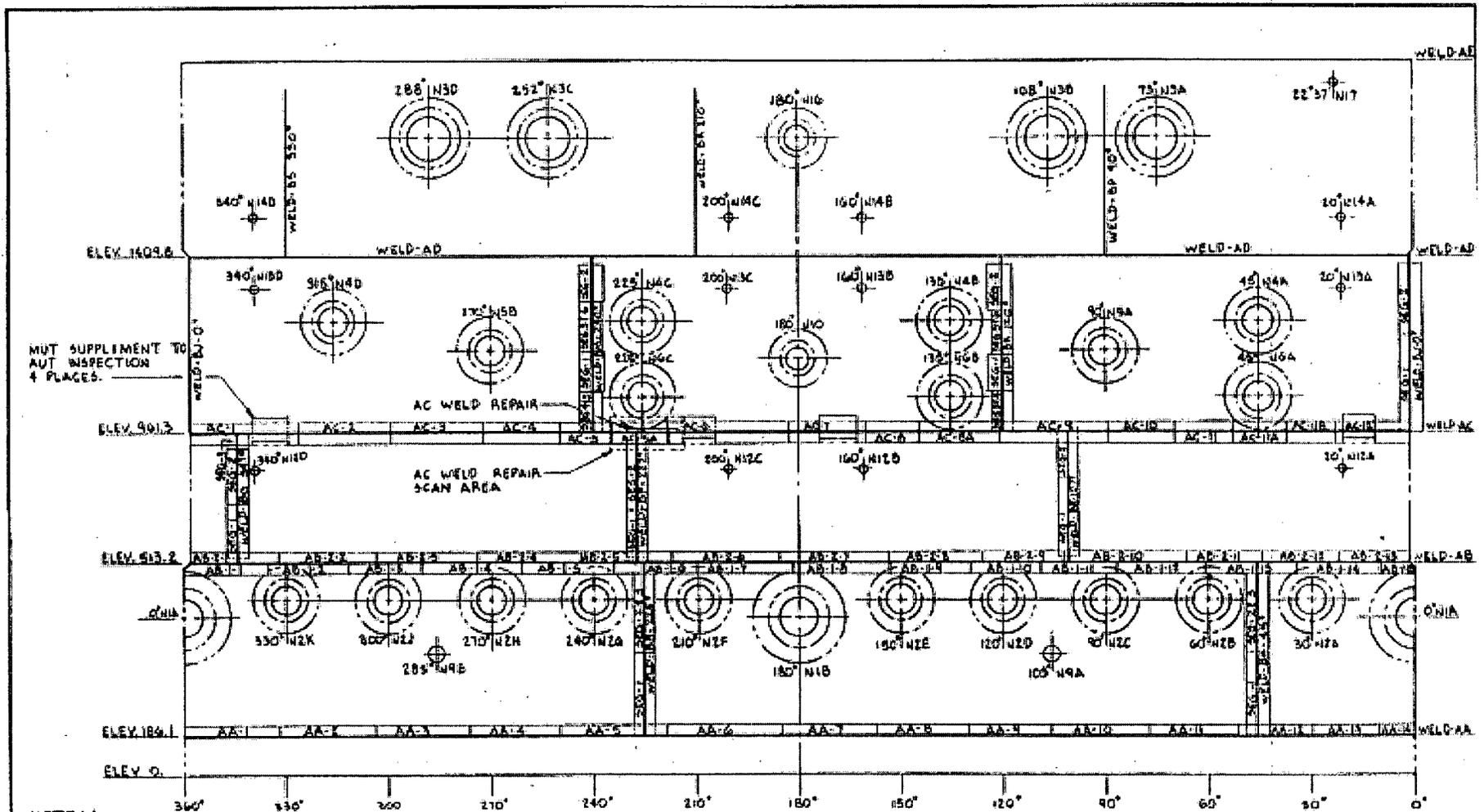
RBS-ISI-008, B-D Examinations				
Item Number	Item ID	Item Description	% Coverage	Response to NRC Questions
B3.90	N04B-1	12" Feedwater Nozzle to Vessel	50.0%	a) Scanning is limited to single side access due to nozzle configuration. Scanned from vessel side only. See attached sketches of nozzle locations, configurations and scan coverage. b) Weld scanned manually with KBA search unit and Staveley Sonic 136 instrument. 100% of the ASME Code Required Volume cannot be examined using manual examination methods. No alternative NDE methods or advanced technologies could be practically employed to maximize ASME Code coverage. c) Modality – Shear and longitudinal. Insonification angles - 0°L, 45°S and 60°S. d) See attached Examination Coverage Profile showing the Code Required Volume (CRV). e) Surface examination <u>not</u> required. f) No relevant indications recorded.
B3.90	N04C-1	12" Feedwater Nozzle to Vessel	50.0%	a) Scanning is limited to single side access due to nozzle configuration. Scanned from vessel side only. See attached sketches of nozzle locations, configurations and scan coverage. b) Weld scanned manually with KBA search unit and Staveley Sonic 136 instrument. 100% of the ASME Code Required Volume cannot be examined using manual examination methods. No alternative NDE methods or advanced technologies could be practically employed to maximize ASME Code coverage. c) Modality – Shear and longitudinal. Insonification angles - 0°L, 45°S and 60°S. d) See attached Examination Coverage Profile showing the Code Required Volume (CRV). e) Surface examination <u>not</u> required. f) No relevant indications recorded.
B3.90	N04D-1	12" Feedwater Nozzle to Vessel	50.0%	a) Scanning is limited to single side access due to nozzle configuration. Scanned from vessel side only. See attached sketches of nozzle locations, configurations and scan coverage. b) Weld scanned manually with KBA search unit and Staveley Sonic 136 instrument. 100% of the ASME Code Required Volume cannot be examined using manual examination methods. No alternative NDE methods or advanced technologies could be practically employed to maximize ASME Code coverage. c) Modality – Shear and longitudinal. Insonification angles - 0°L, 45°S and 60°S. d) See attached Examination Coverage Profile showing the Code Required Volume (CRV). e) Surface examination <u>not</u> required. f) No relevant indications recorded.

RBS-ISI-008, B-D Examinations				
Item Number	Item ID	Item Description	% Coverage	Response to NRC Questions
B3.90	N02A-1	10" RCS Inlet Nozzle to Vessel	85.0%	a) Scanning is limited to single side access due to close proximity of nozzle transition. See attached sketches of nozzle locations, configurations and scan coverage. b) Weld scanned manually with Krautkramer and RTD search units and Staveley Sonic 136 and Krautkramer instruments. 100% of the ASME Code Required Volume cannot be examined using manual examination methods. No alternative NDE methods or advanced technologies could be practically employed to maximize ASME Code coverage. Examination performed to App. VIII requirements with Appendix VIII qualified procedures. c) Modality – Shear and longitudinal. Insonification angles - 35°S, 50°S and 60°RL. d) See attached Examination Coverage Profile showing the Code Required Volume (CRV). e) Surface examination <u>not</u> required. f) No relevant indications recorded.
B3.90	N02B-1	10" RCS Inlet Nozzle to Vessel	85.0%	a) Scanning is limited to single side access due to close proximity of nozzle transition. See attached sketches of nozzle locations, configurations and scan coverage. b) Weld scanned manually with Krautkramer and RTD search units and Staveley Sonic 136 and Krautkramer instruments. 100% of the ASME Code Required Volume cannot be examined using manual examination methods. No alternative NDE methods or advanced technologies could be practically employed to maximize ASME Code coverage. Examination performed to App. VIII requirements with Appendix VIII qualified procedures. c) Modality – Shear and longitudinal. Insonification angles - 35°S, 50°S and 60°RL. d) See attached Examination Coverage Profile showing the Code Required Volume (CRV). e) Surface examination <u>not</u> required. f) No relevant indications recorded.
B3.90	N02C-1	10" RCS Inlet Nozzle to Vessel	79.0%	a) Scanning is limited to single side access due to close proximity of nozzle transition. This nozzle also has additional limitation due to proximity of the N9 nozzle. See attached sketches of nozzle locations, configurations and scan coverage. b) Weld scanned manually with Krautkramer and RTD search units and Staveley Sonic 136 and Krautkramer instruments. 100% of the ASME Code Required Volume cannot be examined using manual examination methods. No alternative NDE methods or advanced technologies could be practically employed to maximize ASME Code coverage. Examination performed to App. VIII requirements with Appendix VIII qualified procedures. c) Modality – Shear and longitudinal. Insonification angles - 35°S, 50°S and 60°RL. d) See attached Examination Coverage Profile showing the Code Required Volume (CRV). e) Surface examination <u>not</u> required. f) No relevant indications recorded.

RBS-ISI-008, B-D Examinations				
Item Number	Item ID	Item Description	% Coverage	Response to NRC Questions
B3.90	N02D-1	10" RCS Inlet Nozzle to Vessel	79.0%	a) Scanning is limited to single side access due to close proximity of nozzle transition. This nozzle also has additional limitation due to proximity of the N9 nozzle. See attached sketches of nozzle locations, configurations and scan coverage. b) Weld scanned manually with Krautkramer and RTD search units and Staveley Sonic 136 and Krautkramer instruments. 100% of the ASME Code Required Volume cannot be examined using manual examination methods. No alternative NDE methods or advanced technologies could be practically employed to maximize ASME Code coverage. Examination performed to App. VIII requirements with Appendix VIII qualified procedures. c) Modality – Shear and longitudinal. Insonification angles - 35°S, 50°S and 60°RL. d) See attached Examination Coverage Profile showing the Code Required Volume (CRV). e) Surface examination <u>not</u> required. f) No relevant indications recorded.
B3.90	N02E-1	10" RCS Inlet Nozzle to Vessel	85.0%	a) Scanning is limited to single side access due to close proximity of nozzle transition. See attached sketches of nozzle locations, configurations and scan coverage. b) Weld scanned manually with Krautkramer and RTD search units and Staveley Sonic 136 and Krautkramer instruments. 100% of the ASME Code Required Volume cannot be examined using manual examination methods. No alternative NDE methods or advanced technologies could be practically employed to maximize ASME Code coverage. Examination performed to App. VIII requirements with Appendix VIII qualified procedures. c) Modality – Shear and longitudinal. Insonification angles - 35°S, 50°S and 60°RL. d) See attached Examination Coverage Profile showing the Code Required Volume (CRV). e) Surface examination <u>not</u> required. f) No relevant indications recorded.
B3.90	N02F-1	10" RCS Inlet Nozzle to Vessel	85.0%	a) Scanning is limited to single side access due to close proximity of nozzle transition. See attached sketches of nozzle locations, configurations and scan coverage. b) Weld scanned manually with Krautkramer and RTD search units and Staveley Sonic 136 and Krautkramer instruments. 100% of the ASME Code Required Volume cannot be examined using manual examination methods. No alternative NDE methods or advanced technologies could be practically employed to maximize ASME Code coverage. Examination performed to App. VIII requirements with Appendix VIII qualified procedures. c) Modality – Shear and longitudinal. Insonification angles - 35°S, 50°S and 60°RL. d) See attached Examination Coverage Profile showing the Code Required Volume (CRV). e) Surface examination <u>not</u> required. f) No relevant indications recorded.

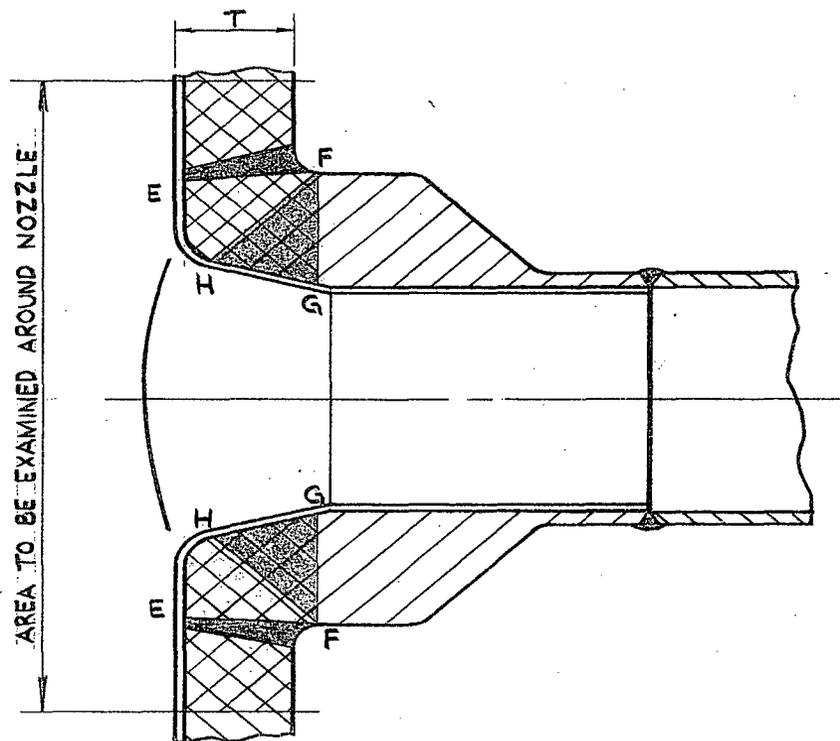
RBS-ISI-008, B-D Examinations				
Item Number	Item ID	Item Description	% Coverage	Response to NRC Questions
B3.90	N02G-1	10" RCS Inlet Nozzle to Vessel	85.0%	a) Scanning is limited to single side access due to close proximity of nozzle transition. See attached sketches of nozzle locations, configurations and scan coverage. b) Weld scanned manually with Krautkramer and RTD search units and Staveley Sonic 136 and Krautkramer instruments. 100% of the ASME Code Required Volume cannot be examined using manual examination methods. No alternative NDE methods or advanced technologies could be practically employed to maximize ASME Code coverage. Examination performed to App. VIII requirements with Appendix VIII qualified procedures. c) Modality – Shear and longitudinal. Insonification angles - 35°S, 50°S and 60°RL. d) See attached Examination Coverage Profile showing the Code Required Volume (CRV). e) Surface examination <u>not</u> required. f) No relevant indications recorded.
B3.90	N02H-1	10" RCS Inlet Nozzle to Vessel	79.0%	a) Scanning is limited to single side access due to close proximity of nozzle transition. This nozzle also has additional limitation due to proximity of the N9 nozzle. See attached sketches of nozzle locations, configurations and scan coverage. b) Weld scanned manually with Krautkramer and RTD search units and Staveley Sonic 136 and Krautkramer instruments. 100% of the ASME Code Required Volume cannot be examined using manual examination methods. No alternative NDE methods or advanced technologies could be practically employed to maximize ASME Code coverage. Examination performed to App. VIII requirements with Appendix VIII qualified procedures. c) Modality – Shear and longitudinal. Insonification angles - 35°S, 50°S and 60°RL. d) See attached Examination Coverage Profile showing the Code Required Volume (CRV). e) Surface examination <u>not</u> required. f) No relevant indications recorded.
B3.90	N02J-1	10" RCS Inlet Nozzle to Vessel	79.0%	a) Scanning is limited to single side access due to close proximity of nozzle transition. This nozzle also has additional limitation due to proximity of the N9 nozzle. See attached sketches of nozzle locations, configurations and scan coverage. b) Weld scanned manually with Krautkramer and RTD search units and Staveley Sonic 136 and Krautkramer instruments. 100% of the ASME Code Required Volume cannot be examined using manual examination methods. No alternative NDE methods or advanced technologies could be practically employed to maximize ASME Code coverage. Examination performed to App. VIII requirements with Appendix VIII qualified procedures. c) Modality – Shear and longitudinal. Insonification angles - 35°S, 50°S and 60°RL. d) See attached Examination Coverage Profile showing the Code Required Volume (CRV). e) Surface examination <u>not</u> required. f) No relevant indications recorded.

RBS-ISI-008, B-D Examinations				
Item Number	Item ID	Item Description	% Coverage	Response to NRC Questions
B3.90	N02K-1	10" RCS Inlet Nozzle to Vessel	85.0%	a) Scanning is limited to single side access due to close proximity of nozzle transition. See attached sketches of nozzle locations, configurations and scan coverage. b) Weld scanned manually with Krautkramer and RTD search units and Staveley Sonic 136 and Krautkramer instruments. 100% of the ASME Code Required Volume cannot be examined using manual examination methods. No alternative NDE methods or advanced technologies could be practically employed to maximize ASME Code coverage. Examination performed to App. VIII requirements with Appendix VIII qualified procedures. c) Modality – Shear and longitudinal. Insonification angles - 35°S, 50°S and 60°RL. d) See attached Examination Coverage Profile showing the Code Required Volume (CRV). e) Surface examination <u>not</u> required. f) No relevant indications recorded.



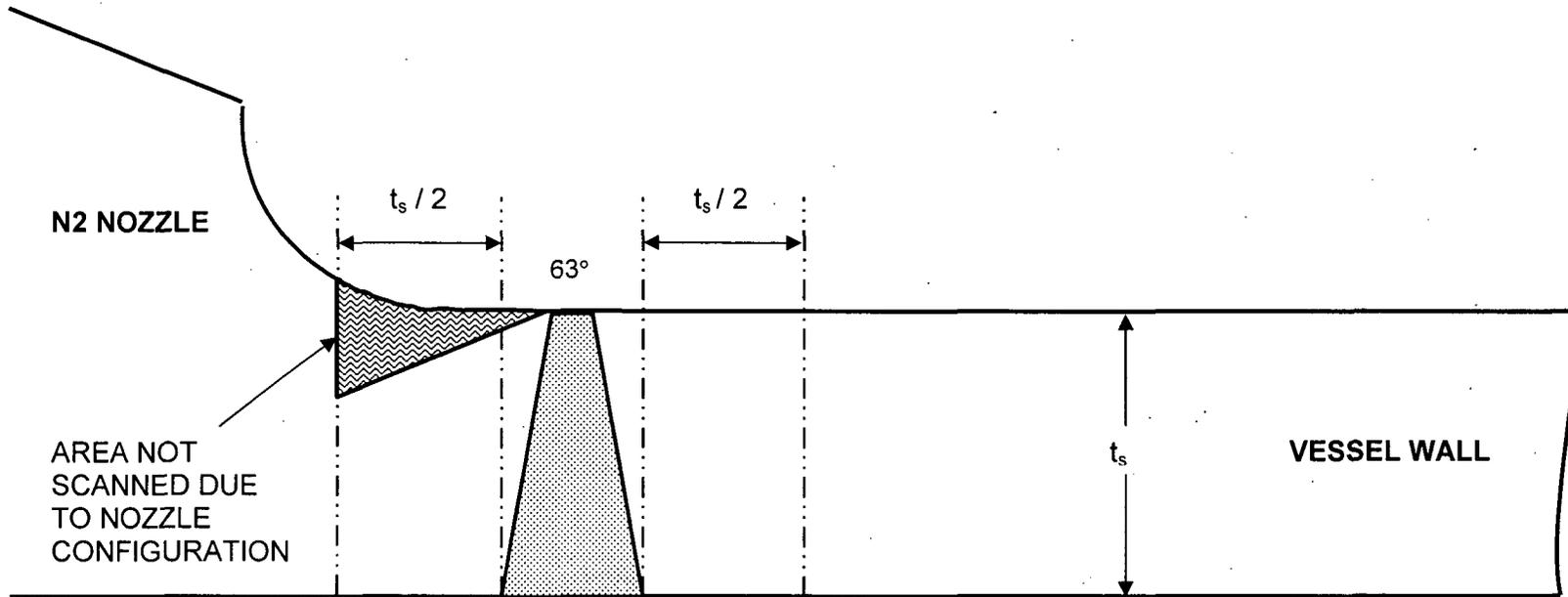
NOTES:
 1. DIM'S ARE IN CM.
 2. VESSEL ELEV. 0 = PLANT ELEV. 102 FT.
 3. REF. DWG. 9714-FIG. E-1 BY ROCKWELL
 4. ALL WELDS TO BE PREFIXED BY 1013-D-001
 5. THIS DWG. IS NOT TO SCALE.

REV.:		DATE: 3-11-88	DRAWN: CA6	CHK'D: JS	APPR.: JBB	DATE: 3-5-88	DWG. NO. RBS-ISI-022	REACTOR PRESSURE VESSEL
							SEAM JOINT ID, NOZZLE LOCATION & WELD MAP	



1	2-21-86	NEW ISSUE	CAG	JWL	RB	2-21-87	NOZZLE-TO-VESSEL SCAN COVERAGE	
REV.	DATE	DESCRIPTION	DRWN.	CHK'D	APPR.	DATE	DWG. NO.	RB9-ISI-133

B13-D001 N02A-1 through N02K-1
NOZZLE-TO-VESSEL CONFIGURATION AND EXAMINATION LIMITATIONS



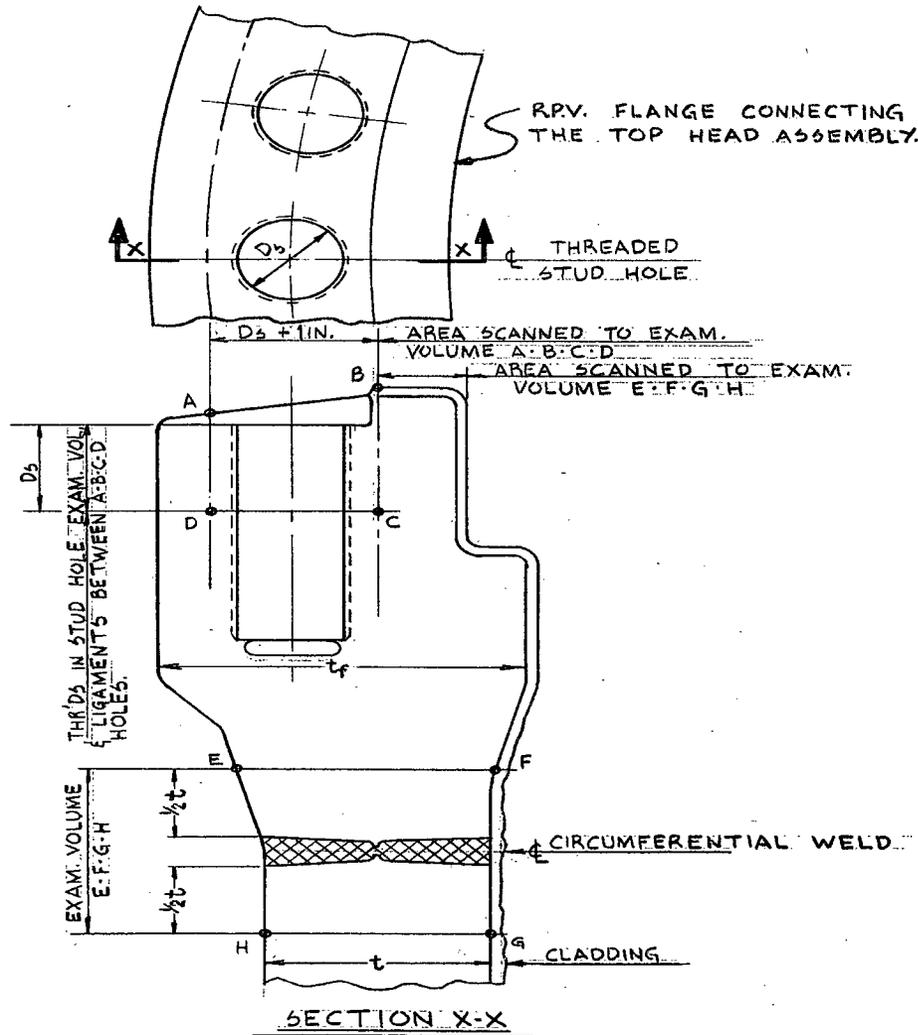
NOTES

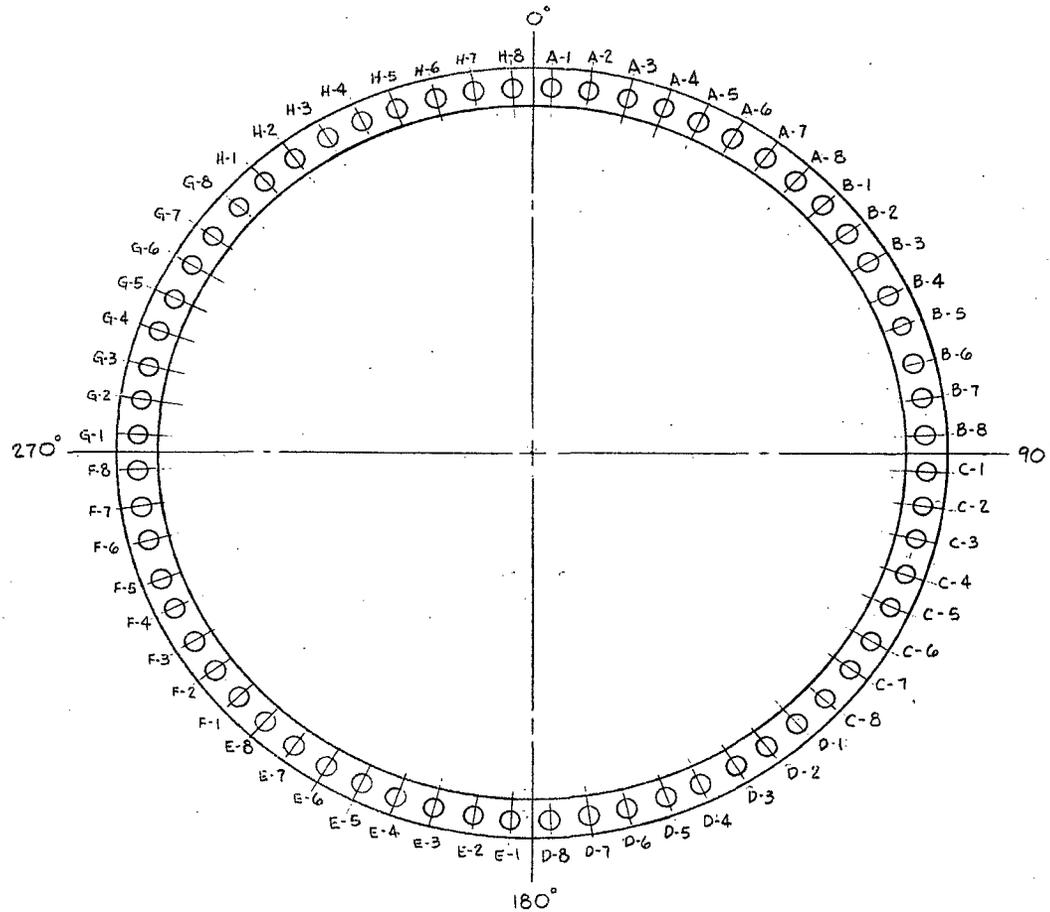
1. Appendix VIII procedures utilized for these examinations

RBS-ISI-009, B – G - 1 Examinations				
Item Number	Item ID	Item Description	% Coverage	Response to NRC Questions
B6.40	FLG LIG A1-A8 through FLG LIG H1-H8	Reactor Vessel Threads-in-Flange	87%	<ul style="list-style-type: none"> a) Scanning obstructed between 333° and 27° at each stud hole location due to raised seal face configuration. See attached sketches of flange stud hole locations, configurations and scan coverage. b) Subject area scanned manually with Staveley and KBA search units and Krautkramer, Staveley and Panametrics instruments. 100% of the ASME Code Required Volume cannot be examined using manual examination methods. No alternative NDE methods or advanced technologies could be practically employed to maximize ASME Code coverage. c) Modality – longitudinal. Insonification angle - 0°L. d) See attached Examination Coverage Profile showing the Code Required Volume (CRV). e) Surface examination not required. f) No relevant indications recorded.

REACTOR PRESSURE VESSEL FLANGE THREADS GENERAL CONFIGURATION AND NUMBERING ARRANGEMENT

SHELL TO FLANGE WELD JOINT & LIGAMENT AREA





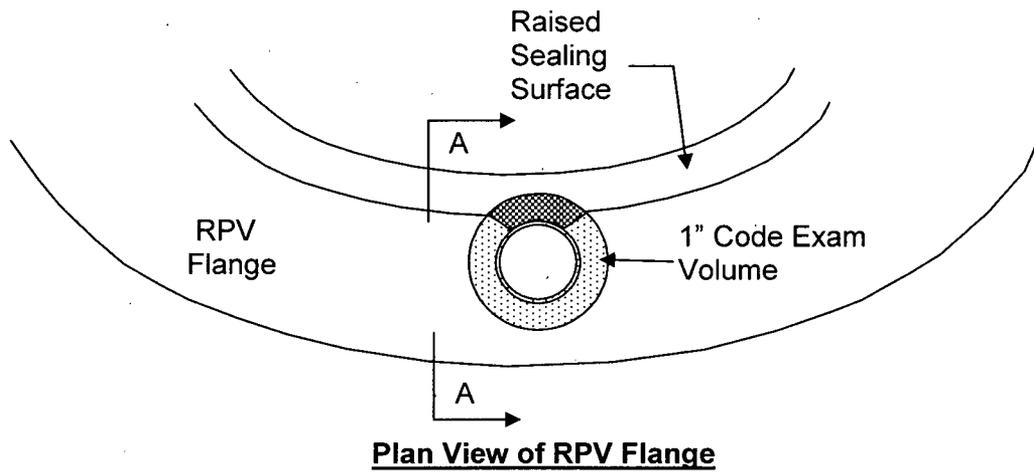
BOLTING ARRANGEMENT

NOTES:

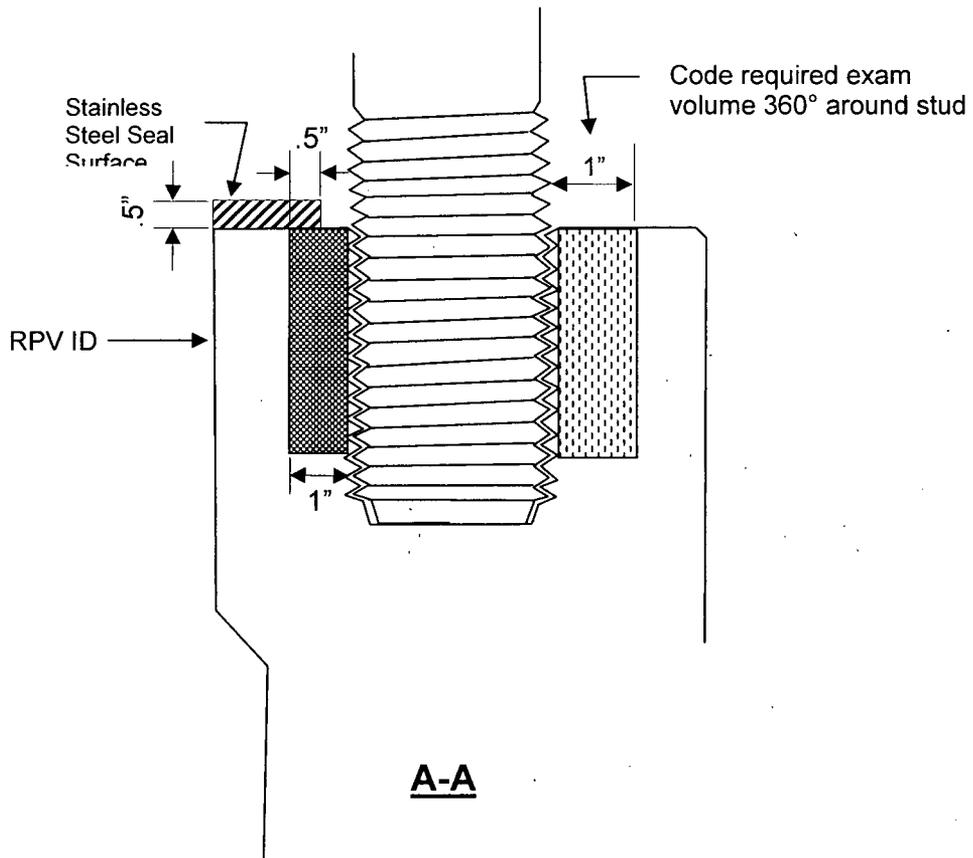
1. ALL WELDS TO BE PREFIXED BY -1B13-D-001
2. THE BOLTING SEQUENCE BEGINS WITH THE FIRST BOLT CLOCKWISE FROM AZIMUTH 0°
3. REF. C.B.I. DWG. VPF-3614-669, AND G.E. DWG. 105D5281.
4. THIS DWG. IS NOT TO SCALE.

DWG. NO.	RBS-ISI-018
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REACTOR PRESSURE VESSEL FLANGE THREADS EXAMINATION COVERAGE



-  Unable to scan the full 1" of Code required volume
-  Area scanned



NOTES:

1. Diagram not to scale

RBS-ISI-010, B - J Examinations

Item Number	Item ID	Item Description	% Coverage	Response to NRC Questions
B9.11	RCS-900B-FWB06	RCS pump to 20" Pipe, SS	80.7%	a) Scanning from pipe side only of pipe-to-pump weld configuration. See attached sketches of configurations and scan coverage. b) Subject area scanned manually with KBA and RTD search units and Staveley instruments. 100% of the ASME Code Required Volume cannot be examined using manual examination methods. No alternative NDE methods or advanced technologies could be practically employed to maximize ASME Code coverage. Examination performed prior to PDI implementation. c) Modality – Shear and longitudinal. Insonification angles - 45°S and 60°RL. 45°RL used for axial and circ scans due to overlay. d) See attached Examination Coverage Profile showing the Code Required Volume (CRV). e) Surface examination performed with full code coverage. f) No relevant indications recorded.
B9.11	RCS-900C-FWB015	Sweep-O-Let to 10" Pipe, SS	85.0%	a) Scanning from pipe side only of pipe-to-sweep-o-let weld configuration. See attached sketches of configurations and scan coverage. b) Subject area scanned manually with KBA and Megasonics search units and Staveley instruments. 100% of the ASME Code Required Volume cannot be examined using manual examination methods. No alternative NDE methods or advanced technologies could be practically employed to maximize ASME Code coverage. Examination performed prior to PDI implementation. c) Modality – Shear and longitudinal. Insonification angles - 45°S and 60°RL. d) See attached Examination Coverage Profile showing the Code Required Volume (CRV). e) Surface examination performed with full code coverage. f) No relevant indications recorded.
B9.11	RCS-900C-FWB016	Sweep-O-Let to 10" Pipe, SS	85.0%	a) Scanning from pipe side only of pipe-to-sweep-o-let weld configuration. See attached sketches of configurations and scan coverage. b) Subject area scanned manually with KBA and Megasonics search units and Staveley instruments. 100% of the ASME Code Required Volume cannot be examined using manual examination methods. No alternative NDE methods or advanced technologies could be practically employed to maximize ASME Code coverage. Examination performed prior to PDI implementation. c) Modality – Shear and longitudinal. Insonification angles - 45°S and 60°RL. d) See attached Examination Coverage Profile showing the Code Required Volume (CRV). e) Surface examination performed with full code coverage. f) No relevant indications recorded.

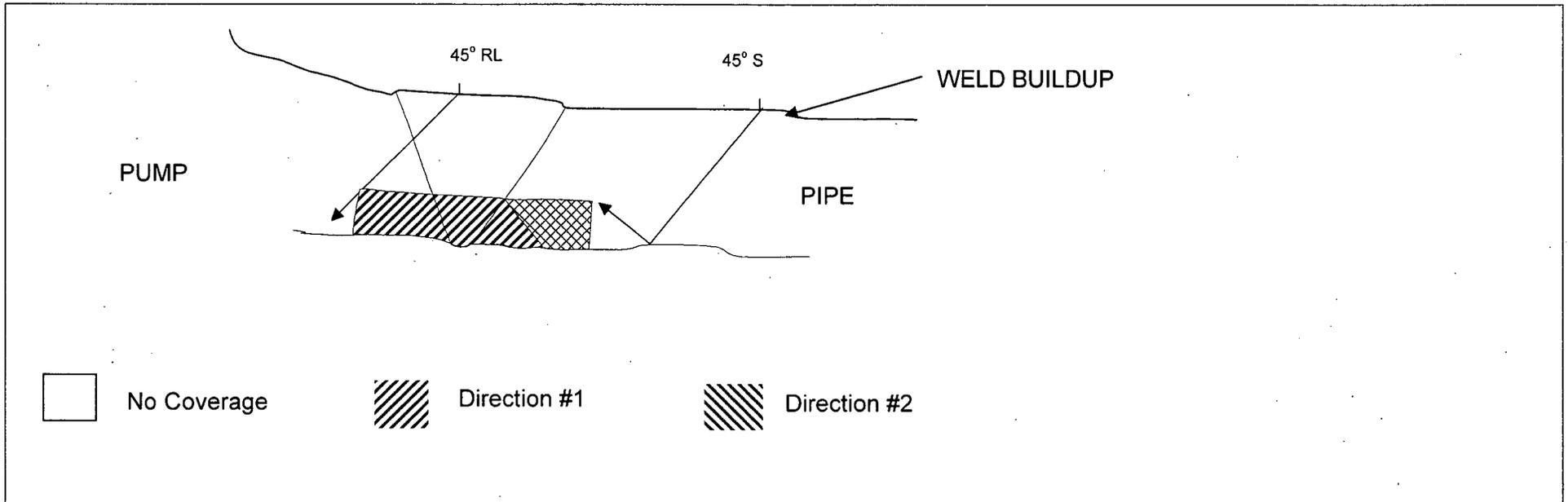
RBS-ISI-010, B - J Examinations				
Item Number	Item ID	Item Description	% Coverage	Response to NRC Questions
B9.31	RCS-900CX-SW014BC	16" Pipe to Sweep-O-Let, SS	86.0%	a) Scanning from pipe side only of pipe-to-sweep-o-let weld configuration. See attached sketches of configurations and scan coverage. b) Subject area scanned manually with KBA and Megasonics search units and Staveley instruments. 100% of the ASME Code Required Volume cannot be examined using manual examination methods. No alternative NDE methods or advanced technologies could be practically employed to maximize ASME Code coverage. Examination performed prior to PDI implementation. c) Modality – Shear and longitudinal. Insonification angles - 45°S and 60°RL. d) See attached Examination Coverage Profile showing the Code Required Volume (CRV). e) Surface examination performed with full code coverage. f) No relevant indications recorded.
B9.31	RCS-900CX-SW014CB	16" Pipe to Sweep-O-Let, SS	86.0%	a) Scanning from pipe side only of pipe-to-sweep-o-let weld configuration. See attached sketches of configurations and scan coverage. b) Subject area scanned manually with KBA and Megasonics search units and Staveley instruments. 100% of the ASME Code Required Volume cannot be examined using manual examination methods. No alternative NDE methods or advanced technologies could be practically employed to maximize ASME Code coverage. Examination performed prior to PDI implementation. c) Modality – Shear longitudinal. Insonification angles - 45°S and 60°RL. d) See attached Examination Coverage Profile showing the Code Required Volume (CRV). e) Surface examination performed with full code coverage. f) No relevant indications recorded.
B9.11	WCS-001A1-XI-FW005	4" Pipe to valve weld	70.9%	a) Scanning from pipe side only of pipe-to-valve weld configuration. See attached sketches of configurations and scan coverage. b) Subject area scanned manually with KBA search unit and Staveley instrument. 100% of the ASME Code Required Volume cannot be examined using manual examination methods. No alternative NDE methods or advanced technologies could be practically employed to maximize ASME Code coverage. Examination performed prior to PDI implementation. c) Modality – Shear. Insonification angle - 45°S and 70°S. d) See attached Examination Coverage Profile showing the Code Required Volume (CRV). e) Surface examination performed with full code coverage. f) No relevant indications recorded. Root geometry recorded - 360° - outside of weld required volume.

RBS-ISI-010, B - J Examinations

Item Number	Item ID	Item Description	% Coverage	Response to NRC Questions
B9.11	WCS-001A3-XI-FW011	4" Pipe to reducer weld	79.0%	a) Scanning from reducer side of pipe-to-reducer weld limited due to weld crown configuration. See attached sketches of configurations and scan coverage. b) Subject area scanned manually with KBA search unit and Staveley instrument. 100% of the ASME Code Required Volume cannot be examined using manual examination methods. No alternative NDE methods or advanced technologies could be practically employed to maximize ASME Code coverage. Examination performed prior to PDI implementation. c) Modality – Shear. Insonification angles - 45°S and 70°S. d) See attached Examination Coverage Profile showing the Code Required Volume (CRV). e) Surface examination performed with full code coverage. f) No relevant indications recorded.
B9.11	WCS-005A-XI-SW002	6" Pipe to tee	80.5%	a) Scanning from tee side, only ~ 60% of circumference of pipe-to-tee weld accessible due to fitting configuration. See attached sketches of configurations and scan coverage. b) Subject area scanned manually with KBA and RTD search units and Staveley instrument. 100% of the ASME Code Required Volume cannot be examined using manual examination methods. No alternative NDE methods or advanced technologies could be practically employed to maximize ASME Code coverage. Examination performed after PDI implementation with Appendix VIII qualified procedures. c) Modality – Shear and longitudinal. Insonification angles - 45°S, 60°S and 60°L. d) See attached Examination Coverage Profile showing the Code Required Volume (CRV). e) Surface examination performed with full code coverage. f) No relevant indications recorded.
B9.11	WCS-005A-XI-SW003	6" Tee to branch	77.3%	a) Scanning from tee side, only ~ 55% of circumference of pipe-to-tee weld (at branch) accessible due to fitting configuration. See attached sketches of configurations and scan coverage. b) Subject area scanned manually with KBA and RTD search units and Staveley instrument. 100% of the ASME Code Required Volume cannot be examined using manual examination methods. No alternative NDE methods or advanced technologies could be practically employed to maximize ASME Code coverage. Examination performed after PDI implementation with Appendix VIII qualified procedures. c) Modality – Shear and longitudinal. Insonification angles - 45°S, 60°S and 60°L. d) See attached Examination Coverage Profile showing the Code Required Volume (CRV). e) Surface examination performed with full code coverage. f) No relevant indications recorded.

RBS-ISI-010, B - J Examinations				
Item Number	Item ID	Item Description	% Coverage	Response to NRC Questions
B9.11	WCS-001A3- XI-SW002	6" Pipe to tee	80.5%	<p>a) Scanning from tee side, only ~ 60% of circumference of pipe-to-tee weld accessible due to fitting configuration. See attached sketches of configurations and scan coverage.</p> <p>b) Subject area scanned manually with KBA and RTD search units and Staveley instrument. 100% of the ASME Code Required Volume cannot be examined using manual examination methods. No alternative NDE methods or advanced technologies could be practically employed to maximize ASME Code coverage. Examination performed after PDI implementation with Appendix VIII qualified procedures.</p> <p>c) Modality – Shear and longitudinal. Insonification angles - 45°S, 60°S and 60°L.</p> <p>d) See attached Examination Coverage Profile showing the Code Required Volume (CRV).</p> <p>e) Surface examination performed with full code coverage.</p> <p>f) No relevant indications recorded.</p>

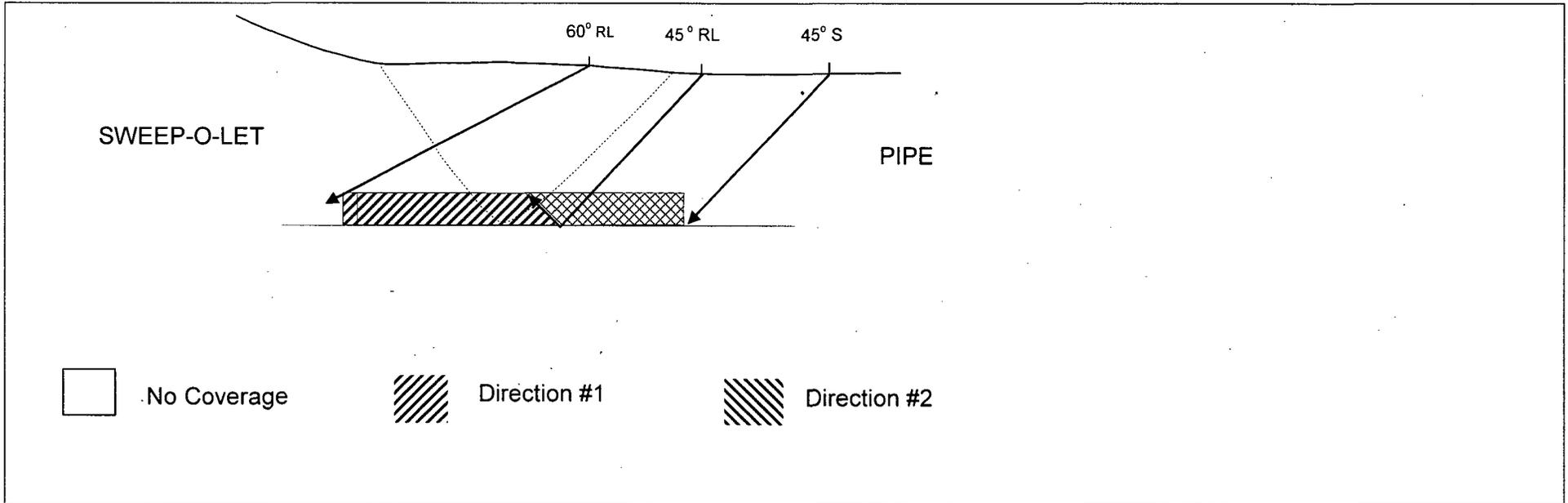
RCS-900B-FWB06
PUMP-TO-PIPE CONFIGURATION AND EXAMINATION COVERAGE



NOTES:

1. This is an approximate percent of the examination volume for which coverage was obtained.
2. The plot shown is a representation of the actual profile and not to scale.

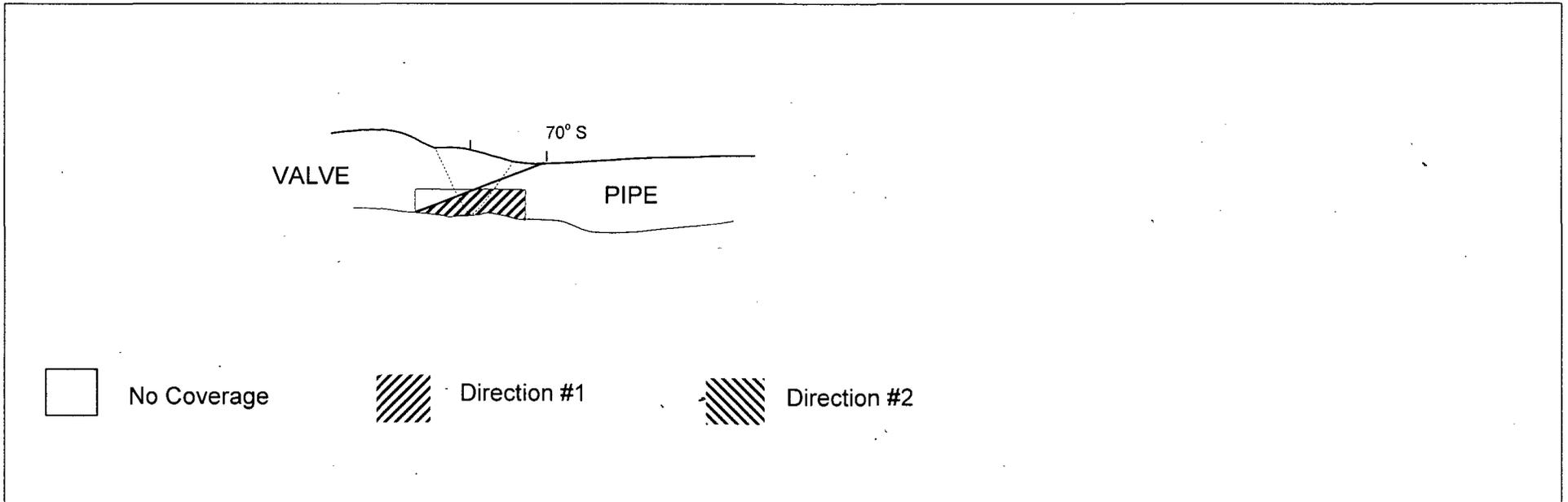
RCS-900C-FWB015, RCS-900C-FWB016, RCS-900CX-SW014CB and RCS-900CX-SW014BC
SWEEP-O-LET - TO - PIPE CONFIGURATION AND EXAMINATION COVERAGE



NOTES:

1. This is an approximate percent of the examination volume for which coverage was obtained.
2. The plot shown is a representation of the actual profile and not to scale.

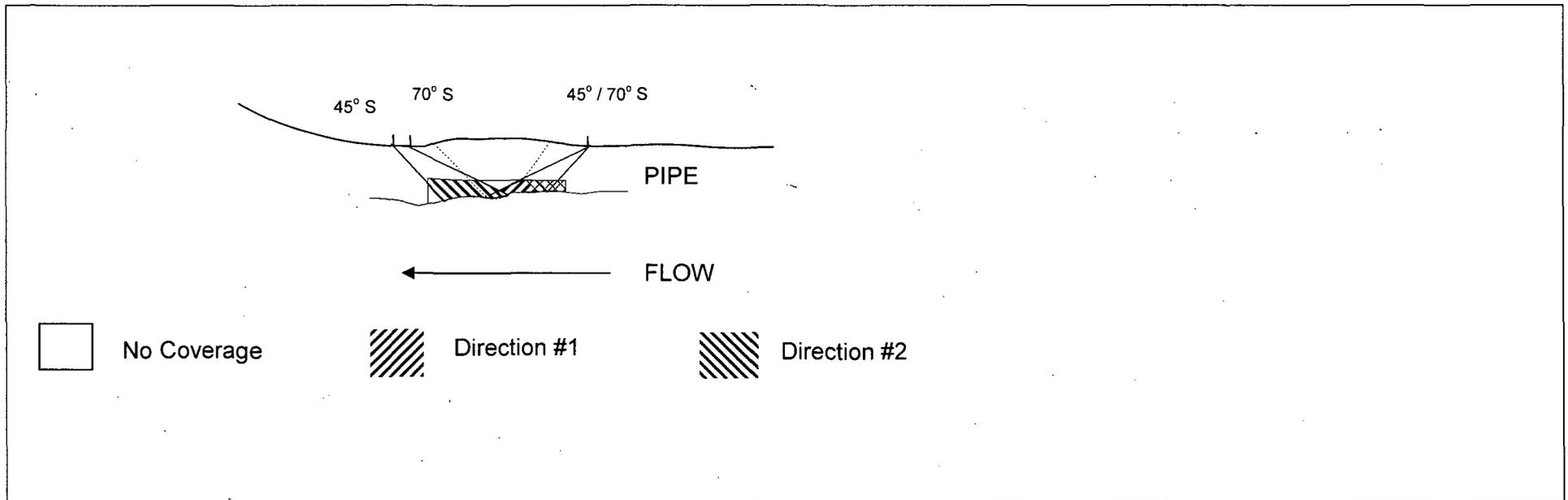
WCS – 001A1 - XI – FW005
VALVE-TO-PIPE CONFIGURATION AND EXAMINATION COVERAGE



NOTES:

1. This is an approximate percent of the examination volume for which coverage was obtained.
2. The plot shown is a representation of the actual profile and not to scale.

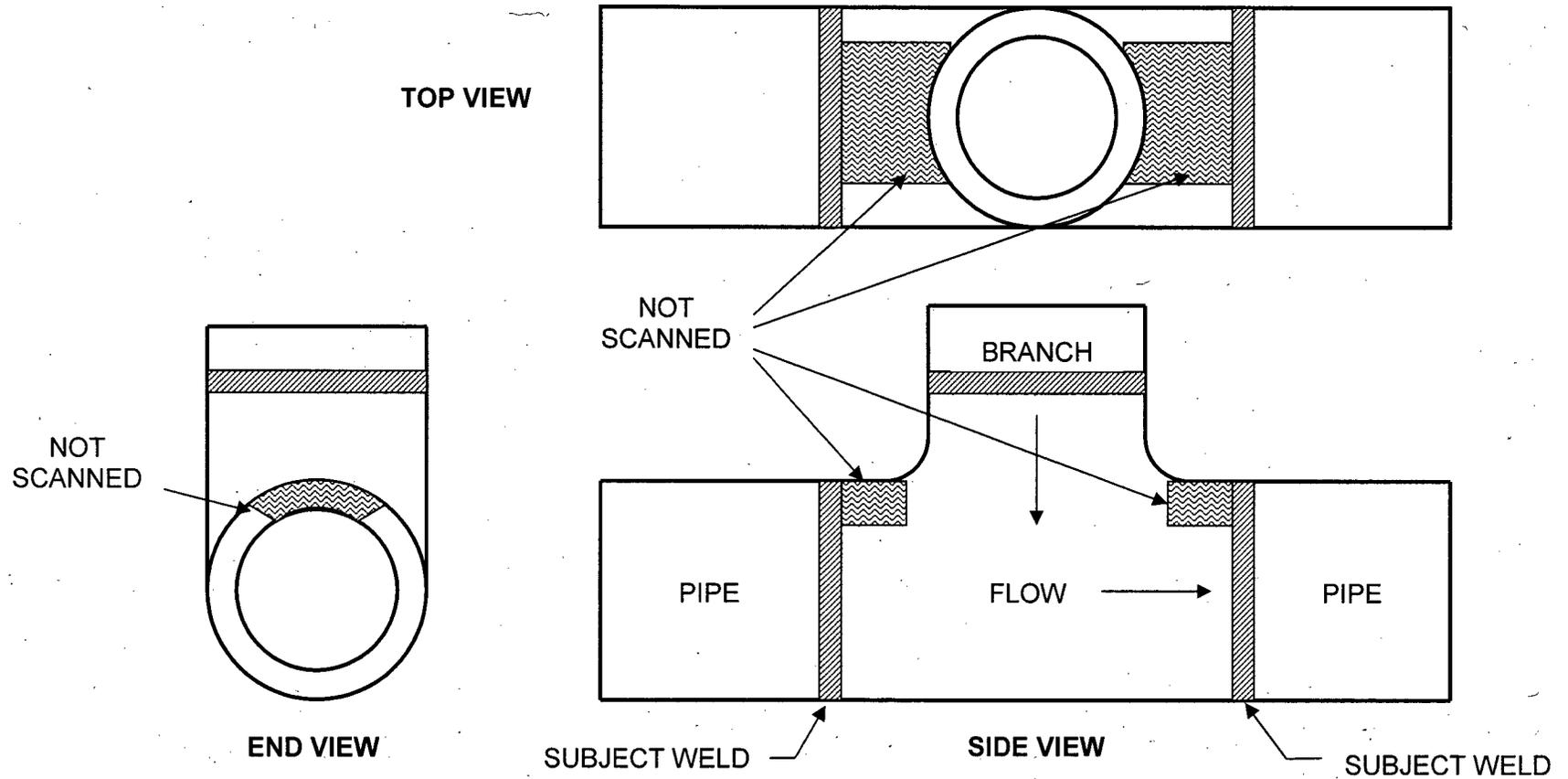
WCS-001A3-XI-FW011
REDUCER-TO-PIPE CONFIGURATION AND EXAMINATION COVERAGE



NOTES:

1. This is an approximate percent of the examination volume for which coverage was obtained.
2. The plot shown is a representation of the actual profile and not to scale.

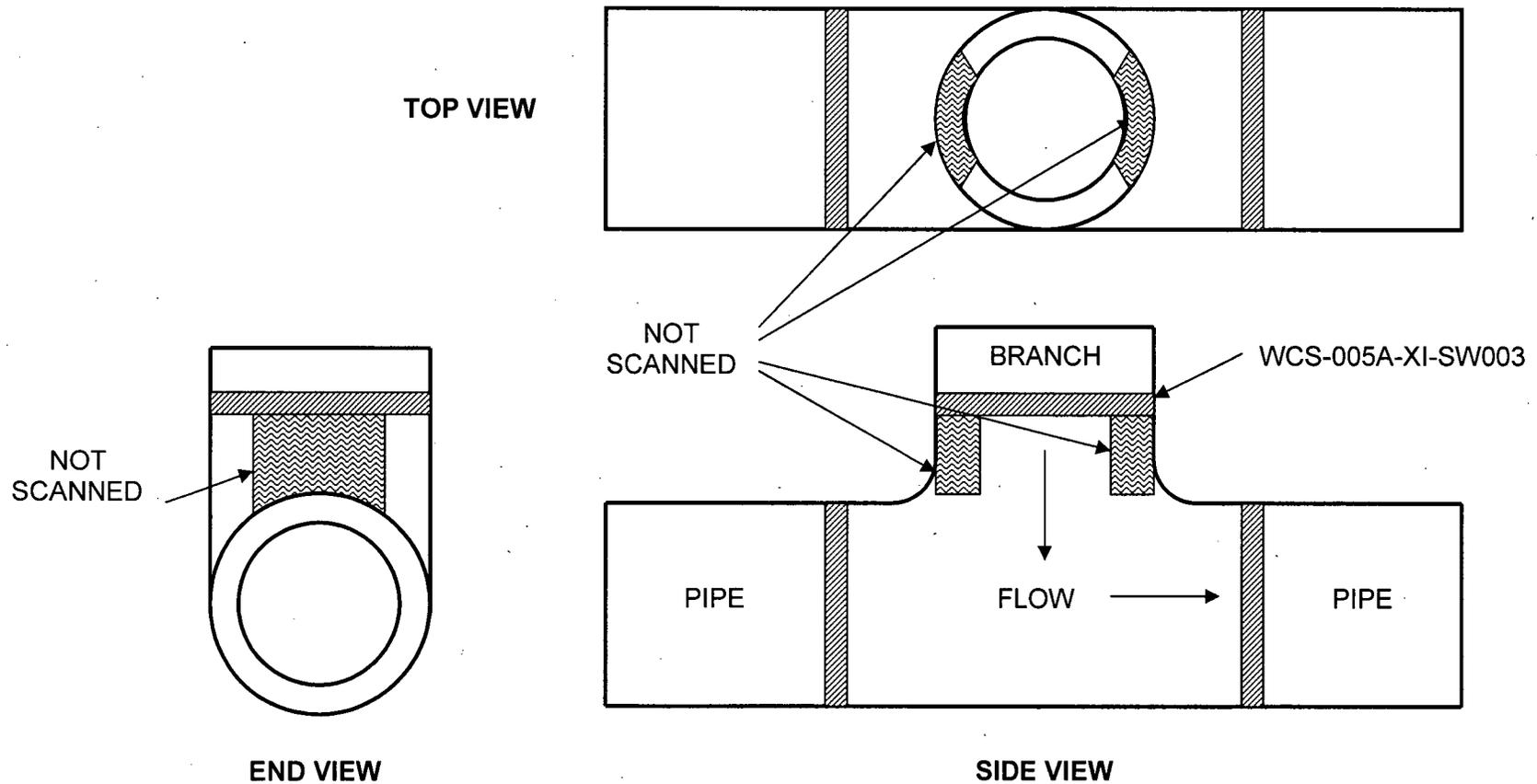
WCS-005A-XI-SW002, WCS-001A3-XI-SW002
PIPE-TO-TEE CONFIGURATION AND EXAMINATION LIMITATIONS



NOTES:

1. This is an approximation of the examination volume for which coverage was not obtained.
2. The plot shown is a representation of the actual profile and not to scale.

WCS-005A-XI-SW003
TEE-TO-BRANCH CONFIGURATION AND EXAMINATION LIMITATIONS



NOTES:

1. This is an approximation of the examination volume for which coverage was not obtained.
2. The plot shown is a representation of the actual profile and not to scale.

RBS-ISI-011, B - K Examinations				
Item Number	Item ID	Item Description	% Coverage	Response to NRC Questions
B10.10	CG	RPV Support Skirt Attachment Weld	50%	a) Code permitted surface examination performed in lieu of volumetric examination. Only exterior portion of the attachment weld is accessible due to configuration. See attached sketch of configuration and area of examination coverage. b) Subject area examined manually with magnetic particle method. 100% of the ASME Code Required Volume cannot be examined using manual examination methods. No alternative NDE methods or advanced technologies could be practically employed to maximize ASME Code coverage. c) Modality – N/A. Insonification angles – N/A. d) See attached Examination Coverage Profile showing the Code Required Volume (CRV). e) Surface examination performed with full code coverage of exterior portion of attachment only. f) No relevant indications recorded.

**REACTOR PRESSURE VESSEL INTEGRALLY WELDED SKIRT
CONFIGURATION AND EXTENT OF EXAMINATION**

