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a joint venture of

CALVERT CLIFFS
NUCLEAR POWER PLANT

December 29, 2011

U. S. Nuclear Regulatory Commission
Washington, DC 20555**ATTENTION:** Document Control Desk**SUBJECT:** Calvert Cliffs Nuclear Power Plant
Unit Nos. 1 & 2; Docket Nos. 50-317 & 50-518
Relief Requests for Dissimilar Metal Butt Welds Baseline Inspections
(RR-ISI-04-06 & ISI-04-07)

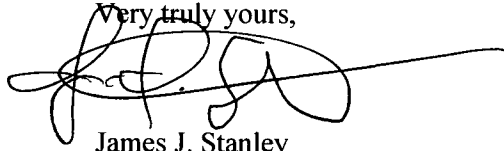
With the issuance of the revised 10 CFR 50.55a in July 2011, the Nuclear Regulatory Commission incorporated by reference American Society of Mechanical Engineers (ASME) Code Case N-770-1, "Alternative Examination Requirements and Acceptance Standards for Class 1 PWR Piping and Vessel Nozzle Butt Welds Fabricated with UNS N06082 or UNS W86182 Weld Filler Material With or Without Application of Listed Mitigation Activities, Section XI, Division 1." Specific implementing requirements for ASME Code Case N-770-1 are documented in 10 CFR 50.55a(g)(6)(ii)(F)(2 thru 10). Calvert Cliffs Nuclear Power Plant, LLC (Calvert Cliffs) hereby requests Nuclear Regulatory Commission approval for use of alternative examination requirements to be applied for baseline examinations associated with dissimilar metal butt welds required by ASME Code Case N-770-1. Relief Request RR-ISI-04-06 addresses the applicable Unit 1 dissimilar metal butt welds and RR-ISI-04-07 addresses the applicable Unit 2 dissimilar metal butt welds. Use of these alternative examination requirements, as detailed in Attachments (1) and (2), maintain an acceptable level of quality and safety pursuant to 10 CFR 50.55a(a)(3)(i).

Because Item (3) of 10 CFR 50.55a(g)(6)(ii)(F) requires that all Inspection Items A-1, A-2, and B receive a baseline examination by the end of the first refueling outage after January 20, 2012, Calvert Cliffs requests approval of these alternative examination requirements be completed by February 15, 2012. This approval date supports unit startup following Unit 1's 2012 Refueling Outage, which is scheduled to commence in February 2012 (the first outage after January 20, 2012). This relief request is effective for Calvert Cliffs Fourth Ten-Year Inservice Inspection Interval.

A047
NRR

Should you have questions regarding this matter, please contact Mr. Douglas E. Lauver at (410) 495-5219.

Very truly yours,



James J. Stanley
Manager – Engineering Services

JJS/KLG/bjd

- Attachments: (1) Relief Request for Calvert Cliffs Unit 1 Dissimilar Metal Butt Weld Examinations (RR-ISI-04-06)
Enclosure: 1. Unit 1 Examination Coverage Plots
- (2) Relief Request for Calvert Cliffs Unit 2 Dissimilar Metal Butt Weld Examinations (RR-ISI-04-07)
Enclosure: 1. Unit 2 Examination Coverage Plots

cc: D. V. Pickett, NRC
W. M. Dean, NRC

Resident Inspector, NRC
S. Gray, DNR

ATTACHMENT (1)

**RELIEF REQUEST FOR CALVERT CLIFFS UNIT 1 DISSIMILAR
METAL BUTT WELD EXAMINATIONS (RR-ISI-04-06)**

ATTACHMENT (1)

**RELIEF REQUEST FOR CALVERT CLIFFS UNIT 1 DISSIMILAR METAL BUTT WELD
EXAMINATIONS (RR-ISI-04-06)**

1. ASME Code Component(s) Affected

Code Class 1 PWR Pressure Retaining Dissimilar Metal Piping and Vessel Nozzle Butt Welds Containing Alloy 82/182. American Society of Mechanical Engineers (ASME) Code Case N-770-1, Table 1, Examinations Categories, Inspection Item B – Unmitigated butt weld at cold leg operating temperature, Inspection Item D – Uncracked butt weld mitigated with stress improvement, Inspection Item E – Cracked butt weld mitigated with stress improvement.

2. Applicable Code Edition and Addenda

ASME Boiler and Pressure Vessel Code, Section XI, 2004 Edition, no Addenda - Code Case N-770-1 subject to conditions specified in 10 CFR 50.55a(g)(6)(ii)(F)(2 through 10).

3. Applicable Code Requirement

With the issuance of a revised 10 CFR 50.55a in July 2011, the Nuclear Regulatory Commission (NRC) incorporated by reference ASME Code Case N-770-1, “Alternative Examination Requirements and Acceptance Standards for Class 1 PWR Piping and Vessel Nozzle Butt Welds Fabricated with UNS N06082 or UNS W86182 Weld Filler Material With or Without Application of Listed Mitigation Activities, Section XI, Division 1” (ASME Approval Date: December 25, 2009). Specific implementing requirements are documented in 10 CFR 50.55a(g)(6)(ii)(F) and are listed below.

- (1) Licensees of existing, operating pressurized-water reactors as of July 21, 2011 shall implement the requirements of ASME Code Case N-770-1, subject to the conditions specified in paragraphs (g)(6)(ii)(F)(2) through (g)(6)(ii)(F)(10) of this section, by the first refueling outage after August 22, 2011.
- (2) Full structural weld overlays authorized by the NRC staff may be categorized as Inspection Items C or F, as appropriate; welds that have been mitigated by the Mechanical Stress Improvement Process (MSIP™) may be categorized as Inspection Items D or E, as appropriate, provided the criteria in Appendix I of the code case have been met; for Inservice Inspection (ISI) frequencies, all other butt welds that rely on Alloy 82/182 for structural integrity shall be categorized as Inspection Items A-1, A-2, or B until the NRC staff has reviewed the mitigation and authorized an alternative code case Inspection Item for the mitigated weld, or until an alternative code case Inspection Item is used based on conformance with an ASME mitigation code case endorsed in Regulatory Guide 1.147 with conditions, if applicable, and incorporated in this section.
- (3) Baseline examinations for welds in ASME Code Case N-770-1, Table 1, Inspection Items A-1, A-2, and B, shall be completed by the end of the next refueling outage after January 20, 2012. Previous examinations of these welds can be credited for baseline examinations if they were performed within the re-inspection period for the weld item in ASME Code Case N-770-1, Table 1 using Section XI, Appendix VIII requirements and met the Code required examination volume of essentially 100 percent. Other previous examinations that do not meet these requirements can be used to meet the baseline examination requirement, provided NRC approval of alternative inspection requirements in accordance with paragraphs (a)(3)(i) or (a)(3)(ii) of this section is granted prior to the end of the next refueling outage after January 20, 2012.

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EXAMINATIONS (RR-ISI-04-06)**

(4) The axial examination coverage requirements of –2500(c) may not be considered to be satisfied unless essentially 100 percent coverage is achieved.

Items (5) through (9) of 10 CFR 50.55a(g)(6)(ii)(F) address future inspections beyond the baseline examination and are therefore not discussed in this relief request. Item (10) of 10 CFR 50.55a(g)(6)(ii)(F) addresses a mitigation that Calvert Cliffs does not have and is therefore not discussed in this relief request.

4. Reason for Request

The relevant conditions for this relief request are items (2) through (4) of 10 CFR 50.55a(g)(6)(ii)(F). These requirements are applicable to the welds listed in Table A below. Item (2) addresses defining the appropriate Inspection Item. Item (3) addresses performing the required baseline examination for that Inspection Item, while item (4) addresses the required examination coverage.

Item (2) of 10 CFR 50.55a(g)(ii)(F) requires that welds that have been mitigated by the MSIP™ may be categorized as Inspection Items D or E, as appropriate, provided the criteria in Appendix I of the Code Case have been met.

Item (3) of 10 CFR 50.55a(g)(6)(ii)(F) requires that all Inspection Items A-1, A-2, and B receive a baseline examination by the end of the first refueling outage after January 20, 2012. This report evaluates each location based on the specific Inspection Item frequency and examination coverage.

Whereas MRP-139 and ASME Code Case N-770-1 made allowances for axial examination coverage of dissimilar metal (DM) welds, the NRC has stated in item (4) above that essentially 100 percent coverage is required. This applies to meeting the baseline requirements for Item (3) above.

5. Component/Weld Scope

The welds shown in Table A below are the applicable welds 2 inch nominal pipe size and greater covered by the requirements contained in ASME Code Case N-770-1, Section -1000. These welds have been categorized in accordance with Table 1 from ASME Code Case N-770-1. The ASME Section XI examination volume coverage achieved during the 2010 outage is also included in Table A below.

Examination coverage plots are included in Enclosure 1 for those inspections for which essentially 100 percent coverage was unable to be obtained.

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RELIEF REQUEST FOR CALVERT CLIFFS UNIT 1 DISSIMILAR METAL BUTT WELD EXAMINATIONS (RR-ISI-04-06)

TABLE A, UNIT 1 DM WELD POPULATION										
DM Weld Designator / ID	Location	Nozzle Size	Inspection Item Category	ASME Section XI Coverage	ASME Axial Scan (%)	ASME Circ Scan (%)	MRP-139 Coverage	MRP-139 Axial Scan (%)	MRP-139 Circ Scan (%)	Notes
102300 / 30-RC-11A-7	11A RCP Inlet	30"	B	52.50%	60	45	92.50%	100	85	1,5
102450 / 30-RC-11A-10	11A RCP Outlet	30"	B	57.00%	68	46	88.50%	98	79	3,6,7
104550 / 30-RC-11B-7	11B RCP Inlet	30"	B	57.00%	65	49	91.50%	100	83	1,5
104700 / 30-RC-11B-10	11B RCP Outlet	30"	B	43.50%	53	34	88.50%	98	79	3,6,7
107450 / 30-RC-12A-7	12A RCP Inlet	30"	B	57.50%	70	49	90.50%	100	81	1,5
107600 / 30-RC-12A-10	12A RCP Outlet	30"	B	53.00%	63	43	90.50%	100	81	1,5
109600 / 30-RC-12B-7	12B RCP Inlet	30"	B	53.50%	62	45	91.50%	100	83	1,5
109750 / 30-RC-12B-10	12B RCP Outlet	30"	B	60.50%	71	50	91.50%	100	83	1,7
110450 / 12-PSL-1	PZR Surge @ PZR	12"	D	50.50%	63	38	82.50%	100	65	1,5,8
111100 / 12-PSL-13	PZR Surge @ RCS Hot Leg	12"	E	59.00%	61	57	97.00%	100	94	1,4
113150 / 12-SC-1004-1	Shutdown Cooling to RCS Hot Leg	12"	D	70.50%	71	70	99.00%	100	98	1,4
114350 / 12-SI-1009-16	Safety Injection to 11A Cold Leg	12"	B	57.00%	65	49	93.50%	100	87	1,5
115200 / 12-SI-1010-14	Safety Injection to 11B Cold Leg	12"	B	47.00%	62	32	86.50%	100	73	1,5
116000 / 12-SI-1011-13	Safety Injection to 12A Cold Leg	12"	B	47.50%	62	33	85.00%	100	70	1,5
116750 / 12-SI-1012-13	Safety Injection to 12B Cold Leg	12"	B	48.50%	61	36	83.50%	100	67	1,5
118500 / 4-PS-1003-6	PZR Spray	4"	D	79.00%	100	58	83.50%	100	67	1,5
118550 / 3-PS-1001-1	PZR Spray from 11A Cold Leg	3"	B	100%	100	100	100%	100	100	1,2,8
120350 / 3-PS-1002-1	PZR Spray from 11B Cold Leg	3"	B	100%	100	100	100%	100	100	1,2,8
123100 / 4-SR-1005-1	PZR Safety/Relief	4"	D	100%	100	100	100%	100	100	1,2

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TABLE A, UNIT 1 DM WELD POPULATION										
DM Weld Designator / ID	Location	Nozzle Size	Inspection Item Category	ASME Section XI Coverage	ASME Axial Scan (%)	ASME Circ Scan (%)	MRP-139 Coverage	MRP-139 Axial Scan (%)	MRP-139 Circ Scan (%)	Notes
123450 / 4-SR-1006-1	PZR Safety/Relief	4"	E	100%	100	100	100%	100	100	1,2,8
125050 / 2-LD-1004-1	12A Cold Leg Letdown	2"	B	100%	100	100	100%	100	100	1,2
128900 / 2-CV-1004-19	12B Charging Inlet	2"	B	100%	100	100	100%	100	100	1,2
130450 / 2-CV-1005-29	11A Charging Inlet	2"	B	100%	100	100	100%	100	100	1,2,8
131200 / 2-DR-1003-1	11A Cold Leg Drain	2"	B	100%	100	100	100%	100	100	1,2
131500 / 2-DR-1004-1	11B Cold Leg Drain	2"	B	100%	100	100	100%	100	100	1,5
132150 / 2-DR-1006-1	12B Cold Leg Drain	2"	B	100%	100	100	100%	100	100	1,2
132450 / 2-DR-1007-1	RCS 11 Hot Leg Drain	2"	E	100%	100	100	100%	100	100	1,2

Locations in **Bold** operate at Cold Leg temperature.

NOTES:

1. 100% of primary water stress corrosion cracking (PWSCC) susceptible material examination volume has been examined for circumferential flaws.
2. 100% of PWSCC susceptible material examination volume has been examined for axial flaws.
3. Essentially 100% of the PWSCC susceptible material examination volume has been examined for circumferential flaws.
4. Essentially 100% of the PWSCC susceptible material examination volume has been examined for axial flaws.
5. A portion of the susceptible material examination volume from the wetted surface received limited examination for axial flaws.
6. A portion of the susceptible material examination volume from the wetted surface received limited examination for circumferential flaws.
7. A portion of the susceptible examination volume material from the wetted surface through to non susceptible material received limited examination for axial flaws.
8. These components received specific surface contouring to improve coverage. Coverage indicated in table is based on final contouring.

General Note for Table A: MRP-139 coverage was calculated and is included in the table and on the coverage plots. This volume differs from ASME Code Case N-770-1 in that it excludes cast stainless steel material and extends the examination volume 1/4 inch beyond known susceptible material. This coverage is a direct measure of what amount of susceptible material coverage was achieved. The cast stainless steel material was examined using an ASME Section XI, Appendix VIII dissimilar metal weld qualified procedure.

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6. Burden Caused by Compliance

Calvert Cliffs utilized examination techniques qualified to meet the requirements of ASME Section XI, Appendix VIII, as required in 10 CFR 50.55a(g)(6), that achieved the maximum practical amount of coverage obtainable within the limitations imposed by the design of the components and examination techniques listed. Additionally, visual test for leakage (VE examinations in accordance with ASME Code Case N-722) were performed on the subject components of the reactor coolant pressure boundary during the 2010 refueling outage. Those examinations identified no evidence of leakage for these components. The combination of these examinations provides confidence that an acceptable level of quality and safety has been maintained.

Further, 10 CFR 50.55a(b)(2)(xv)(A)(2) states, "Where examination from both sides is not possible on austenitic welds or DM welds, full coverage credit from a single side may be claimed only after completing a successful single-sided Appendix VIII demonstration using flaws on the opposite side of the weld."

Based on the design configuration of the components and available examinations techniques, Calvert Cliffs was not able to achieve 100 percent coverage of the susceptible material examination volume and/or essentially 100 percent Code coverage of the required examination volume for the components listed without major modifications to the components. Although essentially 100 percent code coverage was not obtained, every effort was made to obtain the maximum amount of coverage as reasonably possible. The combination of coverage amount combined with the examination techniques discussed below, contributed to maintaining a high level of quality and safety.

7. Proposed Alternative and Basis for Use

Dissimilar metal weld examinations performed at Calvert Cliffs during refueling outages conducted in 2010 (Unit 1) and 2011 (Unit 2) employed phased array (PA) ultrasonic testing (UT) technology. Utilizing PA technology not only improves the overall effectiveness of the UT examination but also provides significant performance improvements when compared to conventional examination methodologies.

All DM welds were examined utilizing Structural Integrity's proprietary manual PA procedure, SI-UT-130 R3. This procedure has been qualified in accordance with the requirements of ASME Code, Section XI, Appendix VIII, Supplement 10 for the manual PA UT examination technique. This technique has been Performance Demonstration Initiative-qualified to detect and characterize (length and depth size) service-induced damage associated with the weld in the form of PWSCC. The SI-UT-130 R3 procedure is also qualified to scan DM welds with single-sided access. This single-sided access qualification allows for full interrogation of DM welds that have cast stainless steel safe ends, which restrict scanning from the cast stainless side. The application of Structural Integrity's PA UT technology allows for a reduction in the number of required examination scans across the surface of the component, while matching or exceeding the maximum achievable coverage of the Code-required weld and adjacent base material volume of any currently qualified ultrasonic technique. The capability of PA to provide increased examination coverage is inherently evident when applied to limited-access scanning surfaces.

Using the PA technique, examination coverage is greater than conventional techniques for constrained configurations. This is because the procedure employs a large number of discrete examination angles (including credit for a low angle of 30-degrees), which, in addition to increased examination coverage, provides superior material insonification by utilizing many different angular

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sound paths, thereby optimizing penetration into highly attenuative materials. The technique also includes a 10 degree electronic skew for circumferential scanning beam angles, which significantly improves examination coverage.

Structural Integrity's PA UT procedure provided an increased capability to more effectively interrogate the required ISI examination volume due to the use of a lower effective angle of 30 degree as compared to a typical 45 degree lead angle associated with most conventional UT procedures. Likewise, the surface limiting factors associated with other procedures, which apply linear scanning techniques, are not a factor when applying azimuthal PA UT techniques. The combined advantages of a qualified lower effective angle and a smaller surface contact requirement achieved by the application of azimuthal PA UT techniques, contributes to the reduced need for surface preparation and the ability to achieve maximum coverage of the examination volume. Surface preparation efforts were conducted at Calvert Cliffs on various welds where it was deemed an improvement to examination coverage.

The major limitation to achieving essentially 100 percent coverage, and/or 100 percent coverage of the susceptible examination volume by reference of ASME Code Case N-770-1 in 10 CFR 50.55a, with conditions, is the presence of cast stainless steel. All DM welds ≥ 12 inches contain cast stainless steel safe ends. For these welds containing cast stainless steel items, no supplement is available in Section XI, Appendix VIII. Therefore, the required examination volume was examined by Section XI, Appendix VIII procedures to the maximum extent practical.

8. CONCLUSION

In July 2011, the NRC incorporated by reference ASME Code Case N-770-1 into 10 CFR 50.55a. Specific implementing requirements are documented in 10 CFR 50.55a(g)(6)(ii)(F). The relevant conditions applicable to Calvert Cliffs DM welds are shown in Table A.

Item (2) of 10 CFR 50.55a(g)(6)(ii)(F) requires the applicable DM welds to be categorized in accordance with ASME Code Case N-770-1, Table 1. This categorization has been performed and is included in this report. All components at hot leg operating temperatures have been previously mitigated by the MSIP™ process, and have met the performance criteria of Appendix I of ASME Code Case N-770-1 with the exception of obtaining essentially 100 percent coverage as identified in Table A.

All remaining DM welds have been categorized as Inspection Item B.

Item (3) of 10 CFR 50.55a(g)(6)(ii)(F) requires that baseline examinations for the welds in ASME Code Case N-770-1, Table 1 be completed by the end of the next refueling outage after January 20, 2012. Previous examinations may be credited if they have met the following criteria:

1. Examinations were performed using a procedure that meets the requirements of ASME Code Section XI, Appendix VIII and;
2. The Code required examination volume of essentially 100 percent coverage has been obtained.

If the previous examinations do not meet these requirements, they still can be used to meet the baseline examination requirements, provided that NRC approval of alternative inspection requirements is granted prior to the end of the next refueling outage after January 20, 2012.

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EXAMINATIONS (RR-ISI-04-06)**

Due to the fact that not including the examination volume scanned from the cast stainless steel side and specific geometric limitations prevents essentially 100 percent examination volume coverage from being obtained, relief is requested for an alternative in order for the examinations previously conducted at Calvert Cliffs to meet the baseline examination requirements of Item (3).

All examinations were performed in accordance with MRP-139 requirements and meet current ASME Code Case N-770-1 requirements. Results from the examinations were documented in the ISI refueling outage report. However with the conditions imposed by 10 CFR 50.55a(g)(6)(ii)(F) (3) and (4), all welds with cast stainless steel material do not meet these conditions. Therefore, reasonable assurance of quality and safety is based on the achieved coverage and the ASME Code Case N-722 VE examinations performed.

9. Duration of Proposed Alternative

Relief is requested to accept the baseline examinations performed in 2010 for the Fourth Ten-year Interval of the ISI Program for Calvert Cliffs which was effective from October 2009, ending on June 30, 2019 for Unit 1.

ENCLOSURE 1

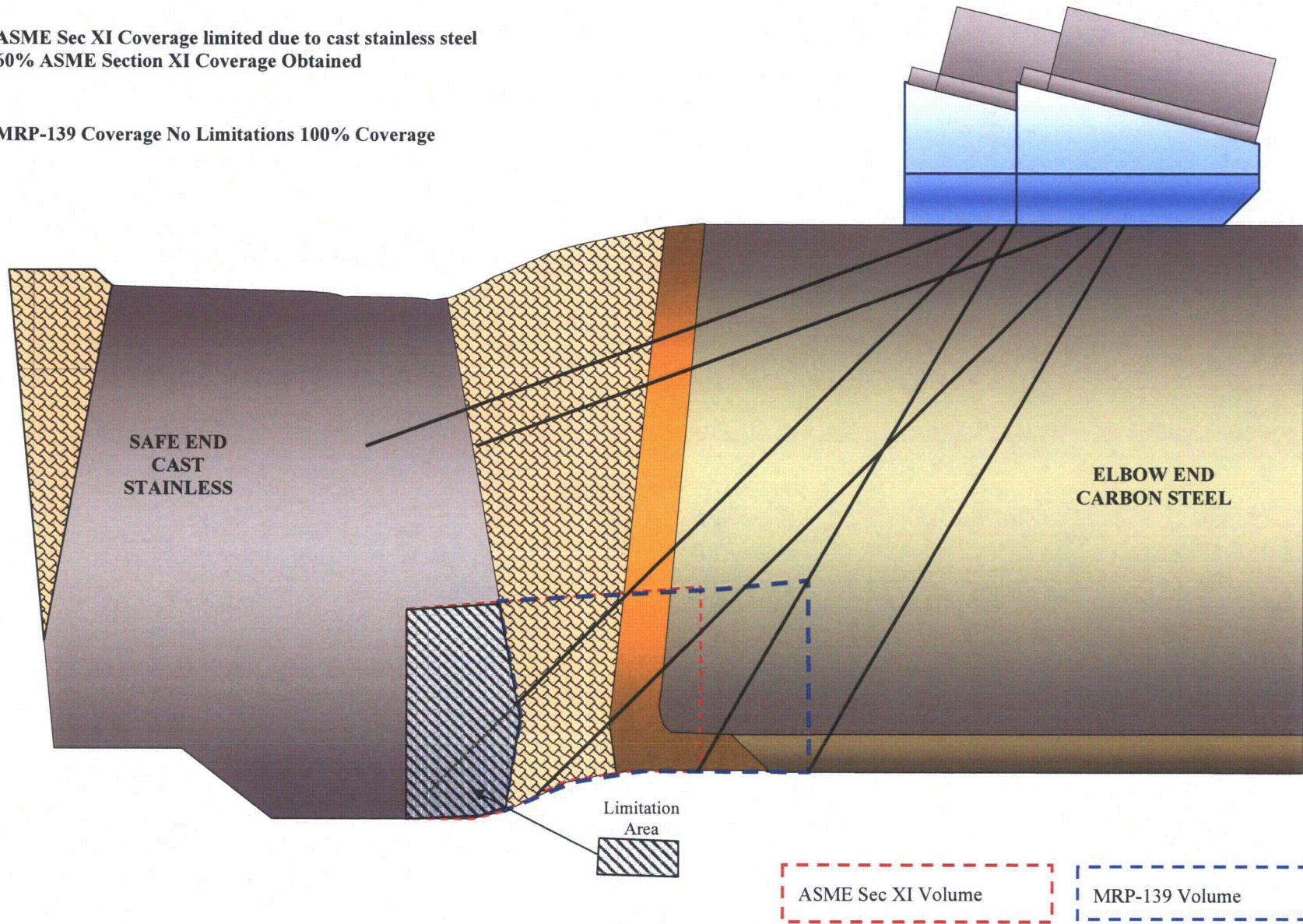
Unit 1 Examination Coverage Plots

CCNPP Unit 1
Examination Coverage

102300 / 30-RC-11A-7

ASME Sec XI Coverage limited due to cast stainless steel
60% ASME Section XI Coverage Obtained

MRP-139 Coverage No Limitations 100% Coverage

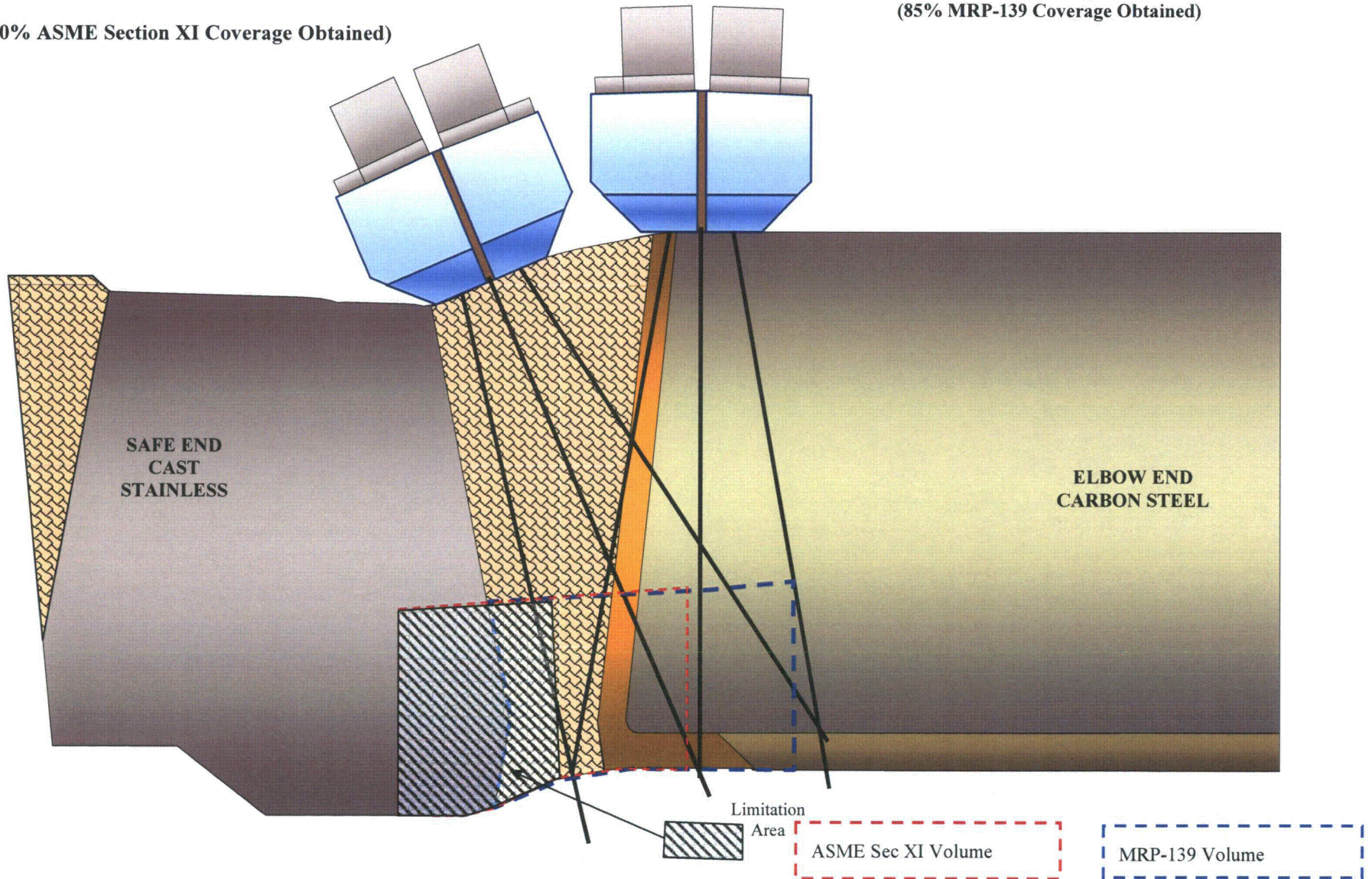


102300 / 30-RC-11A-7

**ASME Sec XI Coverage limited due to cast stainless steel
and due to configuration**

(60% ASME Section XI Coverage Obtained)

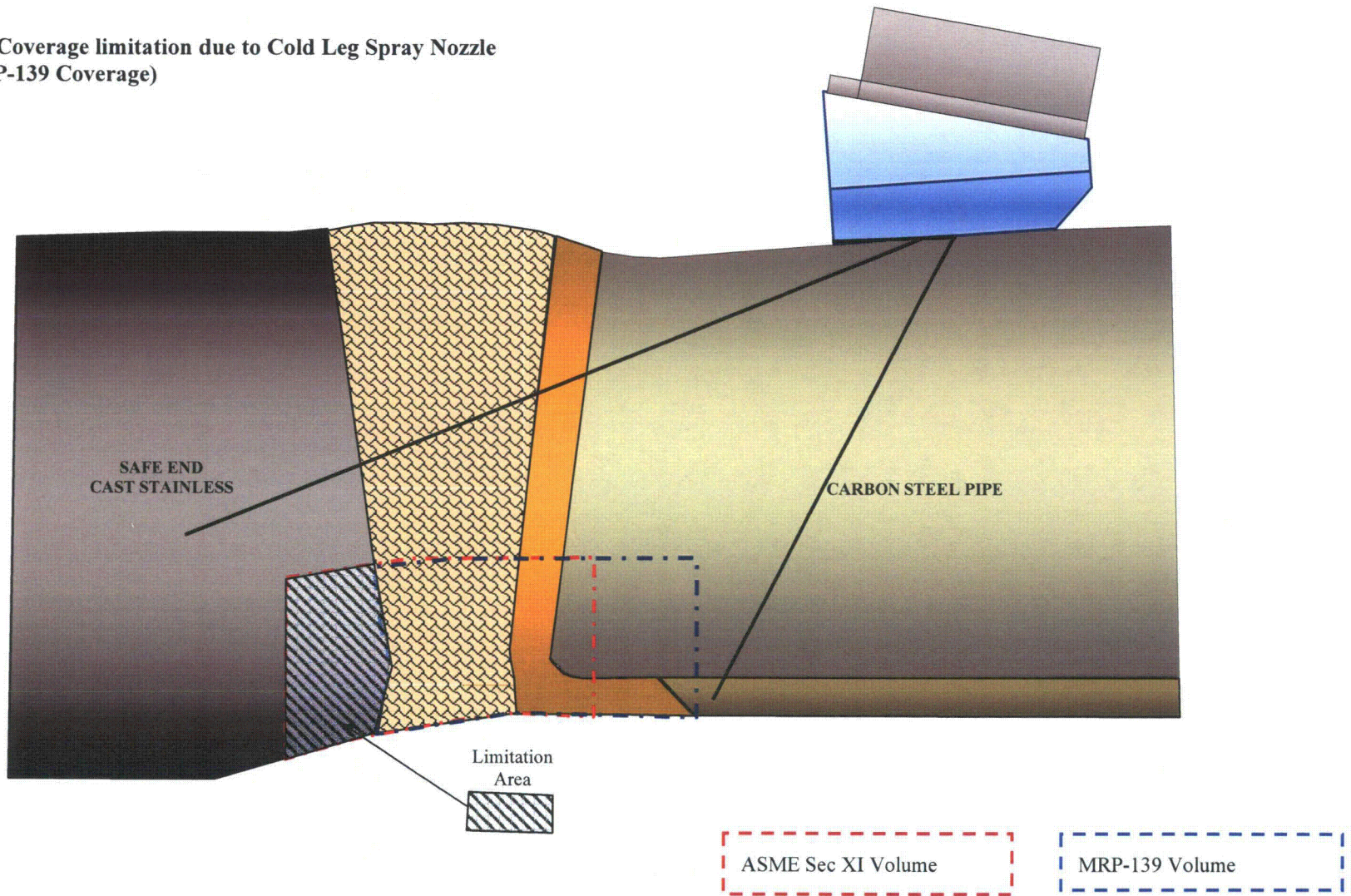
**MRP-139 Coverage
Limited due to configuration
(85% MRP-139 Coverage Obtained)**



102450 / 30-RC-11A-10

**ASME Sec XI Coverage limited due to Cast Stainless Steel and Cold Leg Spray Nozzle Obstruction
(68% ASME Section XI Coverage Obtained)**

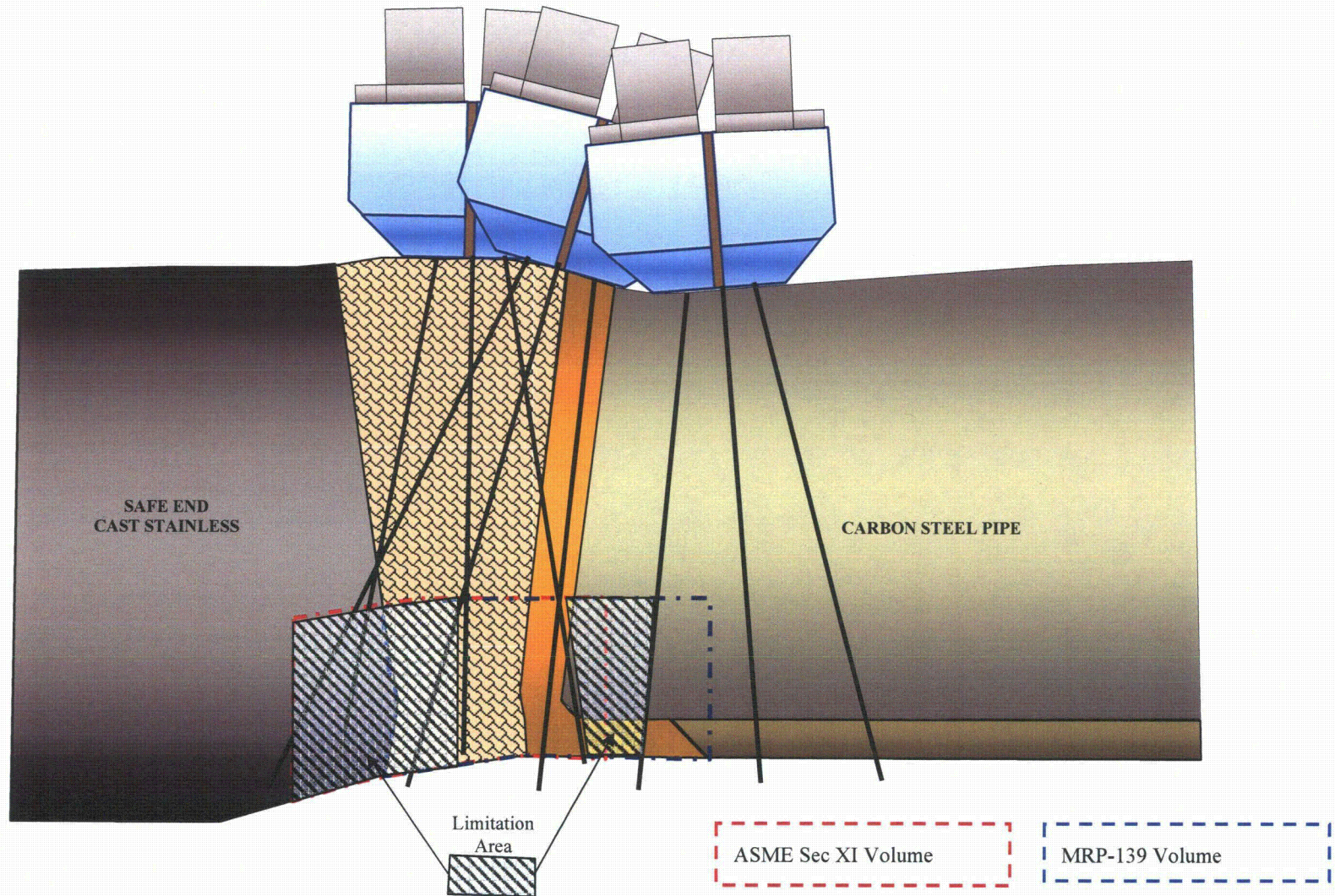
**MRP-139 Coverage limitation due to Cold Leg Spray Nozzle
(98% MRP-139 Coverage)**



102450 / 30-RC-11A-10

**ASME Sec XI Coverage limited due to cast stainless steel
and due to configuration
(46% ASME Section XI Coverage Obtained)**

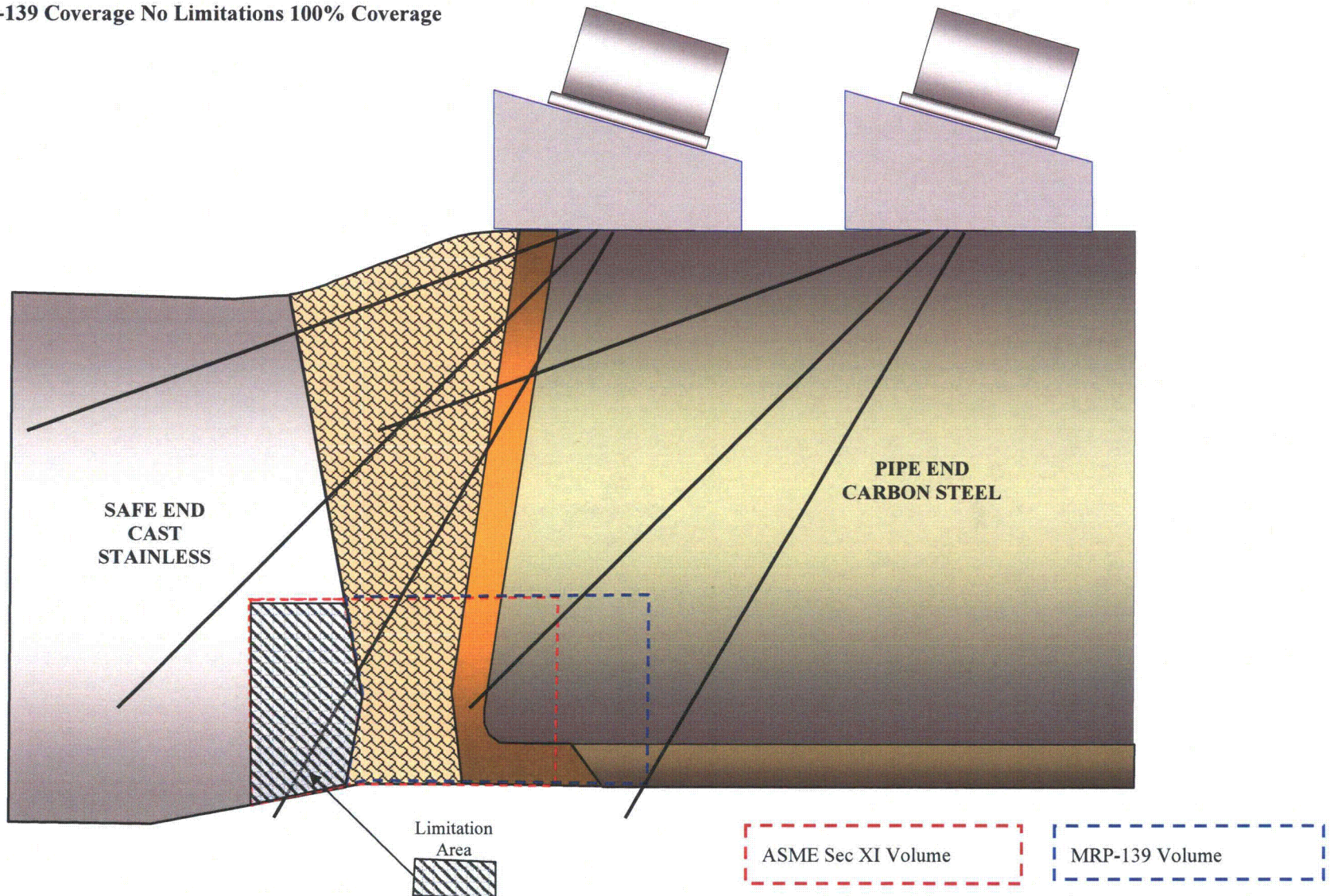
**MRP-139 Coverage
Limited due to configuration
(79% MRP-139 Coverage Obtained)**



104550 / 30-RC-11B-7

**ASME Sec XI Coverage limited due to cast stainless steel
(65% ASME Section XI Coverage Obtained)**

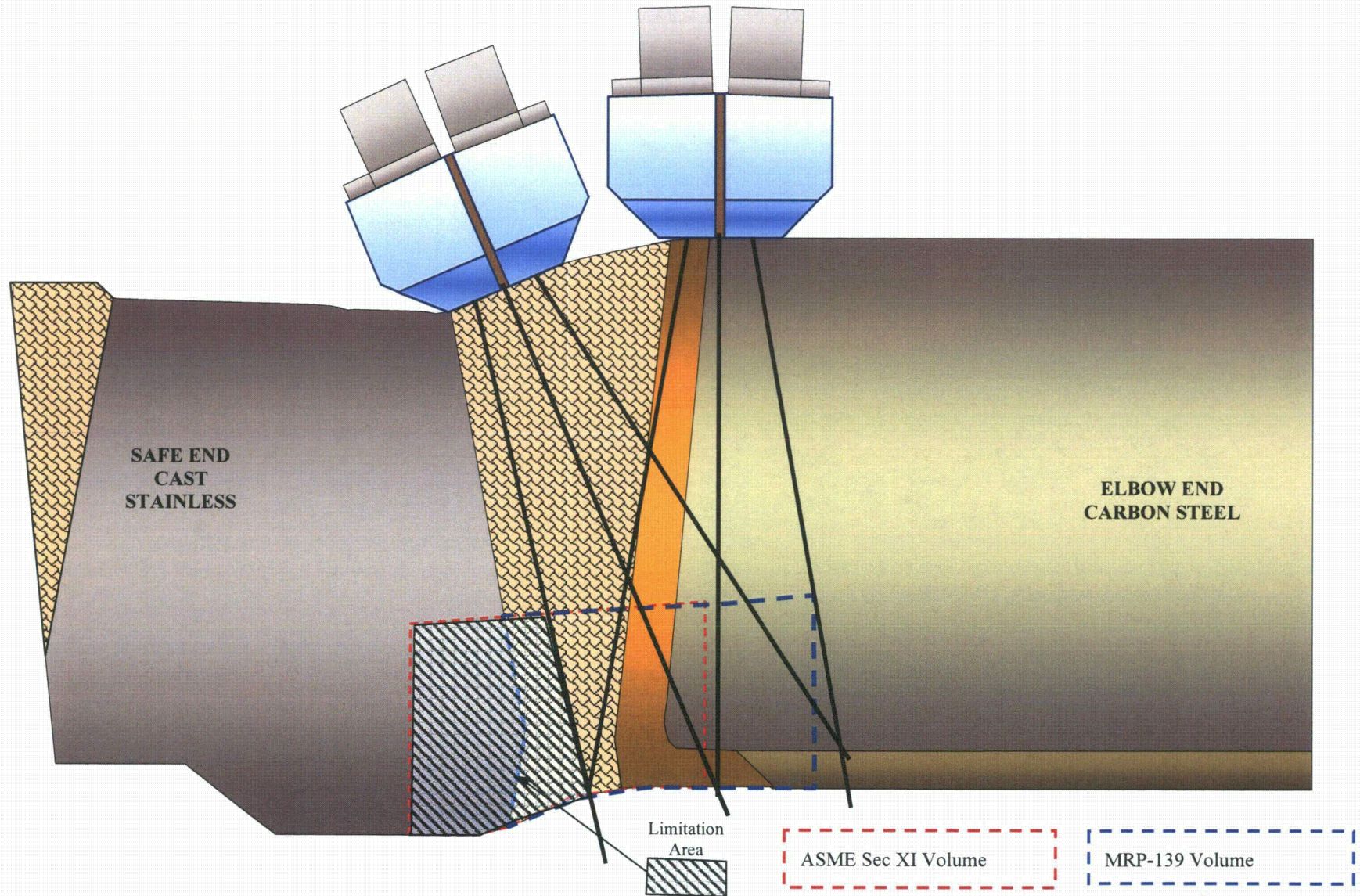
MRP-139 Coverage No Limitations 100% Coverage



104550 / 30-RC-11B-7

**ASME Sec XI Coverage limited due to cast stainless steel
and due to configuration
(49% ASME Section XI Coverage Obtained)**

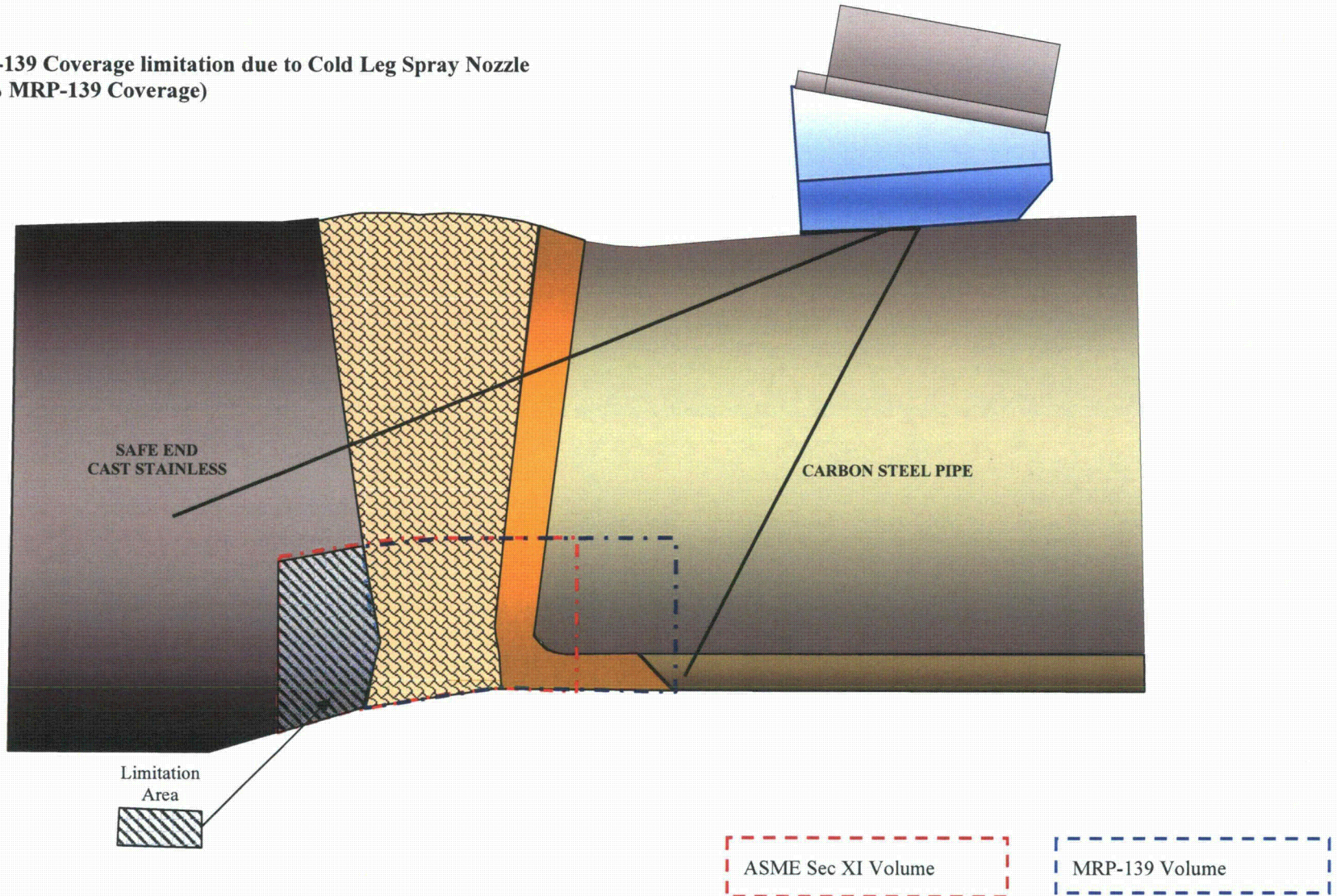
**MRP-139 Coverage
Limited due to configuration
(83% MRP-139 Coverage Obtained)**



104700 / 30-RC-11B-10

**ASME Sec XI Coverage limited due to Cast Stainless Steel and Cold Leg Spray Nozzle Obstruction
(53% ASME Section XI Coverage Obtained)**

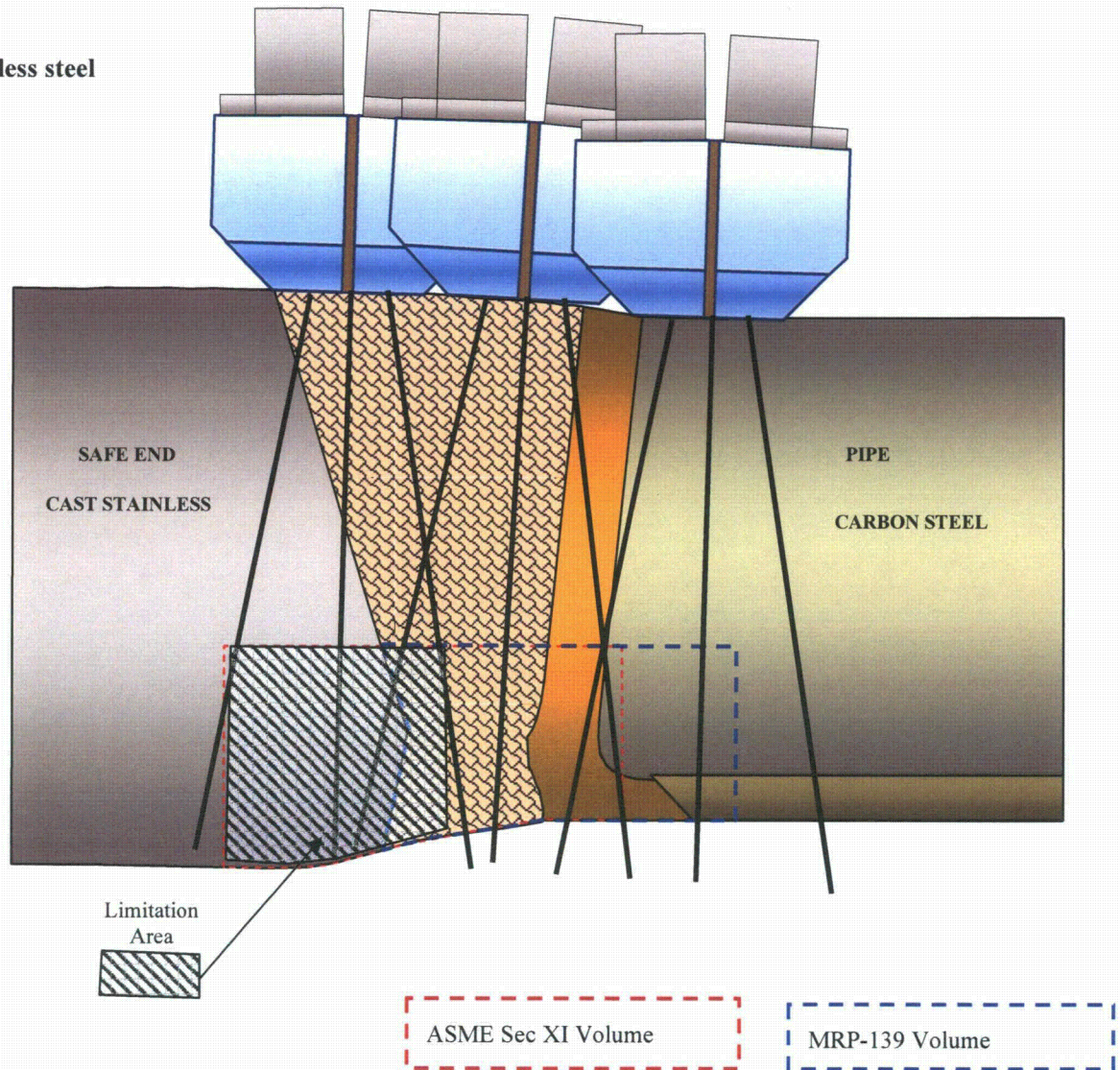
**MRP-139 Coverage limitation due to Cold Leg Spray Nozzle
(98% MRP-139 Coverage)**



104700 / 30-RC-11B-10

**ASME Sec XI Coverage limited due to cast stainless steel
and due to configuration
(34% ASME Section XI Coverage Obtained)**

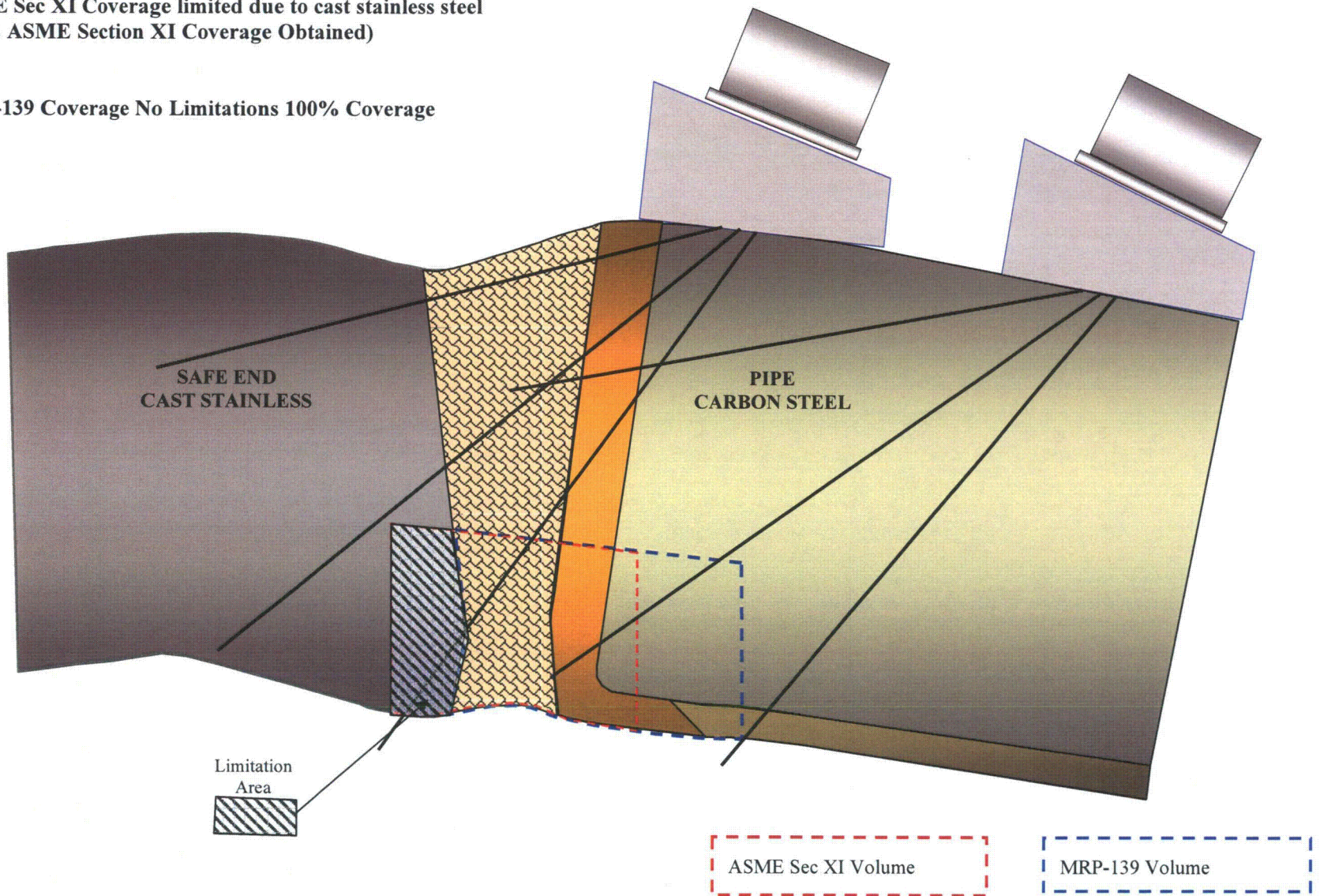
**MRP-139 Coverage
Limited due to configuration
(79% MRP-139 Coverage Obtained)**



107450 / 30-RC-12A-7

**ASME Sec XI Coverage limited due to cast stainless steel
(70% ASME Section XI Coverage Obtained)**

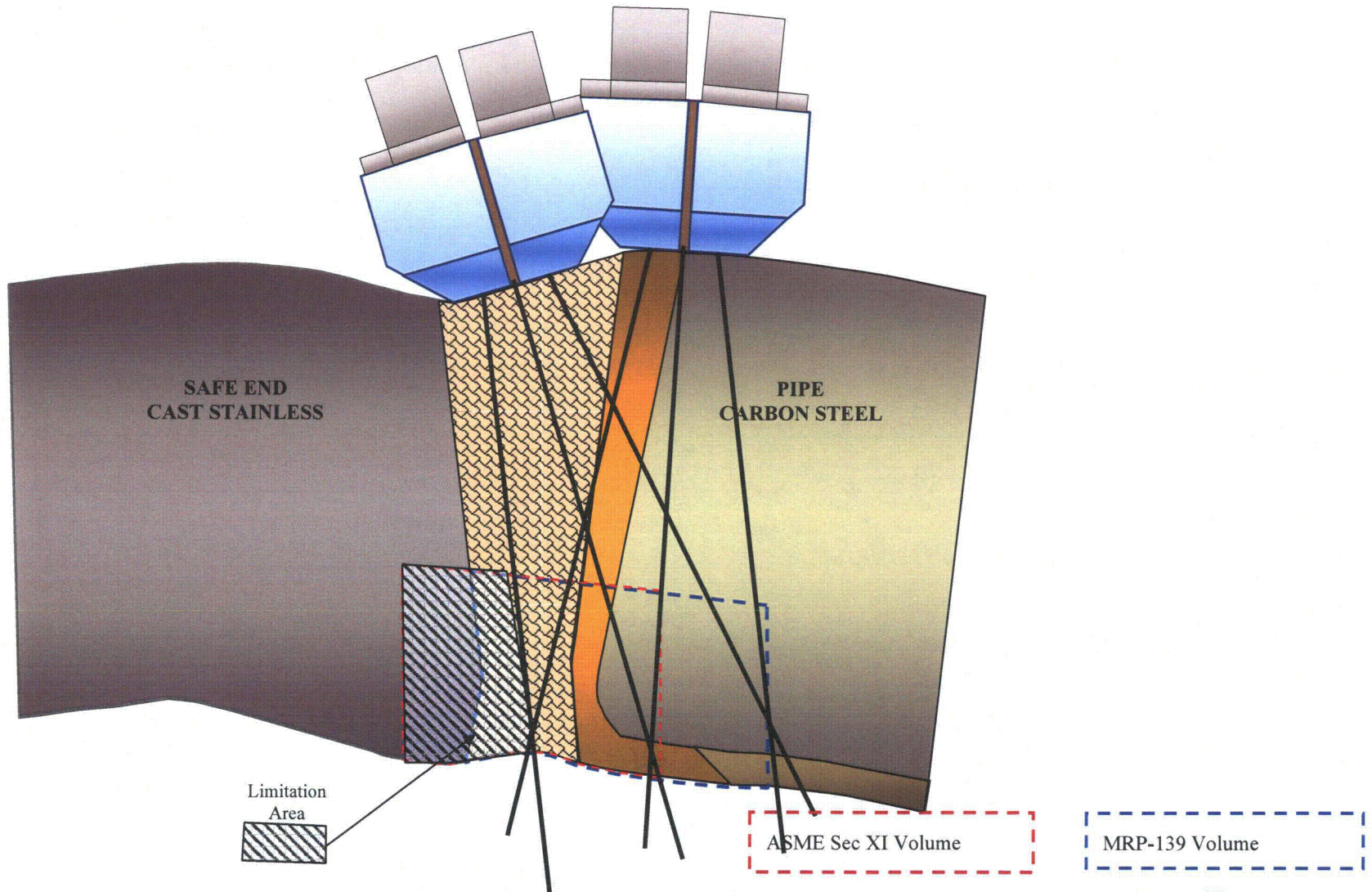
MRP-139 Coverage No Limitations 100% Coverage



107450 / 30-RC-12A-7

**ASME Sec XI Coverage limited due to cast stainless steel
and due to configuration
(45% ASME Section XI Coverage Obtained)**

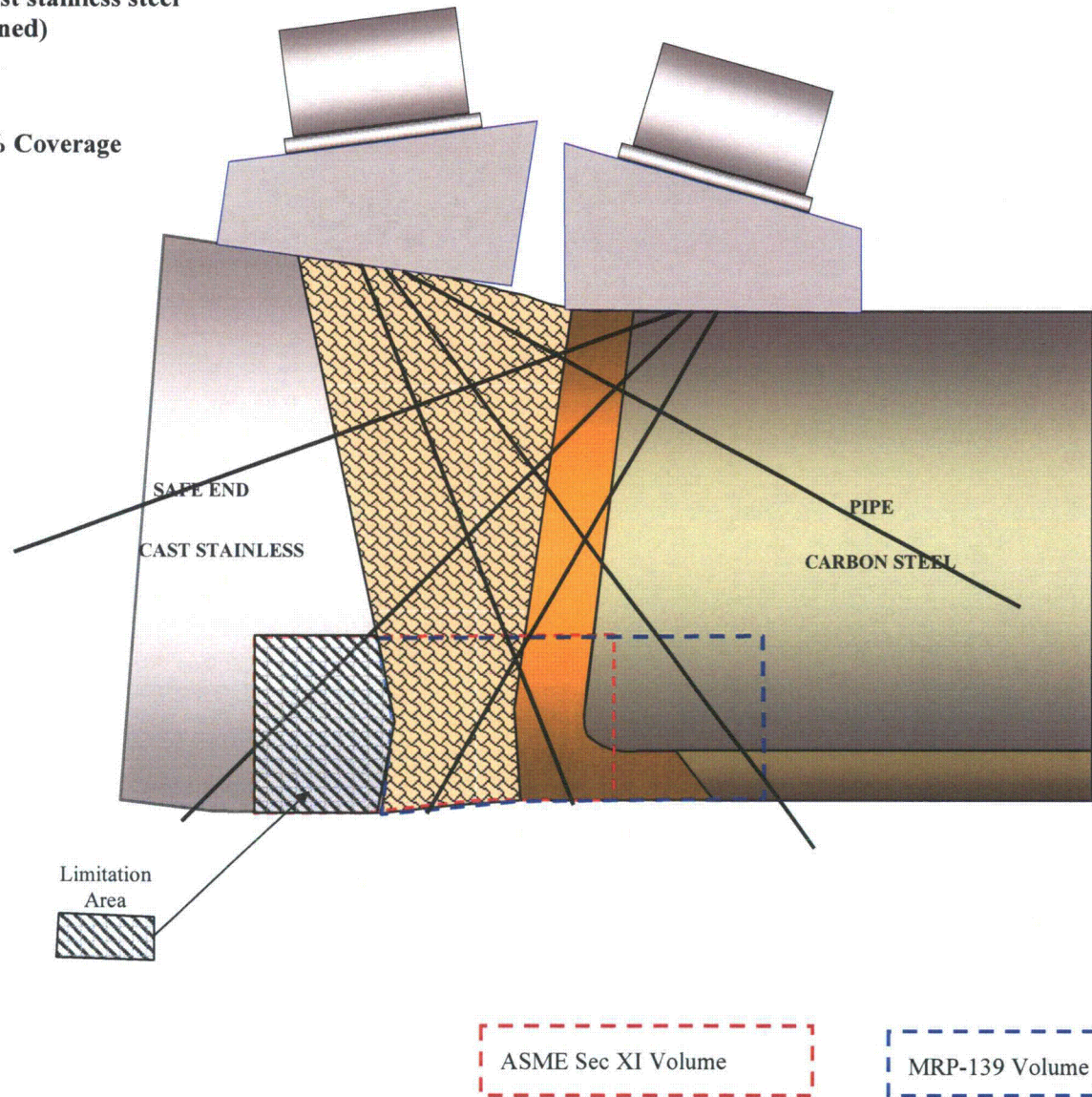
**MRP-139 Coverage
Limited due to configuration
(81% MRP-139 Coverage Obtained)**



107600 / 30-RC-12A-10

ASME Sec XI Coverage limited due to cast stainless steel
(63% ASME Section XI Coverage Obtained)

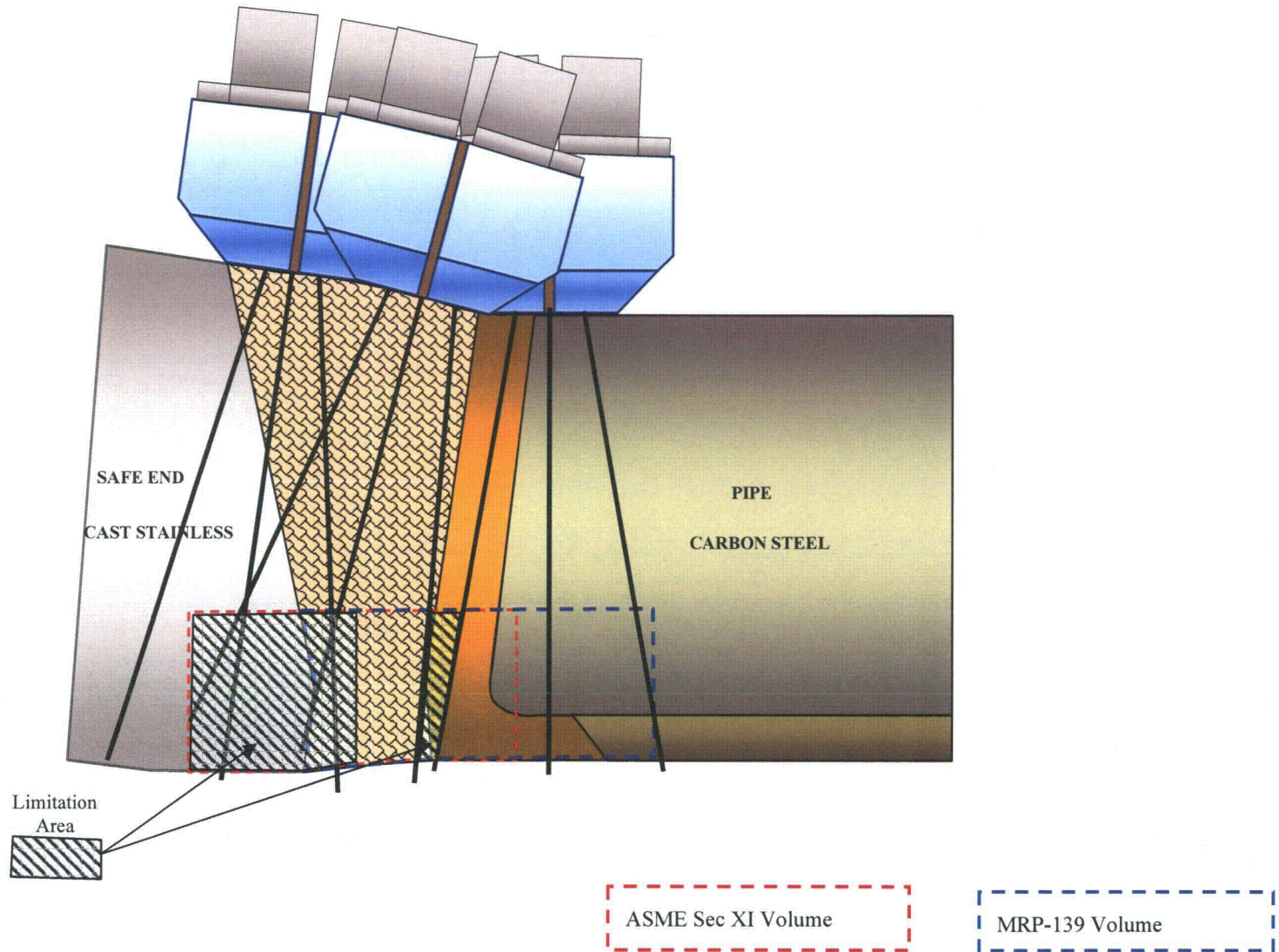
MRP-139 Coverage No Limitations 100% Coverage



107600 / 30-RC-12A-10

**ASME Sec XI Coverage limited due to cast stainless steel
and due to configuration
(43% ASME Section XI Coverage Obtained)**

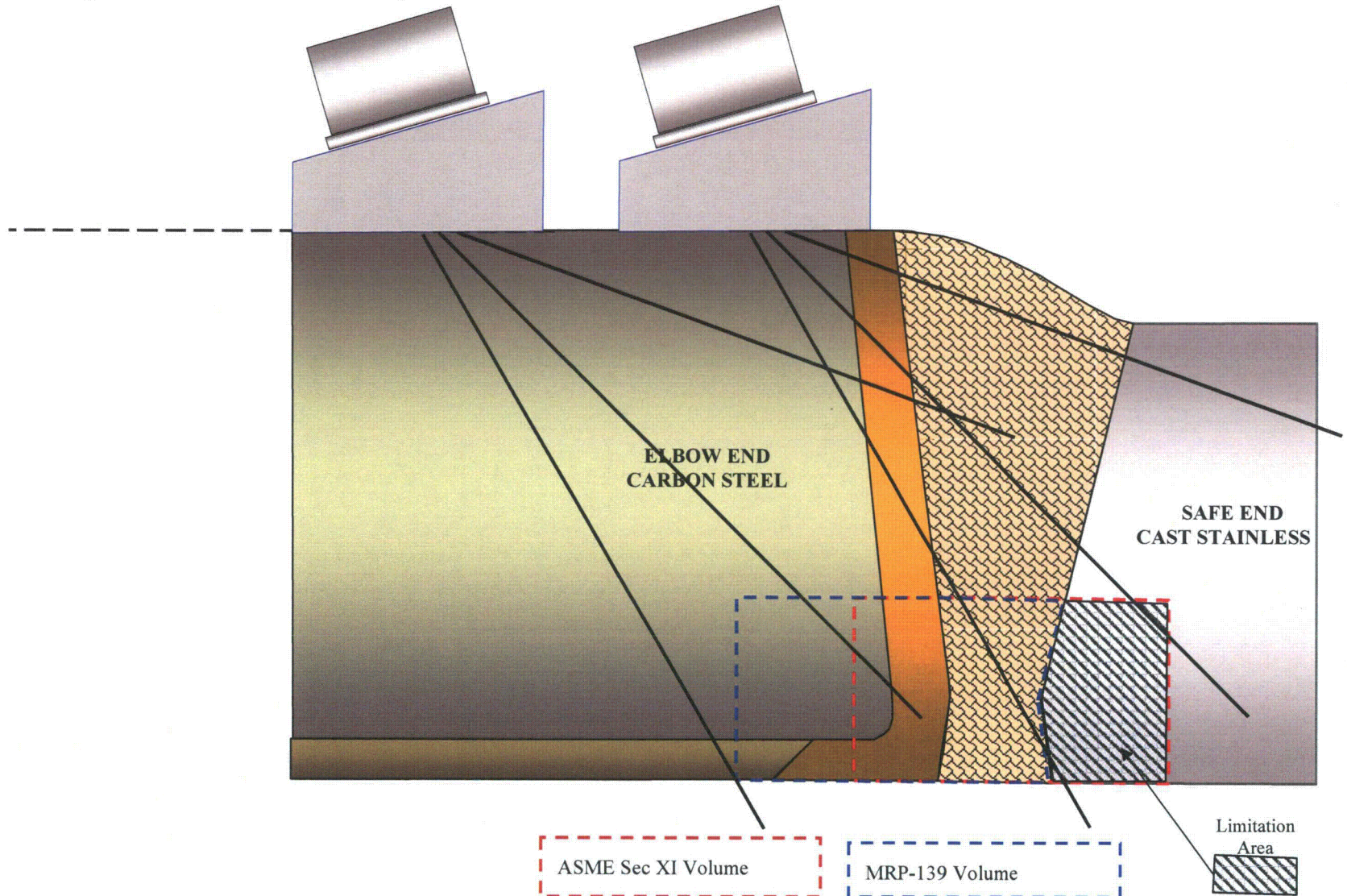
**MRP-139 Coverage
Limited due to configuration
(81% MRP-139 Coverage Obtained)**



109600 / 30-RC-12B-7

ASME Sec XI Coverage limited due to cast stainless steel
(62% ASME Section XI Coverage Obtained)

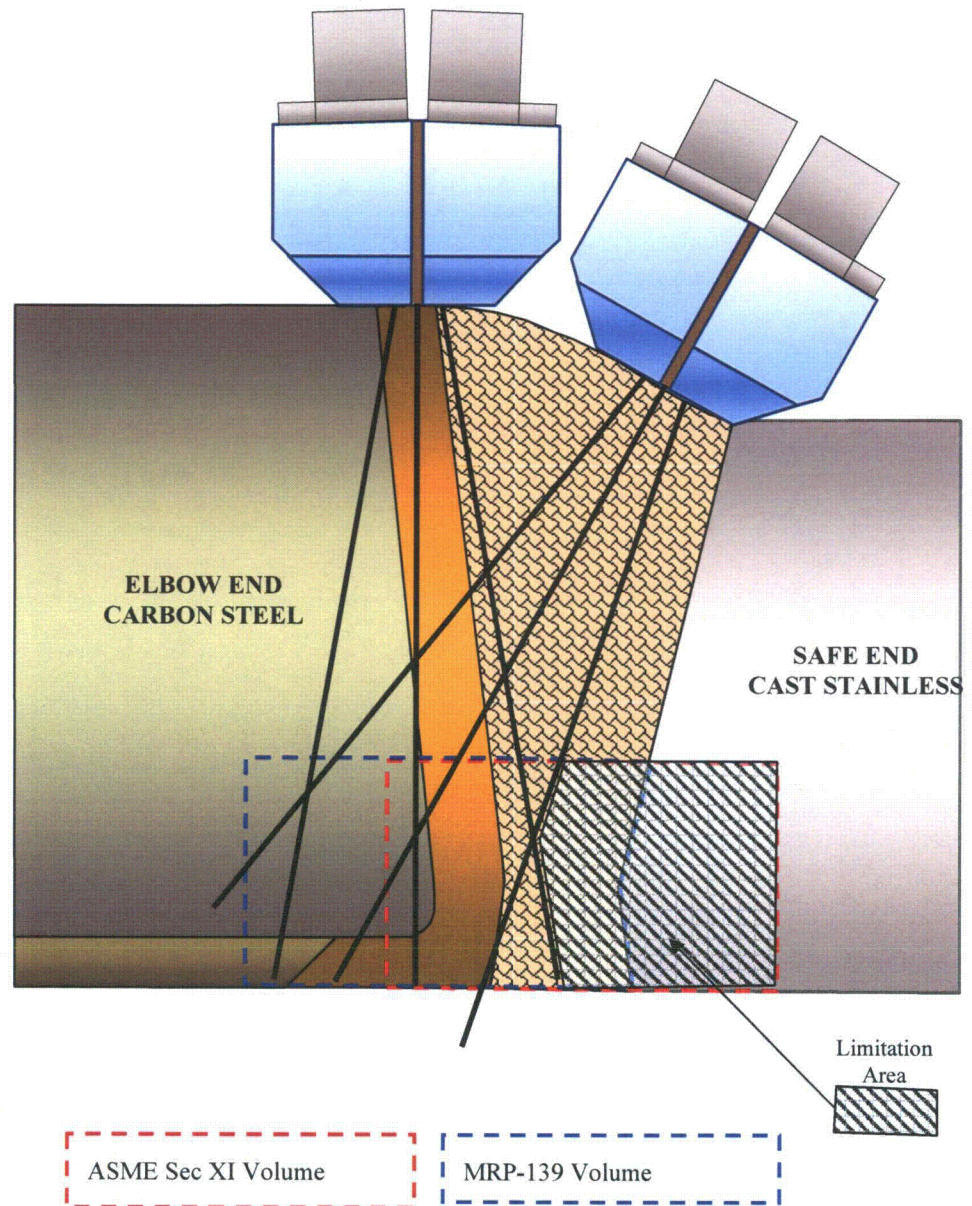
MRP-139 Coverage No Limitations 100% Coverage



109600 / 30-RC-12B-7

**ASME Sec XI Coverage limited due to cast stainless steel
and due to configuration
(45% ASME Section XI Coverage Obtained)**

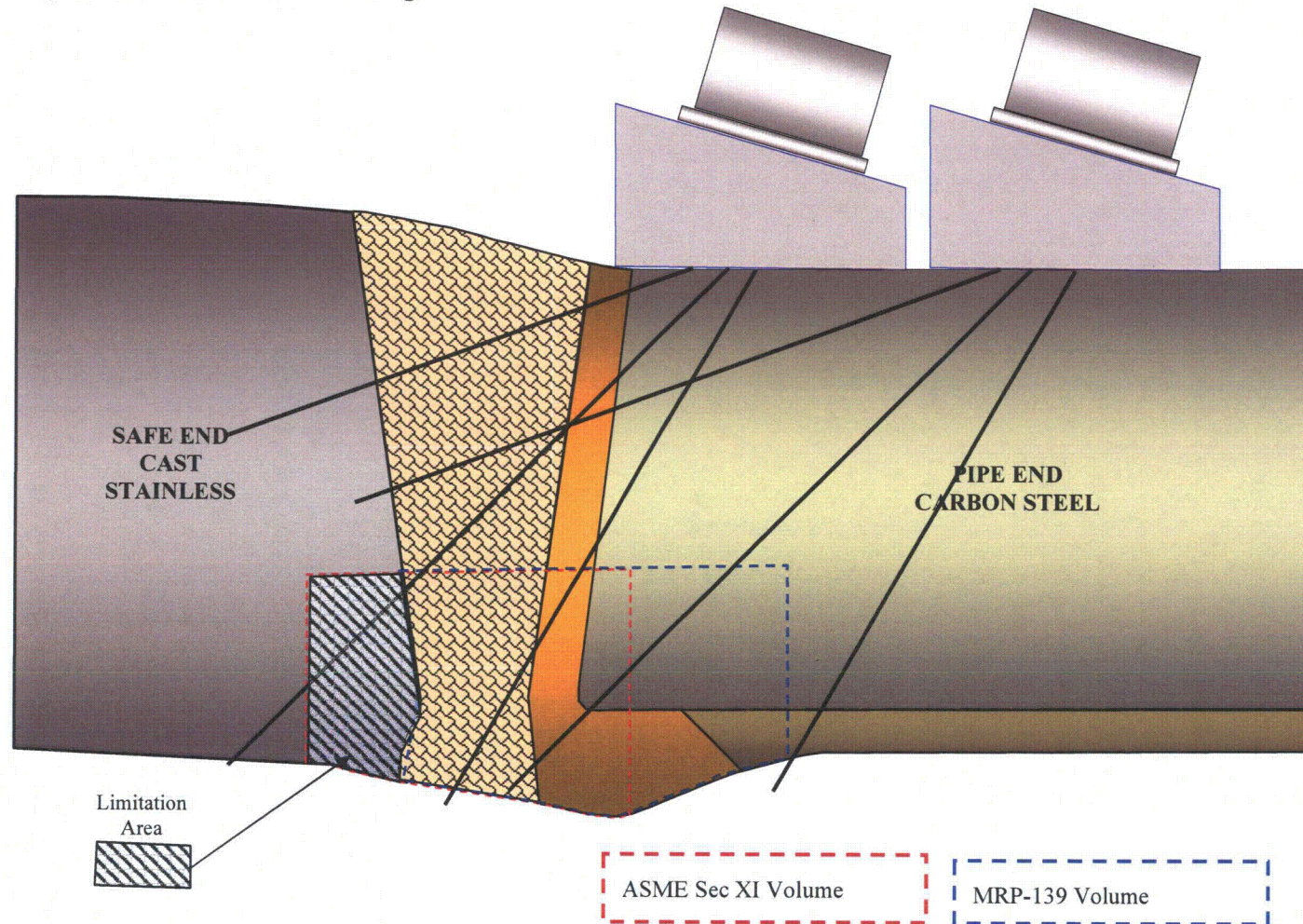
**MRP-139 Coverage
Limited due to configuration
(83% MRP-139 Coverage Obtained)**



109750 / 30-RC-12B-10

**ASME Sec XI Coverage limited due to cast stainless steel
(71% ASME Section XI Coverage Obtained)**

MRP-139 Coverage No Limitations 100% Coverage



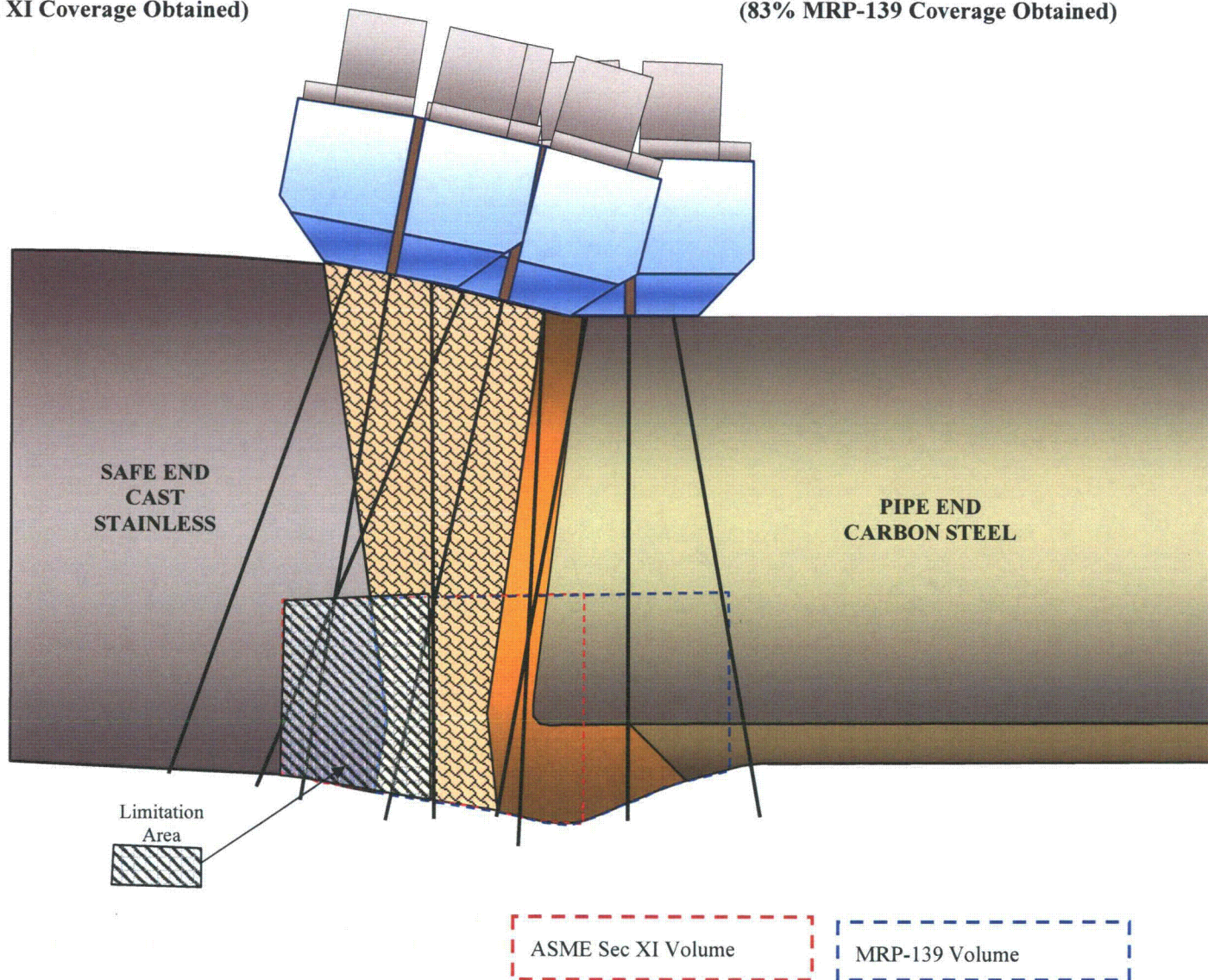
109750 / 30-RC-12B-10

ASME Sec XI Coverage limited due to cast stainless steel

(50% ASME Section XI Coverage Obtained)

MRP-139 Coverage

(83% MRP-139 Coverage Obtained)

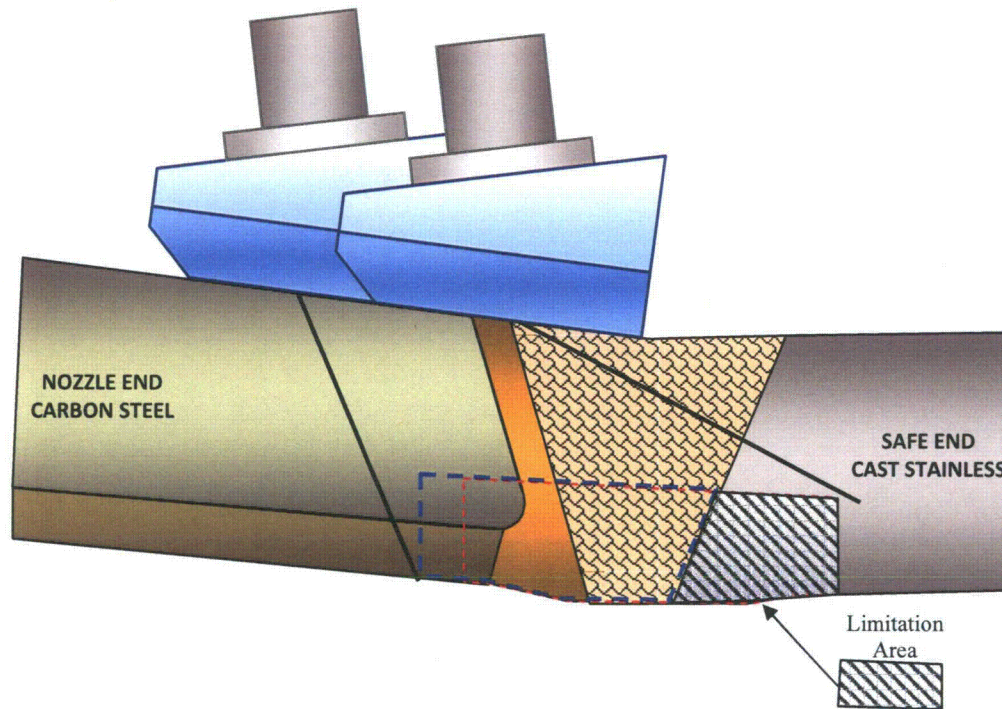


CCNPP Unit 1
Examination Coverage

110450 / 12-PSL-1

ASME Sec XI Axial Coverage 63%

MRP-139 Axial Coverage 100%



ASME Sec XI Volume

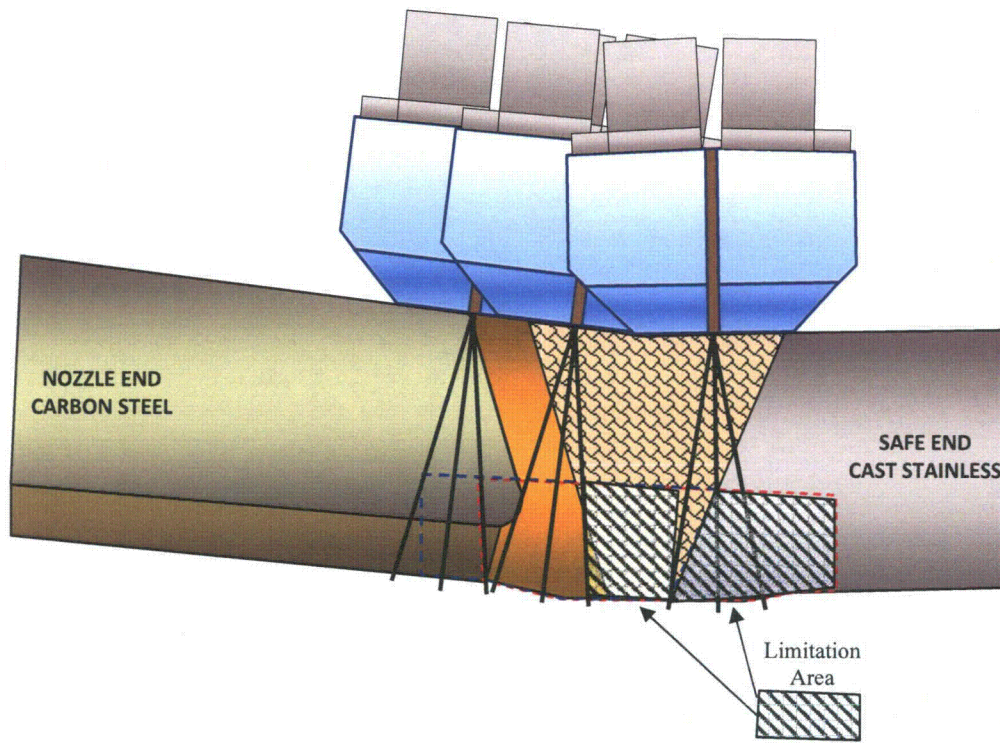
MRP-139 Volume

CCNPP Unit 1
Examination Coverage

110450 / 12-PSL-1

ASME Sec XI Circumferential Coverage 38%

MRP-139 Circumferential Coverage 65%



ASME Sec XI Volume

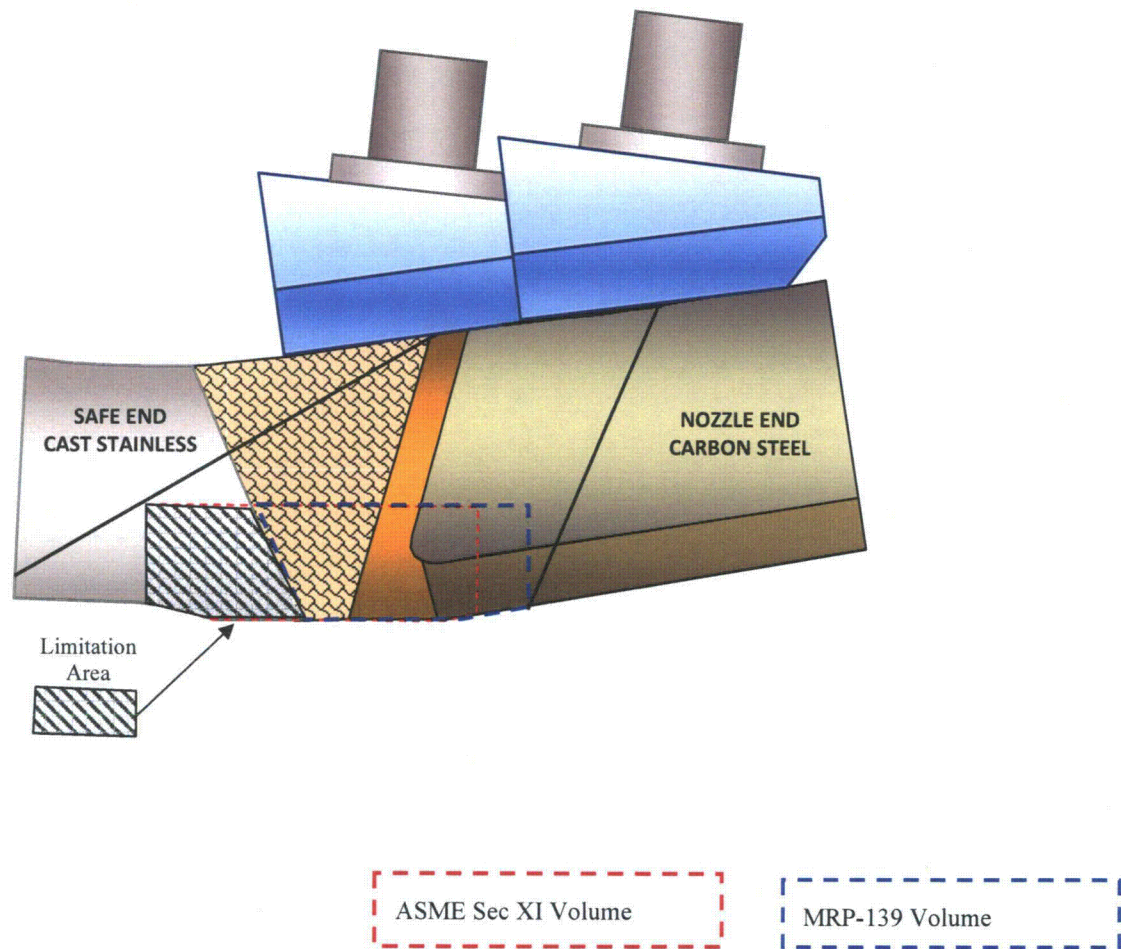
MRP-139 Volume

CCNPP Unit 1
Examination Coverage

111100 / 12-PSL-13

ASME Sec XI Axial Coverage 61%

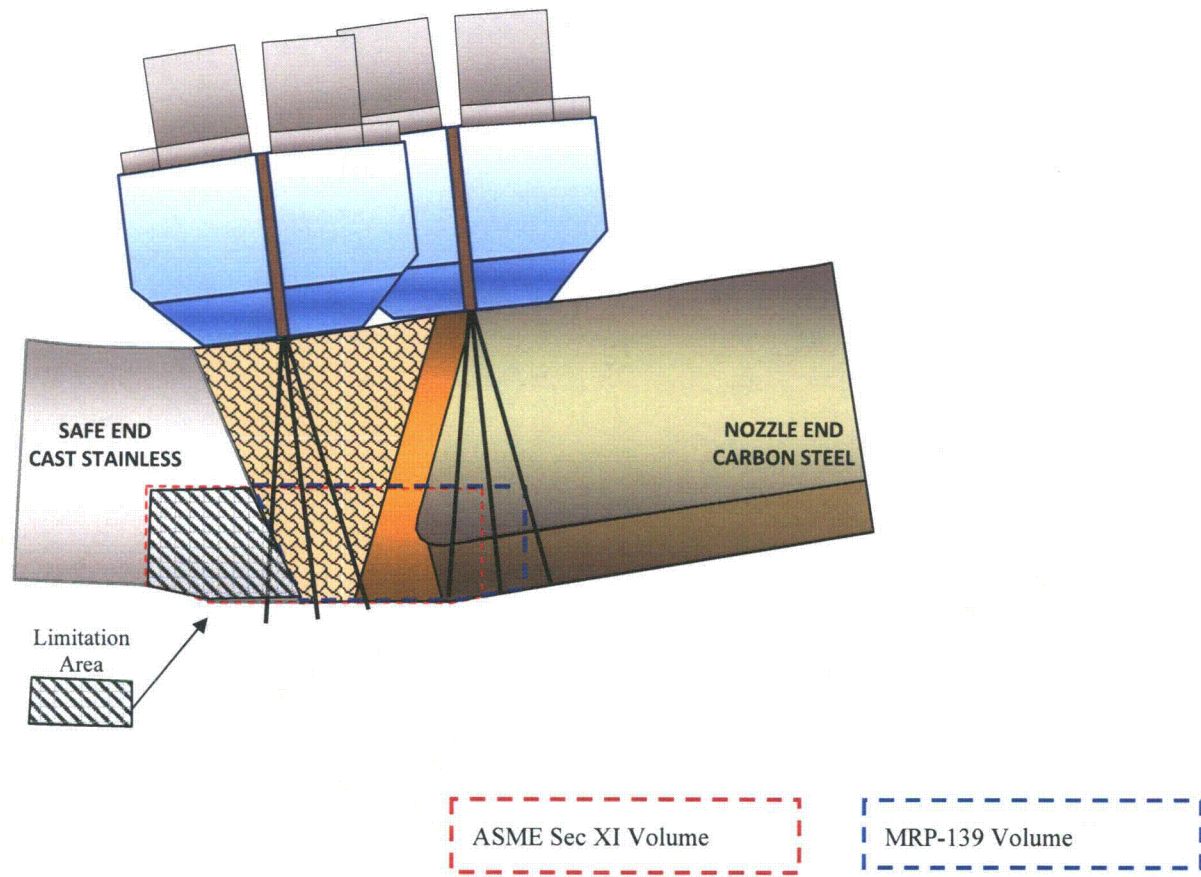
MRP-139 Axial Coverage 100%



111100 / 12-PSL-13

ASME Sec XI Circumferential Coverage 57%

MRP-139 Circumferential Coverage 94%

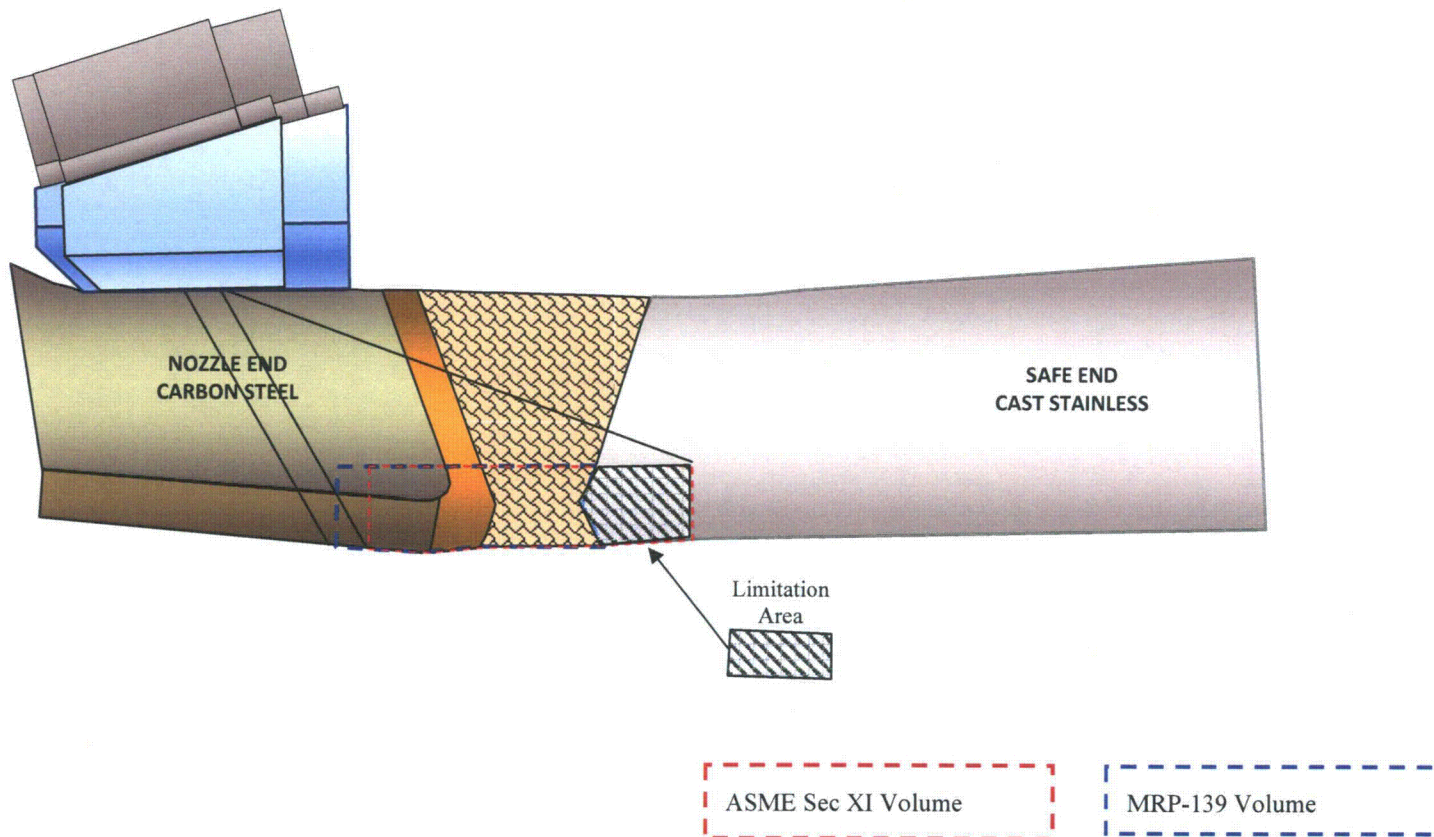


CCNPP Unit 1
Examination Coverage

113150 / 12-SC-1004-1

ASME Sec XI Axial Coverage 71%

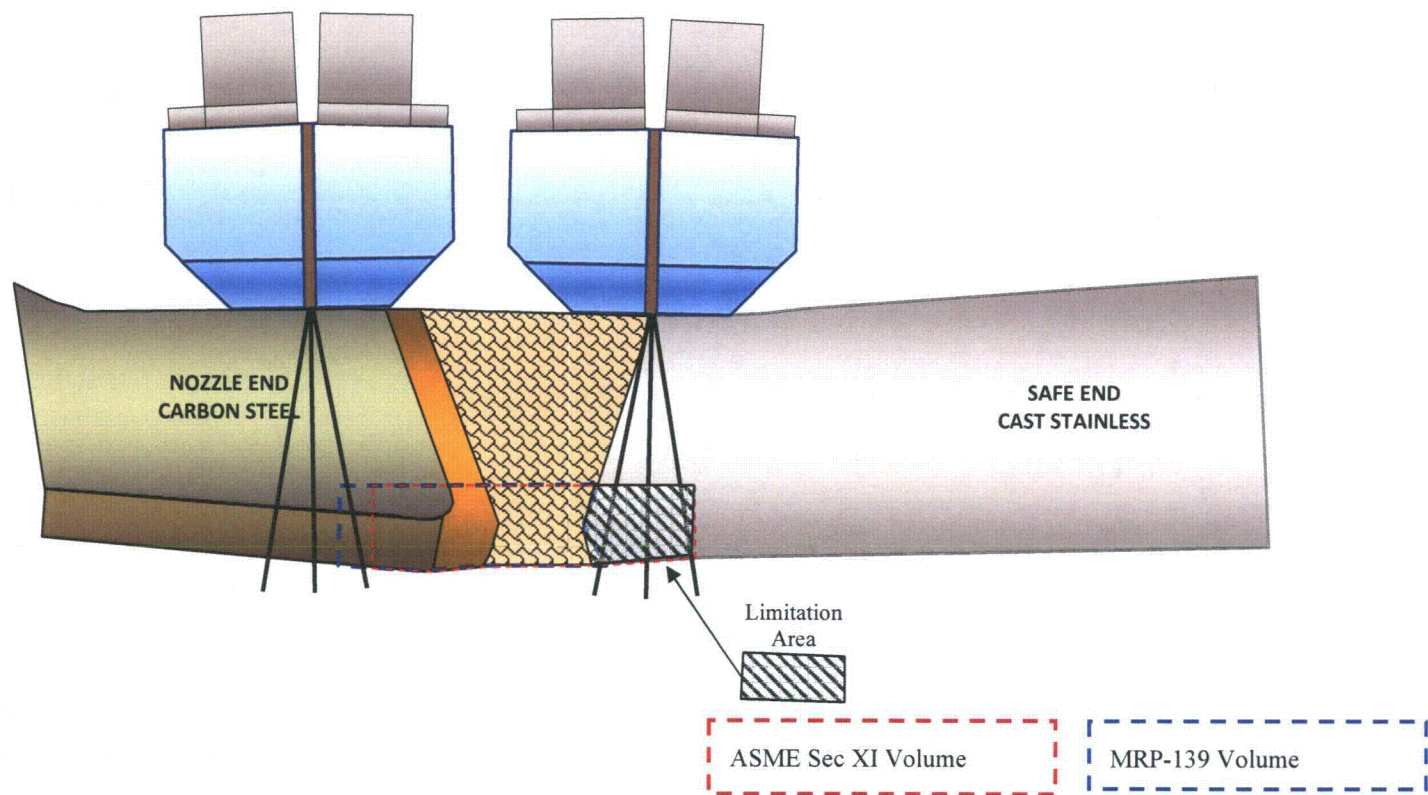
MRP-139 Axial Coverage 100%



113150 / 12-SC-1004-1

ASME Sec XI Circumferential Coverage 70%

MRP-139 Circumferential Coverage 98%

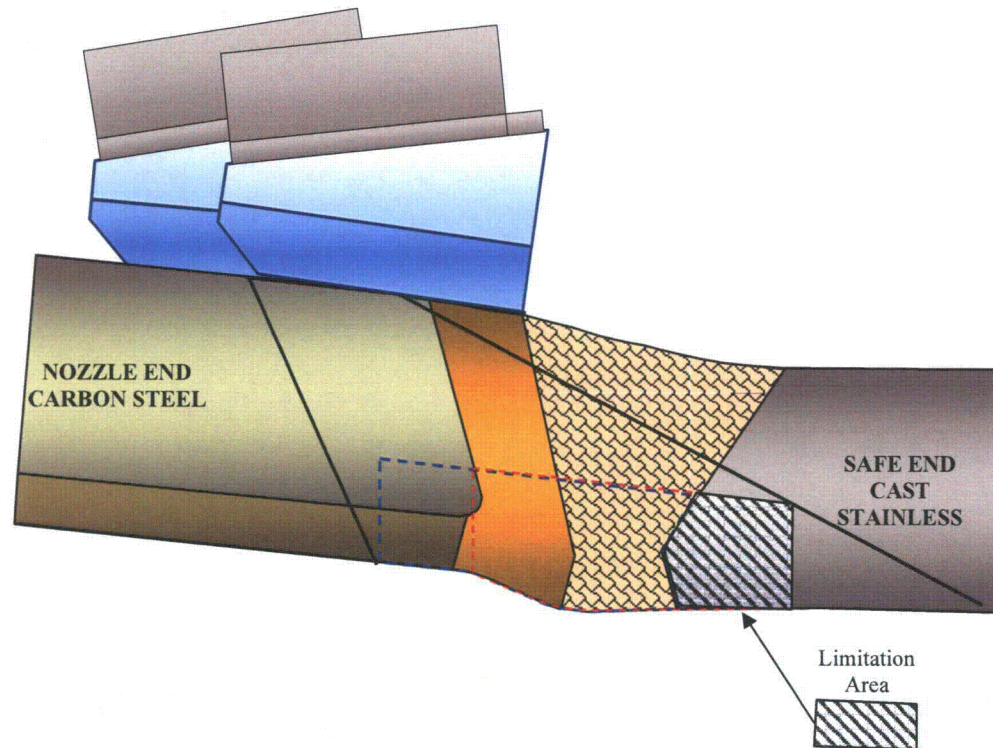


CCNPP Unit 1
Examination Coverage

114350 / 12-SI-1009-16

ASME Sec XI Axial Coverage 65%

MRP-139 Axial Coverage 100%



ASME Sec XI Volume

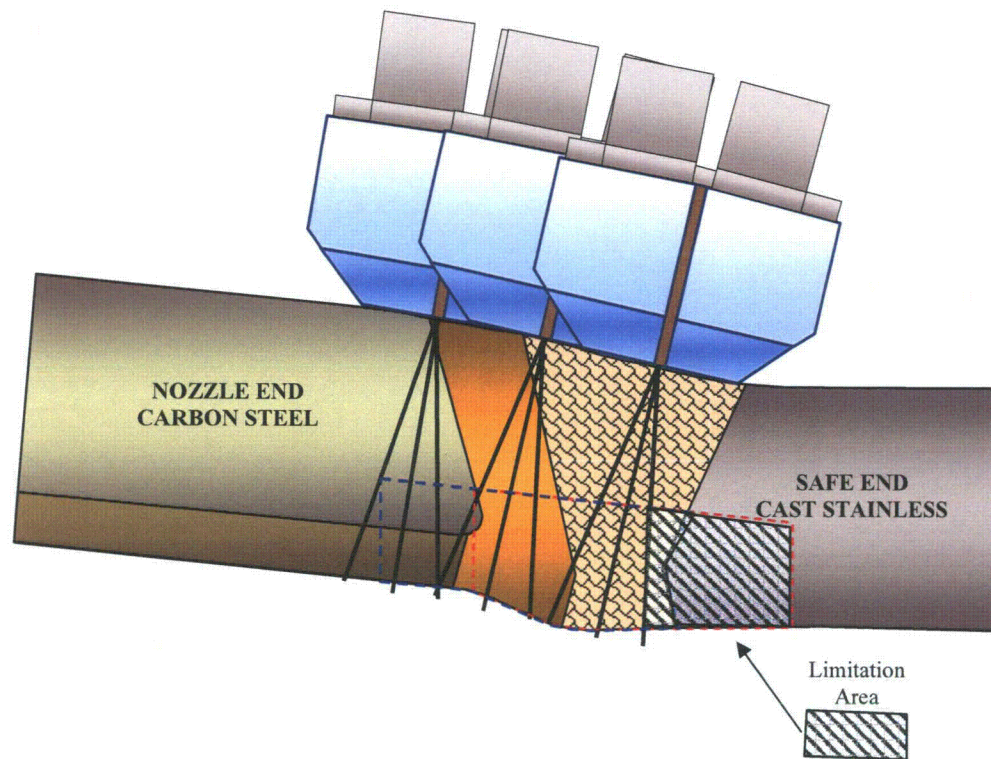
MRP-139 Volume

CCNPP Unit 1
Examination Coverage

114350 / 12-SI-1009-16

ASME Sec XI Circumferential Coverage 49%

MRP-139 Circumferential Coverage 87%



ASME Sec XI Volume

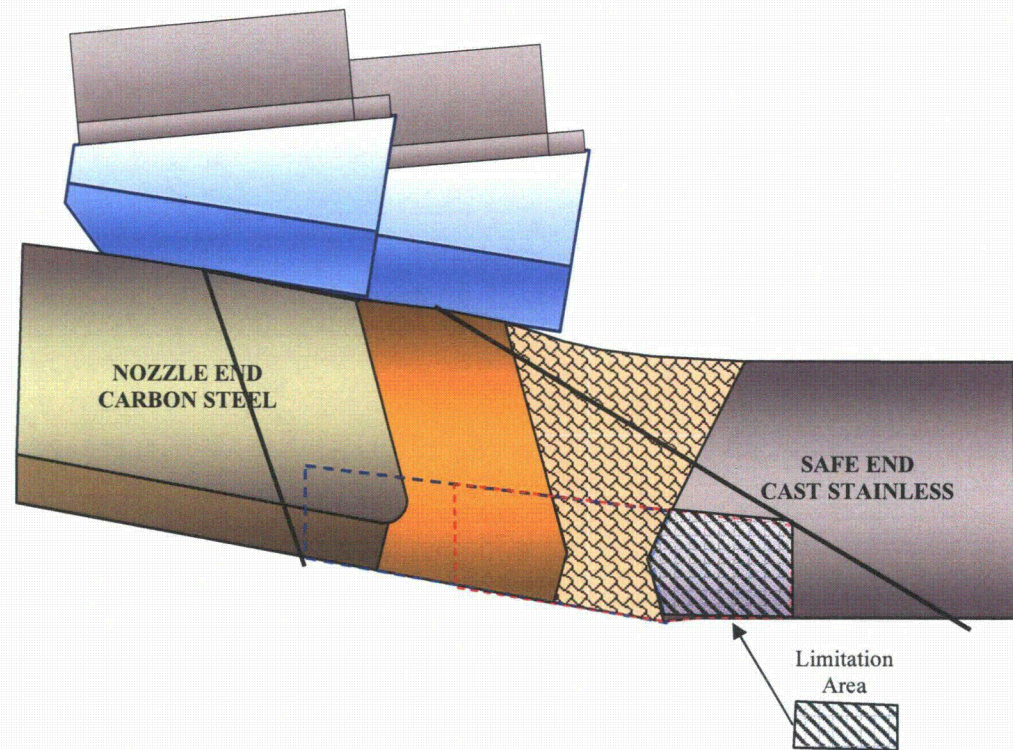
MRP-139 Volume

CCNPP Unit 1
Examination Coverage

115200 / 12-SI-1010-14

ASME Sec XI Axial Coverage 62%

MRP-139 Axial Coverage 100%



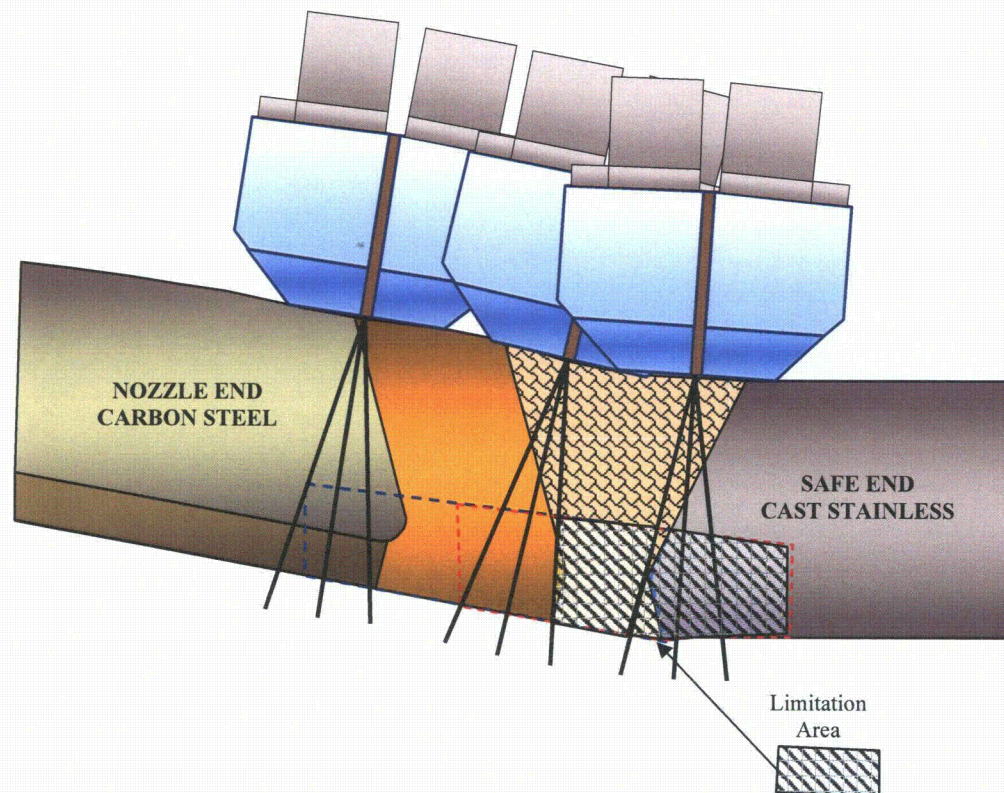
ASME Sec XI Volume

MRP-139 Volume

115200 / 12-SI-1010-14

ASME Section XI Circumferential Coverage 32%

MRP-139 Circumferential Coverage 73%



ASME Sec XI Volume

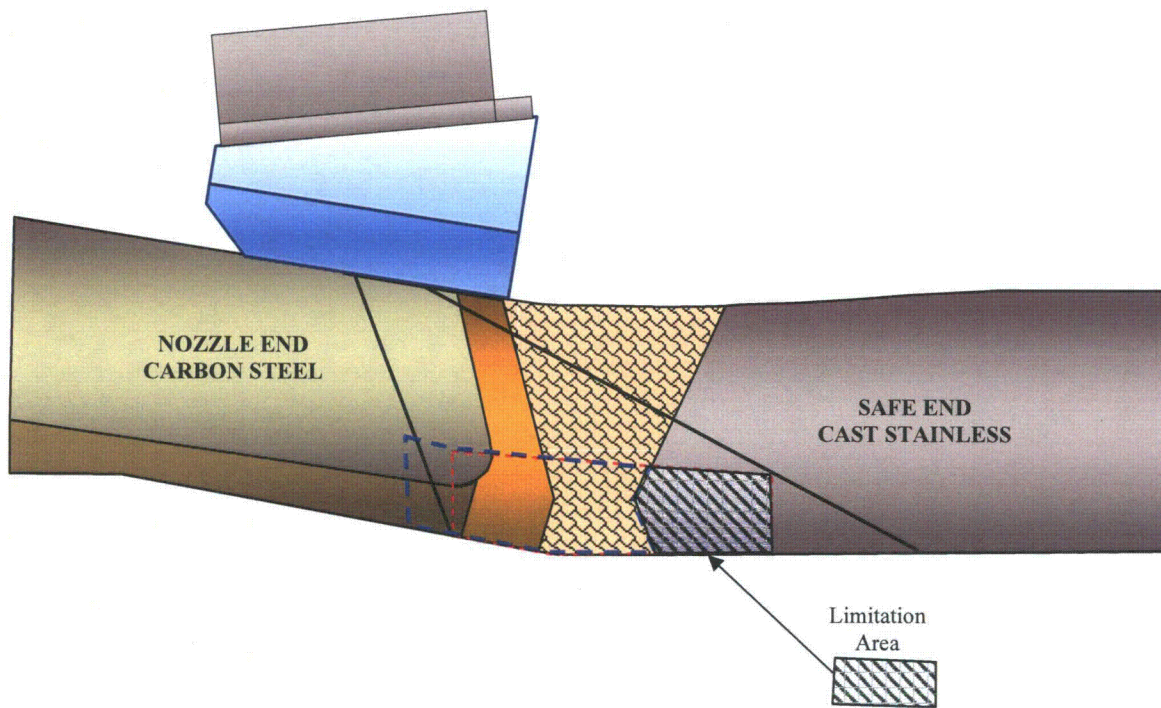
MRP-139 Volume

CCNPP Unit 1
Examination Coverage

116000 / 12-SI-1011-13

ASME Sec XI Axial Coverage 62%

MRP-139 Axial Coverage 100%



ASME Sec XI Volume

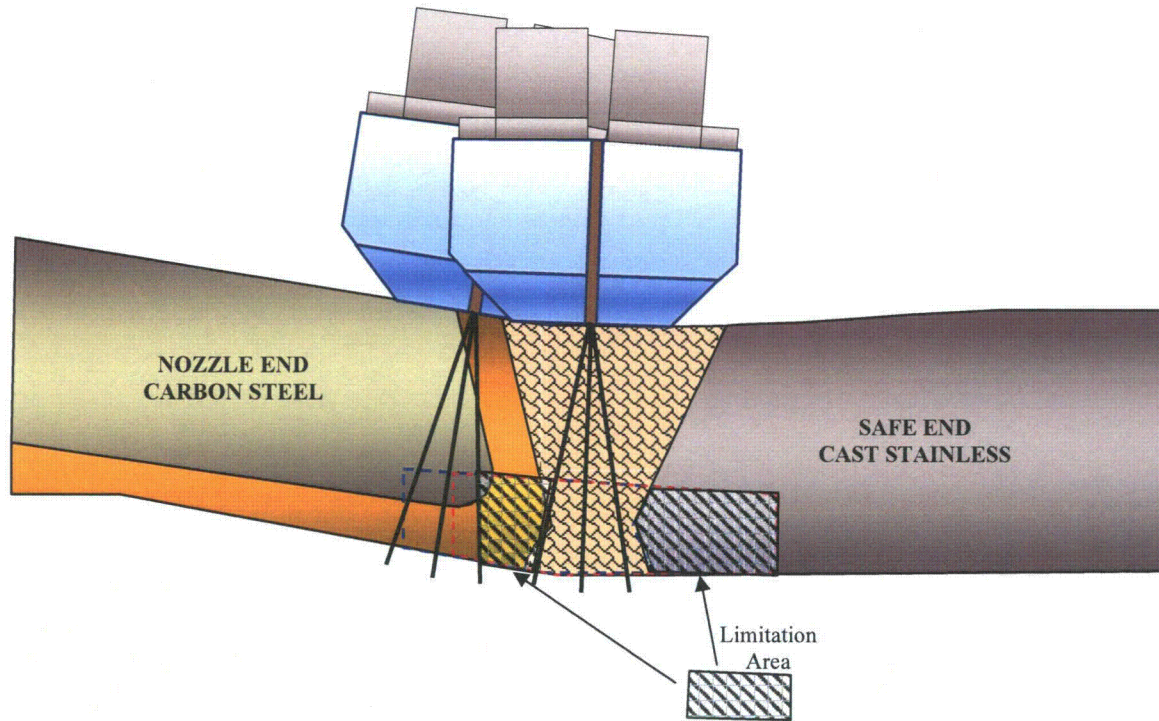
MRP-139 Volume

CCNPP Unit 1
Examination Coverage

116000 / 12-SI-1011-13

ASME Section XI Circumferential Coverage 33%

MRP-139 Circumferential Coverage 70%



ASME Sec XI Volume

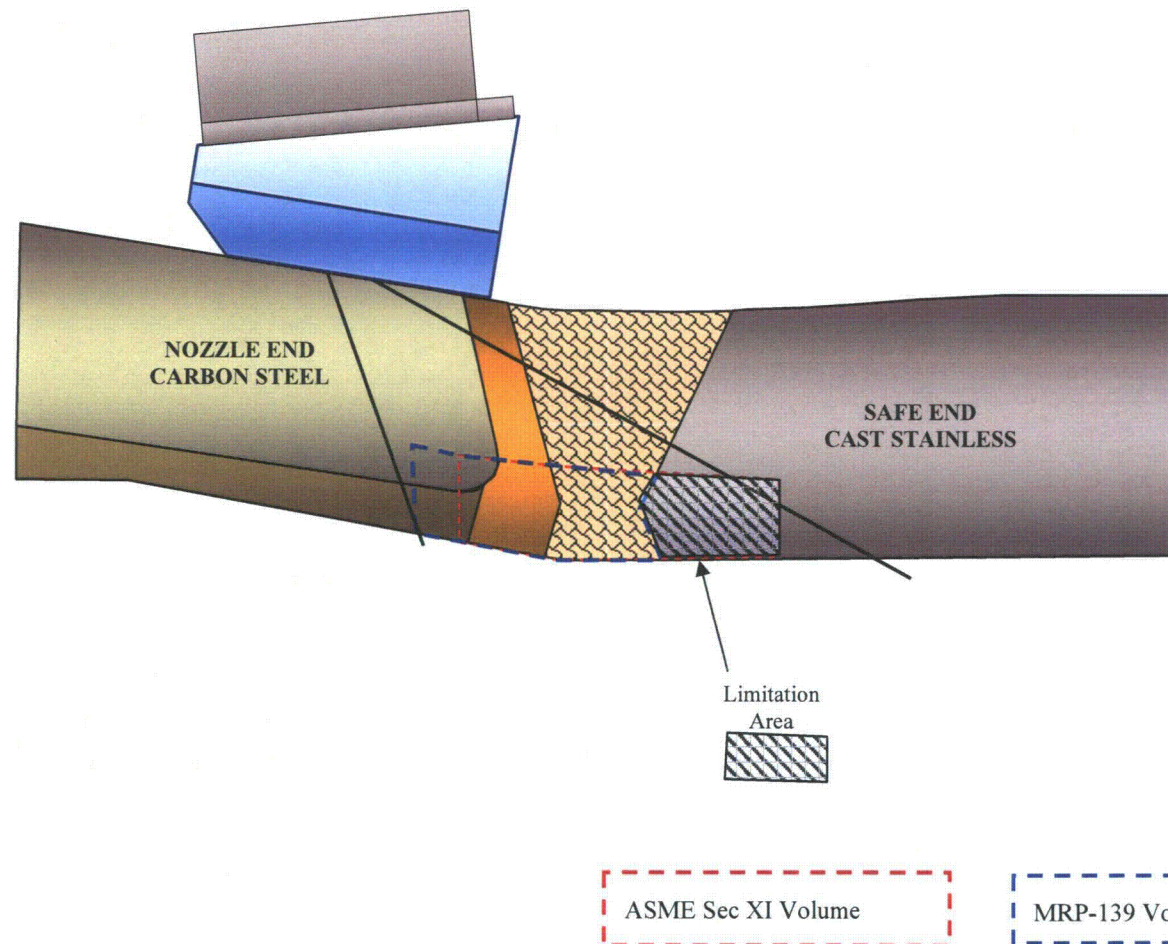
MRP-139 Volume

CCNPP Unit 1
Examination Coverage

116750 / 12-SI-1012-13

ASME Section XI Axial Coverage 61%

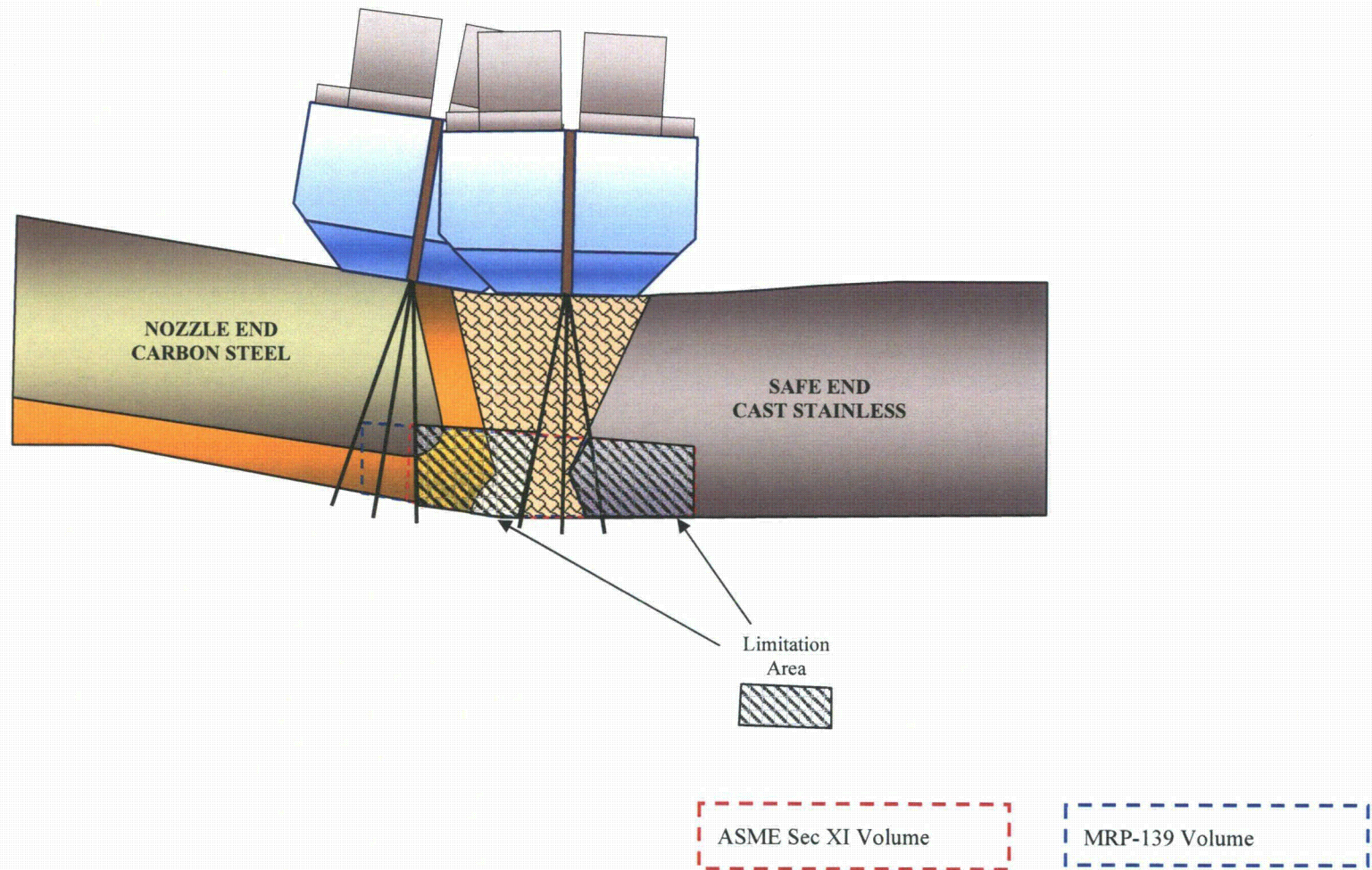
MRP-139 Axial Coverage 100%



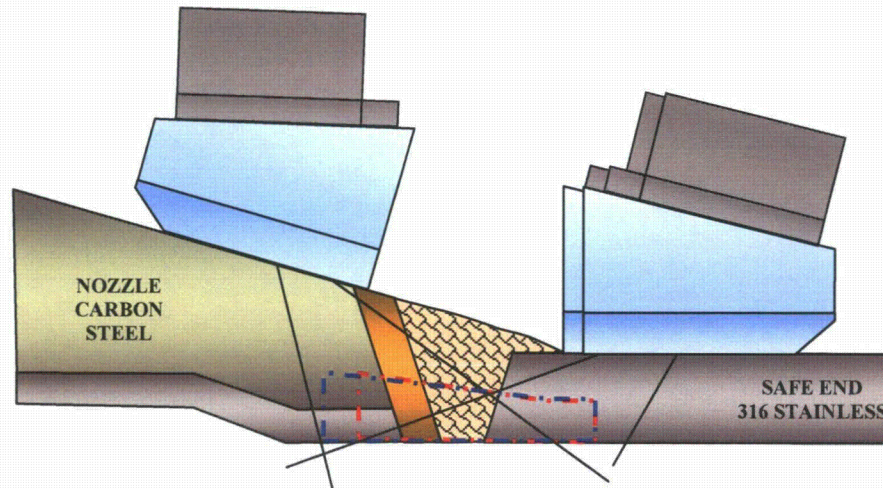
116750 / 12-SI-1012-13

ASME Section XI Circumferential Coverage 36%

MRP-139 Circumferential Coverage 67%



118500 / 4-PS-1003-6



ASME Section XI Axial Coverage 100%

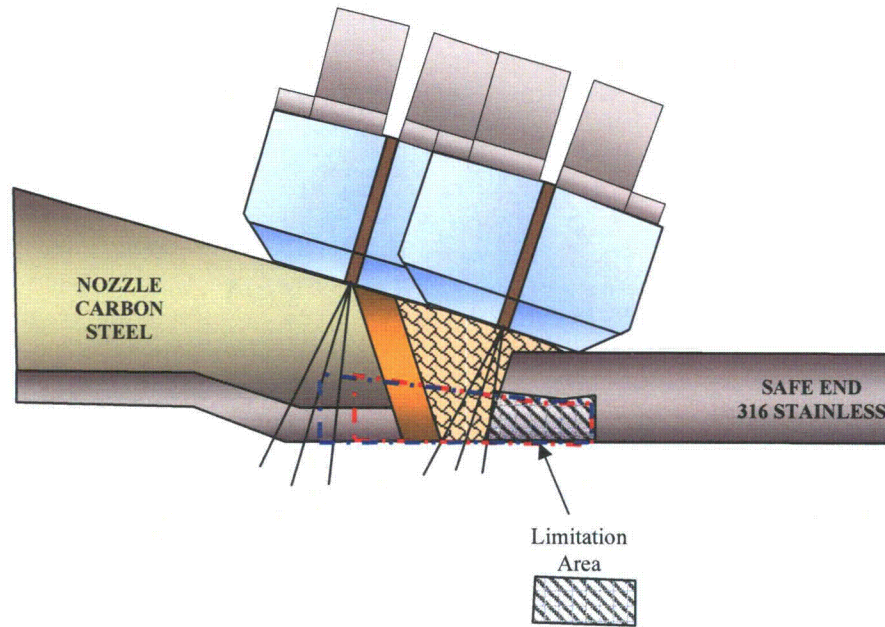
MRP-139 Axial Coverage 100%

ASME Sec XI Volume

118500 / 4-PS-1003-6

ASME Section XI Circumferential Coverage 58%

MRP-139 Circumferential Coverage 67%



ASME Sec XI Volume

MRP-139 Volume

ATTACHMENT (2)

**RELIEF REQUEST FOR CALVERT CLIFFS UNIT 2 DISSIMILAR
METAL BUTT WELD EXAMINATIONS (RR-ISI-04-07)**

ATTACHMENT (2)

**RELIEF REQUEST FOR CALVERT CLIFFS UNIT 2 DISSIMILAR METAL BUTT WELD
EXAMINATIONS (RR-ISI-04-07)**

1. ASME Code Component(s) Affected

Code Class 1 PWR Pressure Retaining Dissimilar Metal Piping and Vessel Nozzle Butt Welds Containing Alloy 82/182. American Society of Mechanical Engineers (ASME) Code Case N-770-1, Table 1, Examinations Categories, Inspection Item B – Unmitigated butt weld at cold leg operating temperature, Inspection Item D – Uncracked butt weld mitigated with stress improvement, Inspection Item E – Cracked butt weld mitigated with stress improvement.

2. Applicable Code Edition and Addenda

ASME Boiler and Pressure Vessel Code, Section XI, 2004 Edition, no Addenda - Code Case N-770-1 subject to conditions specified in 10 CFR 50.55a(g)(6)(ii)(F)(2 through 10).

3. Applicable Code Requirement

With the issuance of a revised 10 CFR 50.55a in July 2011, the Nuclear Regulatory Commission (NRC) incorporated by reference ASME Code Case N-770-1, “Alternative Examination Requirements and Acceptance Standards for Class 1 PWR Piping and Vessel Nozzle Butt Welds Fabricated with UNS N06082 or UNS W86182 Weld Filler Material With or Without Application of Listed Mitigation Activities, Section XI, Division 1” (ASME Approval Date: December 25, 2009). Specific implementing requirements are documented in 10 CFR 50.55a(g)(6)(ii)(F) and are listed below.

- (1) Licensees of existing, operating pressurized-water reactors as of July 21, 2011 shall implement the requirements of ASME Code Case N-770-1, subject to the conditions specified in paragraphs (g)(6)(ii)(F)(2) through (g)(6)(ii)(F)(10) of this section, by the first refueling outage after August 22, 2011.
- (2) Full structural weld overlays authorized by the NRC staff may be categorized as Inspection Items C or F, as appropriate; welds that have been mitigated by the Mechanical Stress Improvement Process (MSIPT[™]) may be categorized as Inspection Items D or E, as appropriate, provided the criteria in Appendix I of the code case have been met; for Inservice Inspection (ISI) frequencies, all other butt welds that rely on Alloy 82/182 for structural integrity shall be categorized as Inspection Items A-1, A-2, or B until the NRC staff has reviewed the mitigation and authorized an alternative code case Inspection Item for the mitigated weld, or until an alternative code case Inspection Item is used based on conformance with an ASME mitigation code case endorsed in Regulatory Guide 1.147 with conditions, if applicable, and incorporated in this section.
- (3) Baseline examinations for welds in ASME Code Case N-770-1, Table 1, Inspection Items A-1, A-2, and B, shall be completed by the end of the next refueling outage after January 20, 2012. Previous examinations of these welds can be credited for baseline examinations if they were performed within the re-inspection period for the weld item in ASME Code Case N-770-1, Table 1 using Section XI, Appendix VIII requirements and met the Code required examination volume of essentially 100 percent. Other previous examinations that do not meet these requirements can be used to meet the baseline examination requirement, provided NRC approval of alternative inspection requirements in accordance with paragraphs (a)(3)(i) or (a)(3)(ii) of this section is granted prior to the end of the next refueling outage after January 20, 2012.

ATTACHMENT (2)

RELIEF REQUEST FOR CALVERT CLIFFS UNIT 2 DISSIMILAR METAL BUTT WELD EXAMINATIONS (RR-ISI-04-07)

- (4) The axial examination coverage requirements of –2500(c) may not be considered to be satisfied unless essentially 100 percent coverage is achieved.

Items (5) through (9) of 10 CFR 50.55a(g)(6)(ii)(F) address future inspections beyond the baseline examination and are therefore not discussed in this relief request. Item (10) of 10 CFR 50.55a(g)(6)(ii)(F) addresses a mitigation that Calvert Cliffs does not have and is therefore not discussed in this relief request.

4. Reason for Request

The relevant conditions for this relief request are items (2) through (4) of 10 CFR 50.55a(g)(6)(ii)(F). These requirements are applicable to the welds listed in Table A below. Item (2) addresses defining the appropriate Inspection Item. Item (3) addresses performing the required baseline examination for that Inspection Item, while item (4) addresses the required examination coverage.

Item (2) of 10 CFR 50.55a(g)(ii)(F) requires that welds that have been mitigated by the MSIP™ may be categorized as Inspection Items D or E, as appropriate, provided the criteria in Appendix I of the Code Case have been met.

Item (3) of 10 CFR 50.55a(g)(6)(ii)(F) requires that all Inspection Items A-1, A-2, and B receive a baseline examination by the end of the first refueling outage after January 20, 2012. This report evaluates each location based on the specific Inspection Item frequency and examination coverage.

Whereas MRP-139 and ASME Code Case N-770-1 made allowances for axial examination coverage of dissimilar metal (DM) welds, the NRC has stated in item (4) above that essentially 100 percent coverage is required. This applies to meeting the baseline requirements for Item (3) above.

5. Component/Weld Scope

The welds shown in Table A below are the applicable welds 2 inch nominal pipe size and greater covered by the requirements contained in ASME Code Case N-770-1, Section -1000. These welds have been categorized in accordance with Table 1 from ASME Code Case N-770-1. The ASME Section XI examination volume coverage achieved during the 2010 outage is also included in Table A below.

Examination coverage plots are included in Enclosure 1 for those inspections for which essentially 100 percent coverage was unable to be obtained.

ATTACHMENT (2)

RELIEF REQUEST FOR CALVERT CLIFFS UNIT 2 DISSIMILAR METAL BUTT WELD EXAMINATIONS (RR-ISI-04-07)

TABLE A, UNIT 2 DM WELD POPULATION										
DM Weld Designator / ID	Location	Nozzle Size	Inspection Item Category	ASME Section XI Coverage	ASME Axial Scan (%)	ASME Circ Scan (%)	MRP-139 Coverage	MRP-139 Axial Scan (%)	MRP-139 Circ Scan (%)	Notes
109280 / 30-RC-21A-7	21A RCP Inlet	30"	B	57.60%	68.6	46.5	91.50%	100	83	1,5
109310 / 30-RC-21A-10	21A RCP Outlet	30"	B	57.50%	64	51	89.50%	97	82	3,4,6
110280 / 30-RC-21B-7	21B RCP Inlet	30"	B	35.00%	40.7	29.4	94.50%	100	89	1,4
110310 / 30-RC-21B-10	21B RCP Outlet	30"	B	50.20%	60.3	40	89.50%	94	85	3,4,6
111280 / 30-RC-22A-7	22A RCP Inlet	30"	B	49.00%	55	43	92.50%	100	85	1,4
111310 / 30-RC-22A-10	22A RCP Outlet	30"	B	62.60%	68.2	57	92.50%	100	85	1,4,5,7
112280 / 30-RC-22B-7	22B RCP Inlet	30"	B	51.00%	58	44	93.50%	100	87	1,4
112310 / 30-RC-22B-10	22B RCP Outlet	30"	B	61.00%	72	50	87.00%	100	74	1,4
113010 / 12-PSL-1	PZR Surge @ PZR	12"	D	57.00%	57	57	100%	100	100	1,2
113130 / 12-PSL-13	PZR Surge @ RCS Hot Leg	12"	D	70.50%	70.5	70.5	100%	100	100	1,2
114900 / 12-SC-2004-1	Shutdown Cooling to RCS Hot Leg	12"	D	61.00%	61	61	100%	100	100	1,2
115140 / 12-SI-2009-15	Safety Injection to 21B Cold Leg	12"	B	68.00%	68	68	100%	100	100	1,2
116190 / 12-SI-2010-13	Safety Injection to 21A Cold Leg	12"	B	71.00%	71	71	100%	100	100	1,2
117120 / 12-SI-2011-13	Safety Injection to 22B Cold Leg	12"	B	68.50%	68.5	68.5	100%	100	100	1,2
118120 / 12-SI-2012-13	Safety Injection to 22A Cold Leg	12"	B	71.00%	71	71	100%	100	100	1,2
136090 / 4-PS-2003-8	PZR Spray	4"	D	84.00%	100	68	87%	100	74	1,4
137010 / 3-PS-2001-1	PZR Spray from 21A Cold Leg	3"	B	100%	100	100	100%	100	100	1,2
138010 / 3-PS-2002-1	PZR Spray from 21B Cold Leg	3"	B	100%	100	100	100%	100	100	1,2
141000 / 4-SR-2005-1	PZR Safety/Relief	4"	D	100%	100	100	100%	100	100	1,2

ATTACHMENT (2)

RELIEF REQUEST FOR CALVERT CLIFFS UNIT 2 DISSIMILAR METAL BUTT WELD EXAMINATIONS (RR-ISI-04-07)

TABLE A, UNIT 2 DM WELD POPULATION										
DM Weld Designator / ID	Location	Nozzle Size	Inspection Item Category	ASME Section XI Coverage	ASME Axial Scan (%)	ASME Circ Scan (%)	MRP-139 Coverage	MRP-139 Axial Scan (%)	MRP-139 Circ Scan (%)	Notes
142000 / 4-SR-2006-1	PZR Safety/Relief	4"	D	100%	100	100	100%	100	100	1, 2
156530 / 2-CV-2021-34	22B Charging Inlet	2"	B	100%	100	100	100%	100	100	1, 2, 8
152440 / 2-CV-2005-30	21A Charging Inlet	2"	B	100%	100	100	100%	100	100	1, 2
157010 / 2-DR-2003-1	21A Cold Leg Drain	2"	B	100%	100	100	100%	100	100	1, 2
158010 / 2-DR-2004-1	21B Cold Leg Drain	2"	B	100%	100	100	100%	100	100	1, 2
160010 / 2-DR-2006-1	22B Cold Leg Drain	2"	B	100%	100	100	100%	100	100	1, 2

Locations in **Bold** operate at Cold Leg temperature.

NOTES:

1. 100% of primary water stress corrosion cracking (PWSCC) susceptible material examination volume has been examined for circumferential flaws.
2. 100% of PWSCC susceptible material examination volume has been examined for axial flaws.
3. Essentially 100% of the PWSCC susceptible material examination volume has been examined for circumferential flaws.
4. Essentially 100% of the PWSCC susceptible material examination volume has been examined for axial flaws.
5. A portion of the susceptible material examination volume from the wetted surface received limited examination for axial flaws.
6. A portion of the susceptible material examination volume from the wetted surface received limited examination for circumferential flaws.
7. A portion of the susceptible examination volume material from the wetted surface through to non susceptible material received limited examination for axial flaws.
8. These components received specific surface contouring to improve coverage. Coverage indicated in table is based on final contouring.

General Note for Table A: MRP-139 coverage was calculated and is included in the table and on the coverage plots. This volume differs from ASME Code Case N-770-1 in that it excludes cast stainless steel material and extends the examination volume 1/4 inch beyond known susceptible material. This coverage is a direct measure of what amount of susceptible material coverage was achieved. The cast stainless steel material was examined using an ASME Section XI, Appendix VIII dissimilar metal weld qualified procedure.

ATTACHMENT (2)

RELIEF REQUEST FOR CALVERT CLIFFS UNIT 2 DISSIMILAR METAL BUTT WELD EXAMINATIONS (RR-ISI-04-07)

6. Burden Caused by Compliance

Calvert Cliffs utilized examination techniques qualified to meet the requirements of ASME Section XI, Appendix VIII, as required in 10 CFR 50.55a(g)(6), that achieved the maximum practical amount of coverage obtainable within the limitations imposed by the design of the components and examination techniques listed. Additionally, visual test for leakage (VE examinations in accordance with ASME Code Case N-722) were performed on the subject components of the reactor coolant pressure boundary during the 2010 refueling outage. Those examinations identified no evidence of leakage for these components. The combination of these examinations provides confidence that an acceptable level of quality and safety has been maintained.

Further, 10 CFR 50.55a(b)(2)(xv)(A)(2) states, "Where examination from both sides is not possible on austenitic welds or DM welds, full coverage credit from a single side may be claimed only after completing a successful single-sided Appendix VIII demonstration using flaws on the opposite side of the weld."

Based on the design configuration of the components and available examinations techniques, Calvert Cliffs was not able to achieve 100 percent coverage of the susceptible material examination volume and/or essentially 100 percent Code coverage of the required examination volume for the components listed without major modifications to the components. Although essentially 100 percent code coverage was not obtained, every effort was made to obtain the maximum amount of coverage as reasonably possible. The combination of coverage amount combined with the examination techniques discussed below, contributed to maintaining a high level of quality and safety.

7. Proposed Alternative and Basis for Use

Dissimilar metal weld examinations performed at Calvert Cliffs during refueling outages conducted in 2010 (Unit 1) and 2011 (Unit 2) employed phased array (PA) ultrasonic testing (UT) technology. Utilizing PA technology not only improves the overall effectiveness of the UT examination but also provides significant performance improvements when compared to conventional examination methodologies.

All DM welds were examined utilizing Structural Integrity's proprietary manual PA procedure, SI-UT-130 R3. This procedure has been qualified in accordance with the requirements of ASME Code, Section XI, Appendix VIII, Supplement 10 for the manual PA UT examination technique. This technique has been Performance Demonstration Initiative-qualified to detect and characterize (length and depth size) service-induced damage associated with the weld in the form of PWSCC. The SI-UT-130 R3 procedure is also qualified to scan DM welds with single-sided access. This single-sided access qualification allows for full interrogation of DM welds that have cast stainless steel safe ends, which restrict scanning from the cast stainless side. The application of Structural Integrity's PA UT technology allows for a reduction in the number of required examination scans across the surface of the component, while matching or exceeding the maximum achievable coverage of the Code-required weld and adjacent base material volume of any currently qualified ultrasonic technique. The capability of PA to provide increased examination coverage is inherently evident when applied to limited-access scanning surfaces.

Using the PA technique, examination coverage is greater than conventional techniques for constrained configurations. This is because the procedure employs a large number of discrete examination angles (including credit for a low angle of 30-degrees), which, in addition to increased examination coverage, provides superior material insonification by utilizing many different angular

ATTACHMENT (2)

RELIEF REQUEST FOR CALVERT CLIFFS UNIT 2 DISSIMILAR METAL BUTT WELD EXAMINATIONS (RR-ISI-04-07)

sound paths, thereby optimizing penetration into highly attenuative materials. The technique also includes a 10 degree electronic skew for circumferential scanning beam angles, which significantly improves examination coverage.

Structural Integrity's PA UT procedure provided an increased capability to more effectively interrogate the required ISI examination volume due to the use of a lower effective angle of 30 degree as compared to a typical 45 degree lead angle associated with most conventional UT procedures. Likewise, the surface limiting factors associated with other procedures, which apply linear scanning techniques, are not a factor when applying azimuthal PA UT techniques. The combined advantages of a qualified lower effective angle and a smaller surface contact requirement achieved by the application of azimuthal PA UT techniques, contributes to the reduced need for surface preparation and the ability to achieve maximum coverage of the examination volume. Surface preparation efforts were conducted at Calvert Cliffs on various welds where it was deemed an improvement to examination coverage.

The major limitation to achieving essentially 100 percent coverage, and/or 100 percent coverage of the susceptible examination volume by reference of ASME Code Case N-770-1 in 10 CFR 50.55a, with conditions, is the presence of cast stainless steel. All DM welds ≥ 12 inches contain cast stainless steel safe ends. For these welds containing cast stainless steel items, no supplement is available in Section XI, Appendix VIII. Therefore, the required examination volume was examined by Section XI, Appendix VIII procedures to the maximum extent practical.

8. CONCLUSION

In July 2011, the NRC incorporated by reference ASME Code Case N-770-1 into 10 CFR 50.55a. Specific implementing requirements are documented in 10 CFR 50.55a(g)(6)(ii)(F). The relevant conditions applicable to Calvert Cliffs DM welds are shown in Table A.

Item (2) of 10 CFR 50.55a(g)(6)(ii)(F) requires the applicable DM welds to be categorized in accordance with ASME Code Case N-770-1, Table 1. This categorization has been performed and is included in this report. All components at hot leg operating temperatures have been previously mitigated by the MSIP™ process, and have met the performance criteria of Appendix I of ASME Code Case N-770-1 with the exception of obtaining essentially 100 percent coverage as identified in Table A.

All remaining DM welds have been categorized as Inspection Item B.

Item (3) of 10 CFR 50.55a(g)(6)(ii)(F) requires that baseline examinations for the welds in ASME Code Case N-770-1, Table 1 be completed by the end of the next refueling outage after January 20, 2012. Previous examinations may be credited if they have met the following criteria:

3. Examinations were performed using a procedure that meets the requirements of ASME Code Section XI, Appendix VIII and;
4. The Code required examination volume of essentially 100 percent coverage has been obtained.

If the previous examinations do not meet these requirements, they still can be used to meet the baseline examination requirements, provided that NRC approval of alternative inspection requirements is granted prior to the end of the next refueling outage after January 20, 2012.

ATTACHMENT (2)

RELIEF REQUEST FOR CALVERT CLIFFS UNIT 2 DISSIMILAR METAL BUTT WELD EXAMINATIONS (RR-ISI-04-07)

Due to the fact that not including the examination volume scanned from the cast stainless steel side and specific geometric limitations prevents essentially 100 percent examination volume coverage from being obtained, relief is requested for an alternative in order for the examinations previously conducted at Calvert Cliffs to meet the baseline examination requirements of Item (3).

All examinations were performed in accordance with MRP-139 requirements and meet current ASME Code Case N-770-1 requirements. Results from the examinations were documented in the ISI refueling outage report. However with the conditions imposed by 10 CFR 50.55a(g)(6)(ii)(F) (3) and (4), all welds with cast stainless steel material do not meet these conditions. Therefore, reasonable assurance of quality and safety is based on the achieved coverage and the ASME Code Case N-722 VE examinations performed.

9. Duration of Proposed Alternative

Relief is requested to accept the baseline examinations performed in 2010 for the Fourth Ten-year Interval of the ISI Program for Calvert Cliffs which was effective from October 2009, ending on June 30, 2019 for Unit 2.

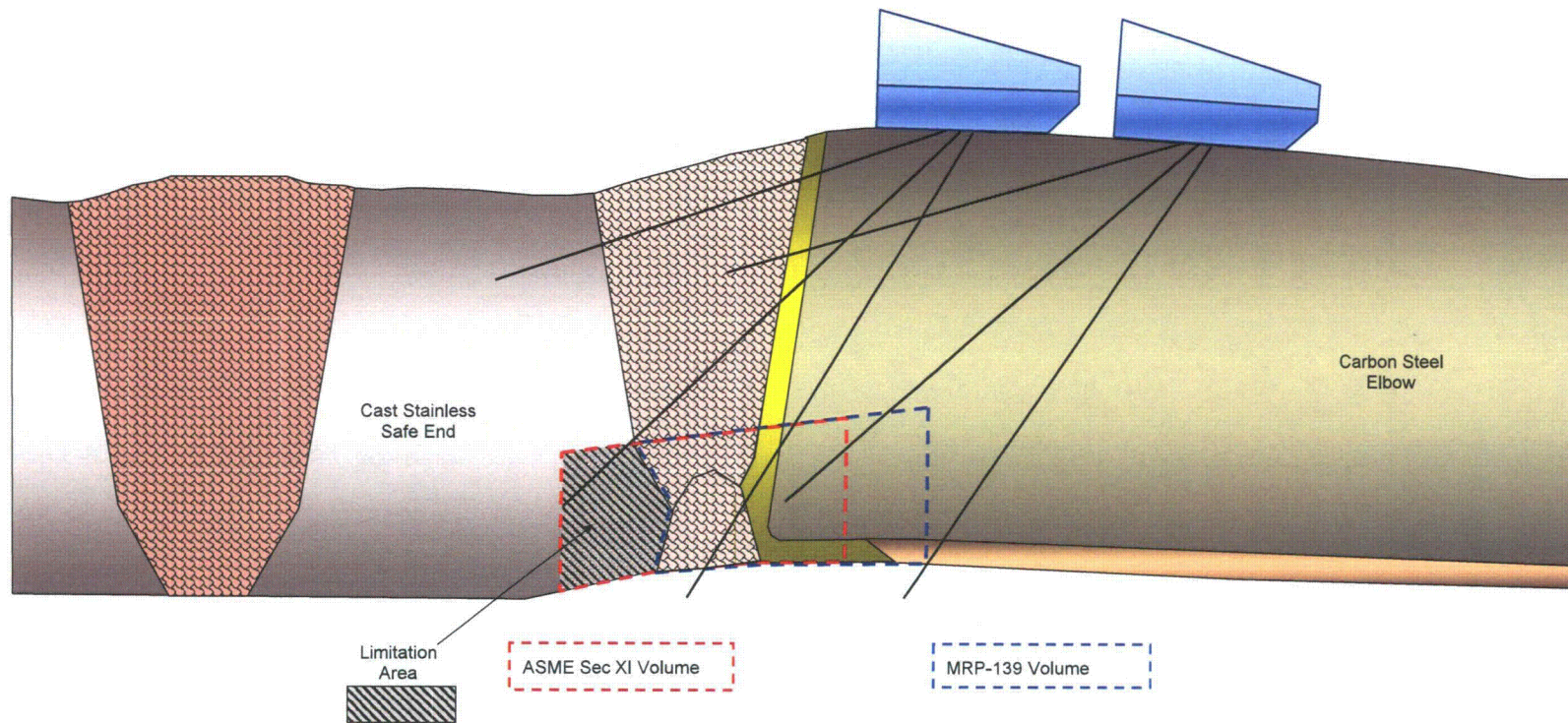
ENCLOSURE 2

Unit 2 Examination Coverage Plots

**CCNPP U2 LTP # 109280 / 30-RC-21A-7
Examination Coverage**

ASME Sec XI Coverage limited due to cast stainless steel
(68.6% Axial ASME Section XI Coverage Obtained)

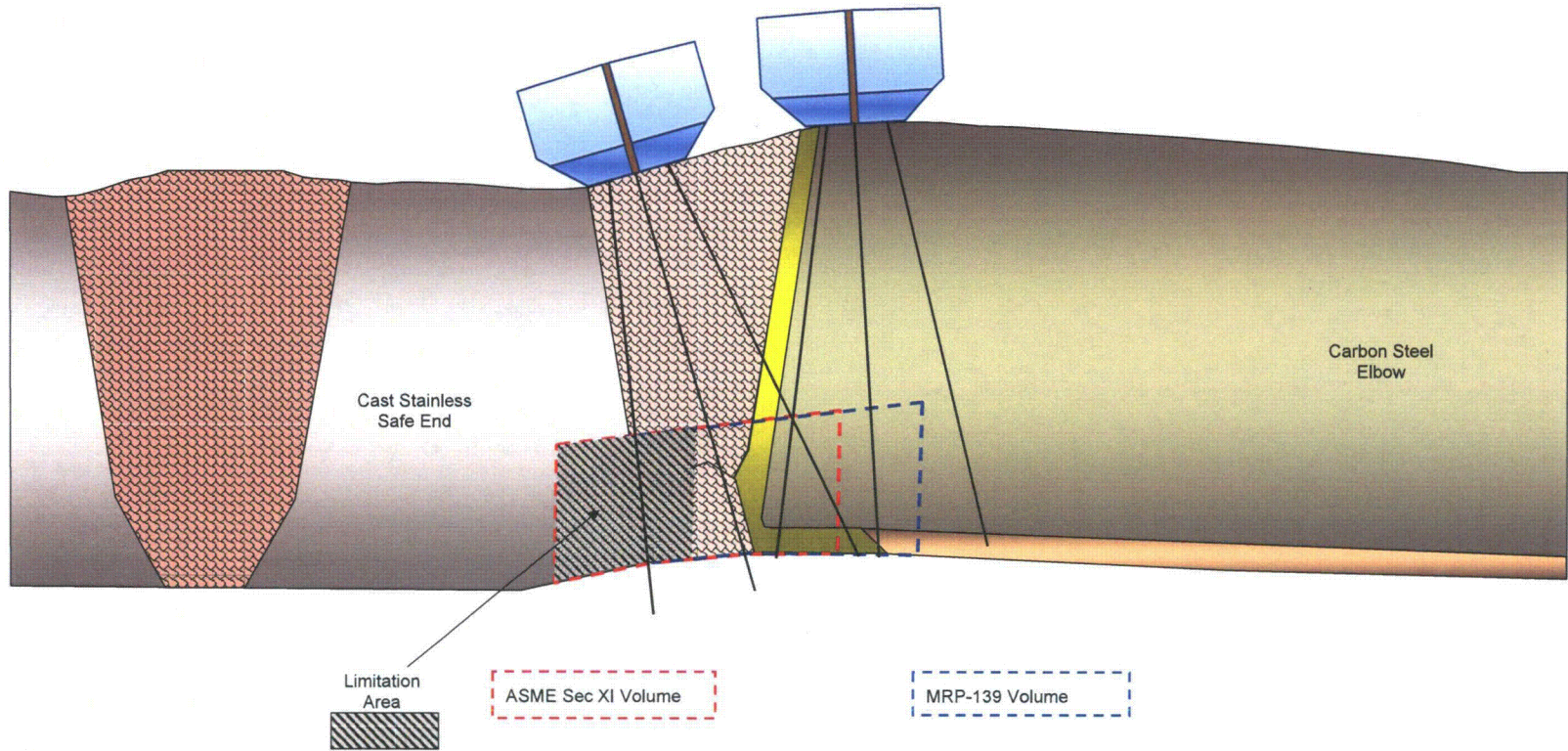
MRP-139 Coverage
No Limitation
(100% Axial MRP-139 Coverage Obtained)



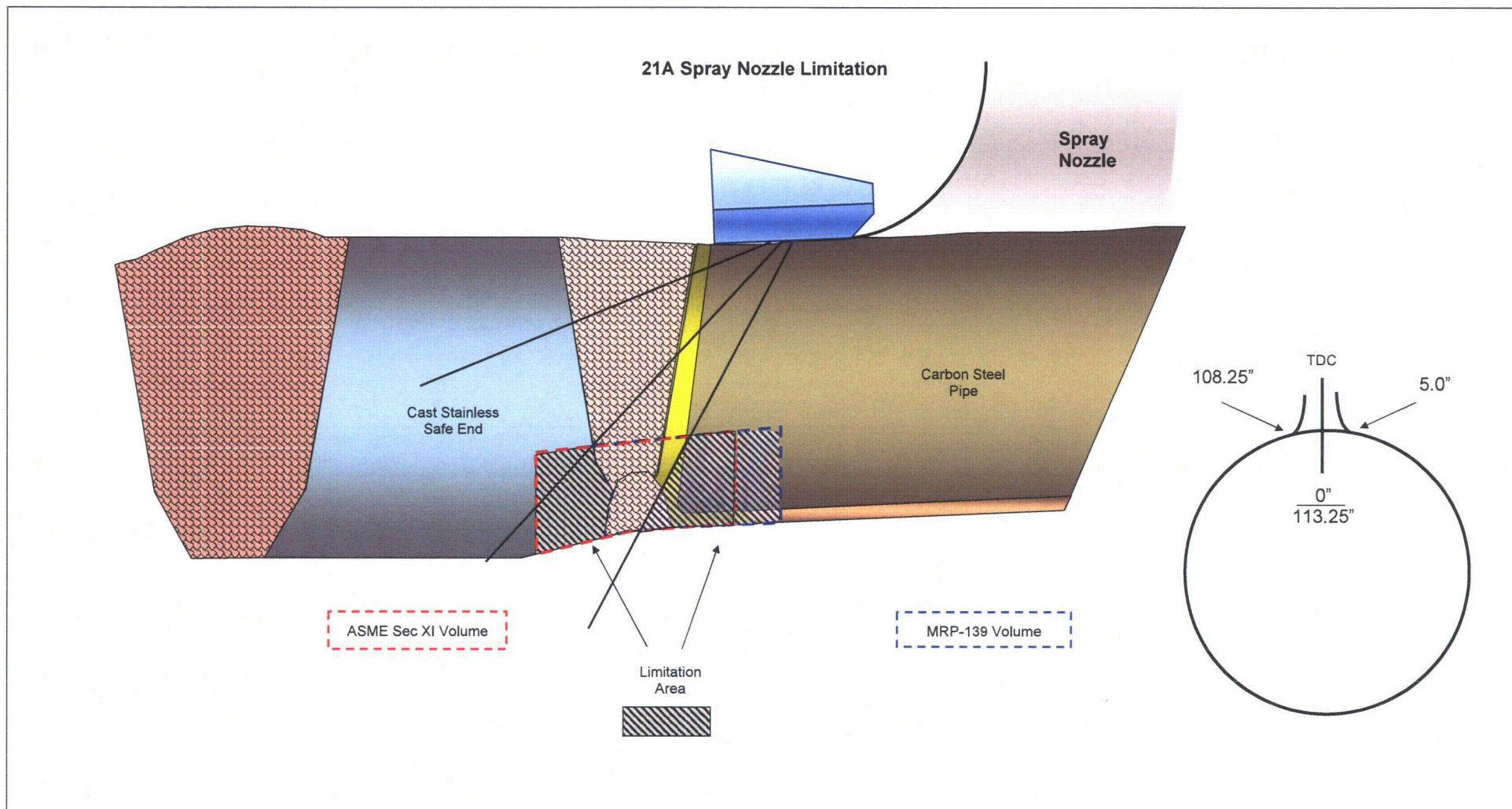
**CCNPP U2 LTP # 109280 / 30-RC-21A-7
Examination Coverage**

ASME Sec XI Coverage limited due to cast stainless steel and Configuration
(46.5% Circumferential ASME Section XI Coverage Obtained)

MRP-139 Coverage limited due to configuration
(83.1% Circumferential MRP-139 Coverage Obtained)



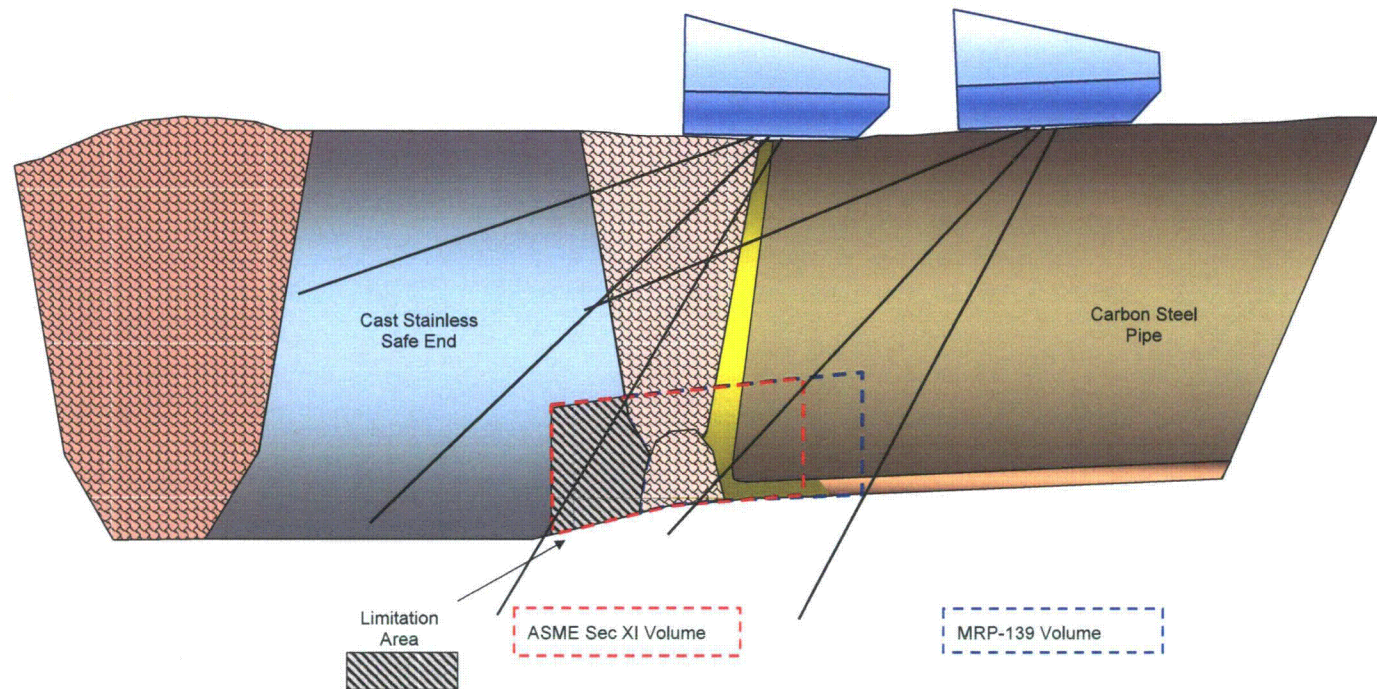
CCNPP U2 LTP # 109310 / 30-RC-21A-10
Examination Coverage



**CCNPP U2 LTP # 109310 / 30-RC-21A-10
Examination Coverage**

**ASME Sec XI Coverage limited due to Cast Stainless Steel and Cold Leg Spray Nozzle Obstruction
(64% Axial ASME Section XI Coverage Obtained)**

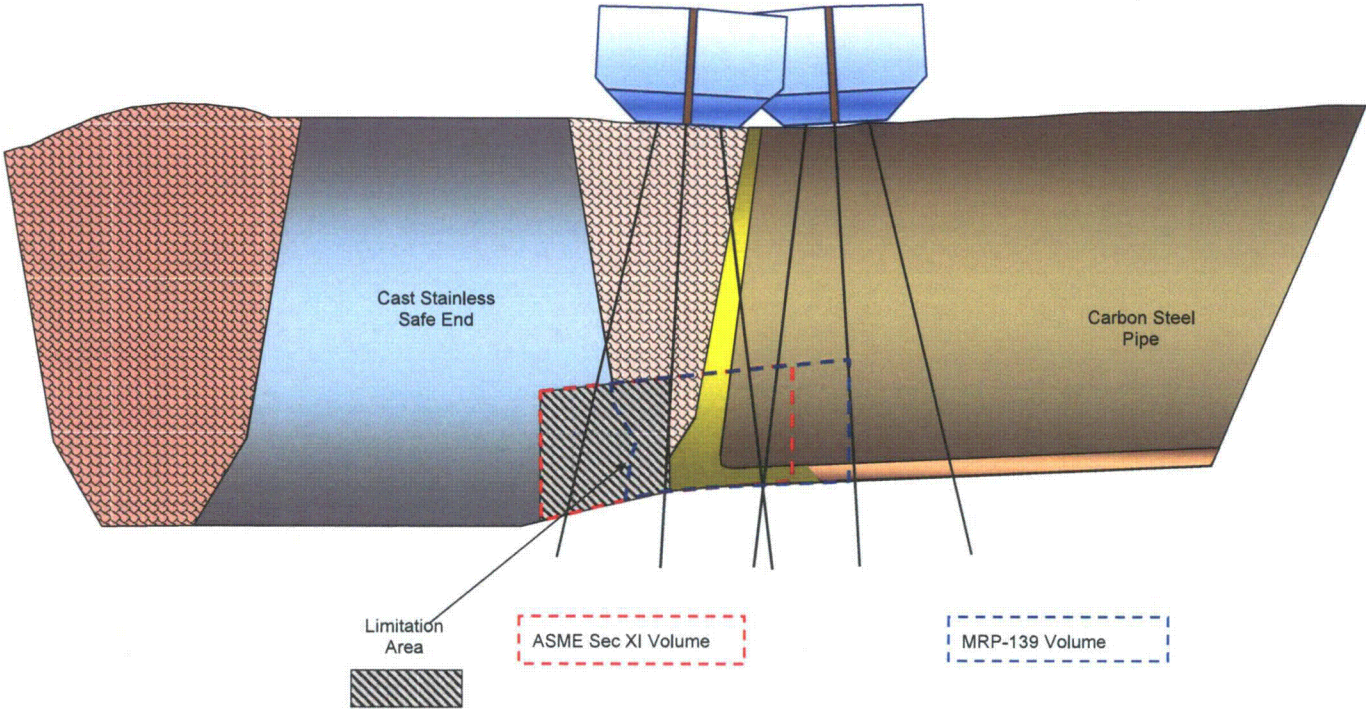
**MRP-139 Coverage limitation due to Cold Leg Spray Nozzle obstruction
97.6% Axial MRP-139 Coverage**



**CCNPP U2 LTP # 109310 / 30-RC-21A-10
Examination Coverage**

**ASME Sec XI Coverage limited due to cast stainless steel and Configuration
(51% Circumferential ASME Section XI Coverage Obtained)**

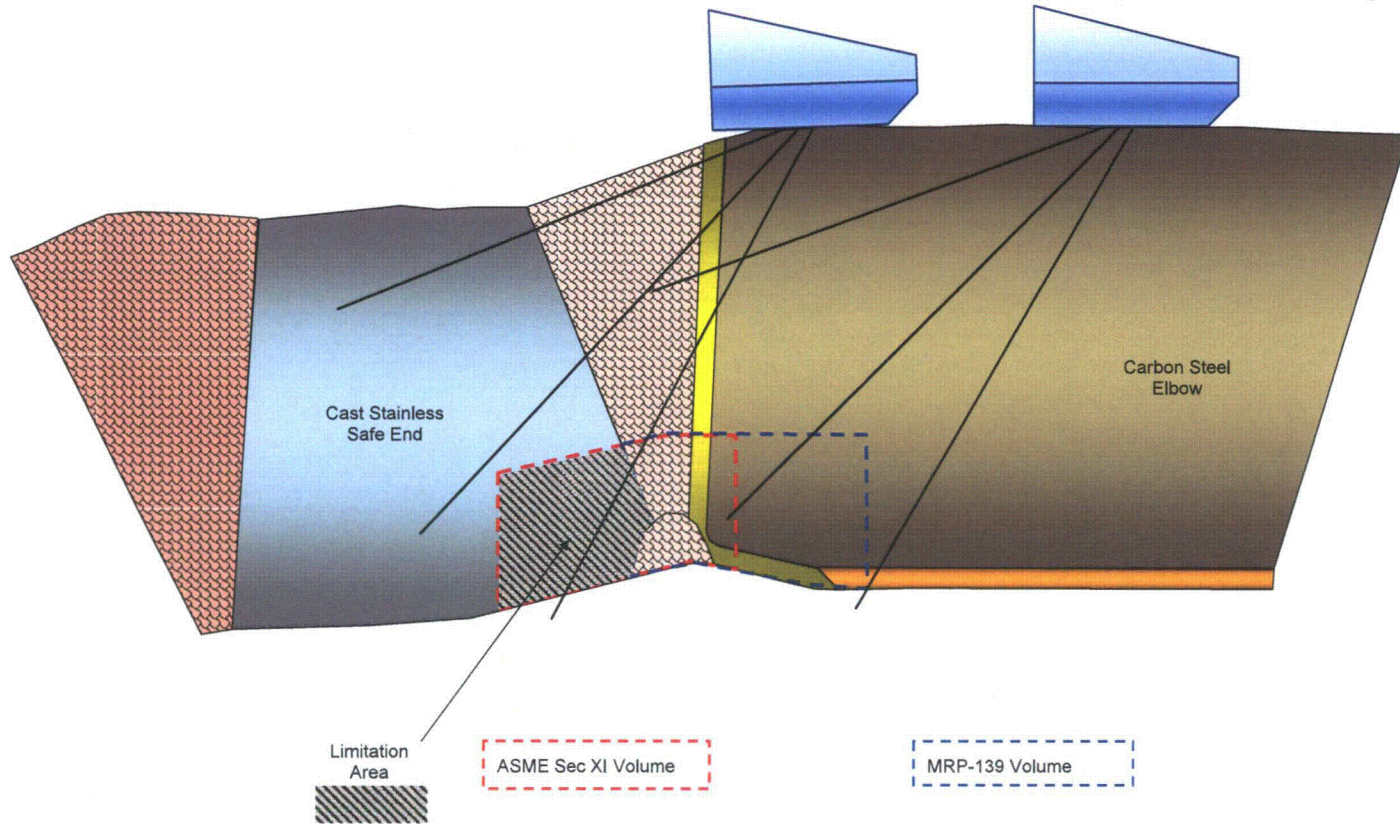
**MRP-139 Coverage limited due to configuration
(82% Circumferential MRP-139 Coverage Obtained)**



**CCNPP U2 LTP # 110280 / 30-RC-21B-7
Examination Coverage**

ASME Sec XI Coverage limited due to cast stainless steel
(40.7% Axial ASME Section XI Coverage Obtained)

MRP-139 Coverage
No Limitation
(100% Axial MRP-139 Coverage Obtained)



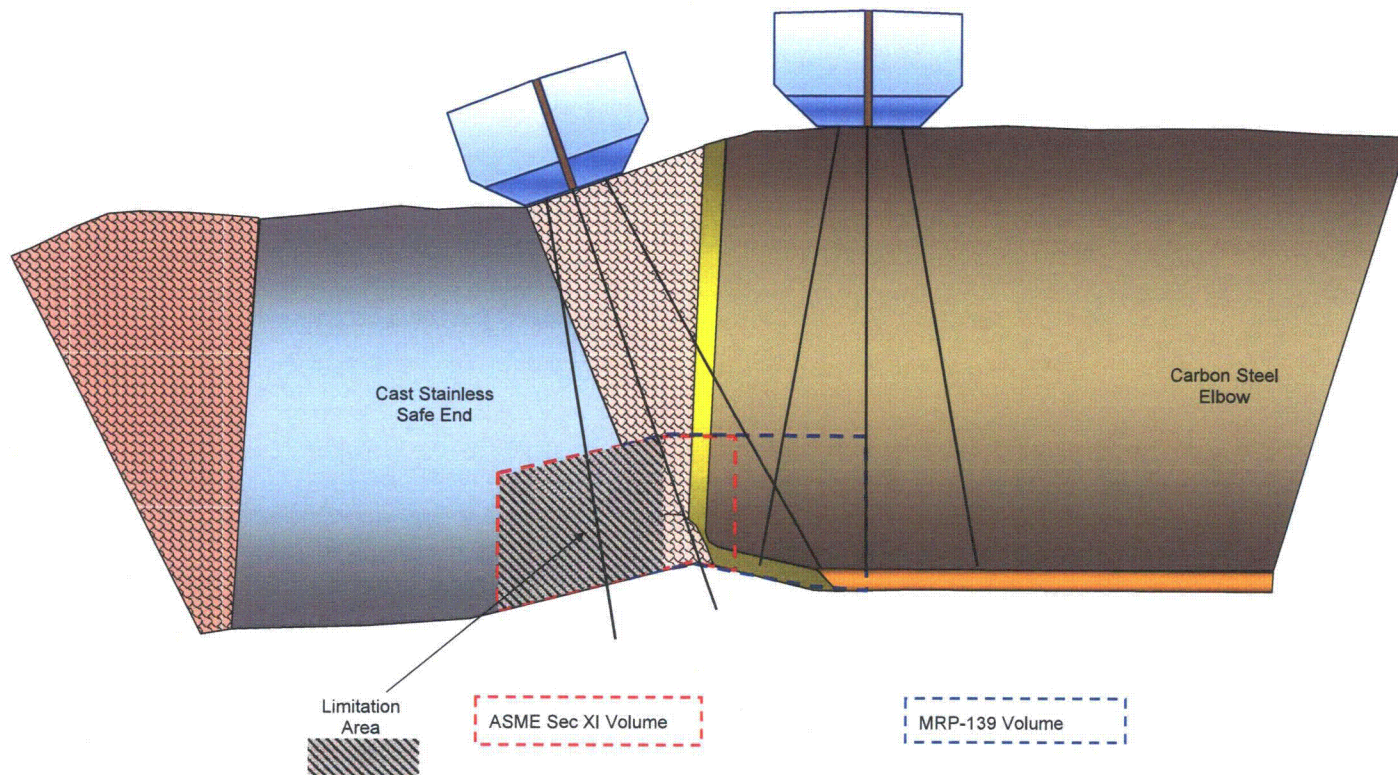
**CCNPP U2 LTP # 110280 / 30-RC-21B-7
Examination Coverage**

ASME Sec XI Coverage limited due to cast stainless steel and configuration

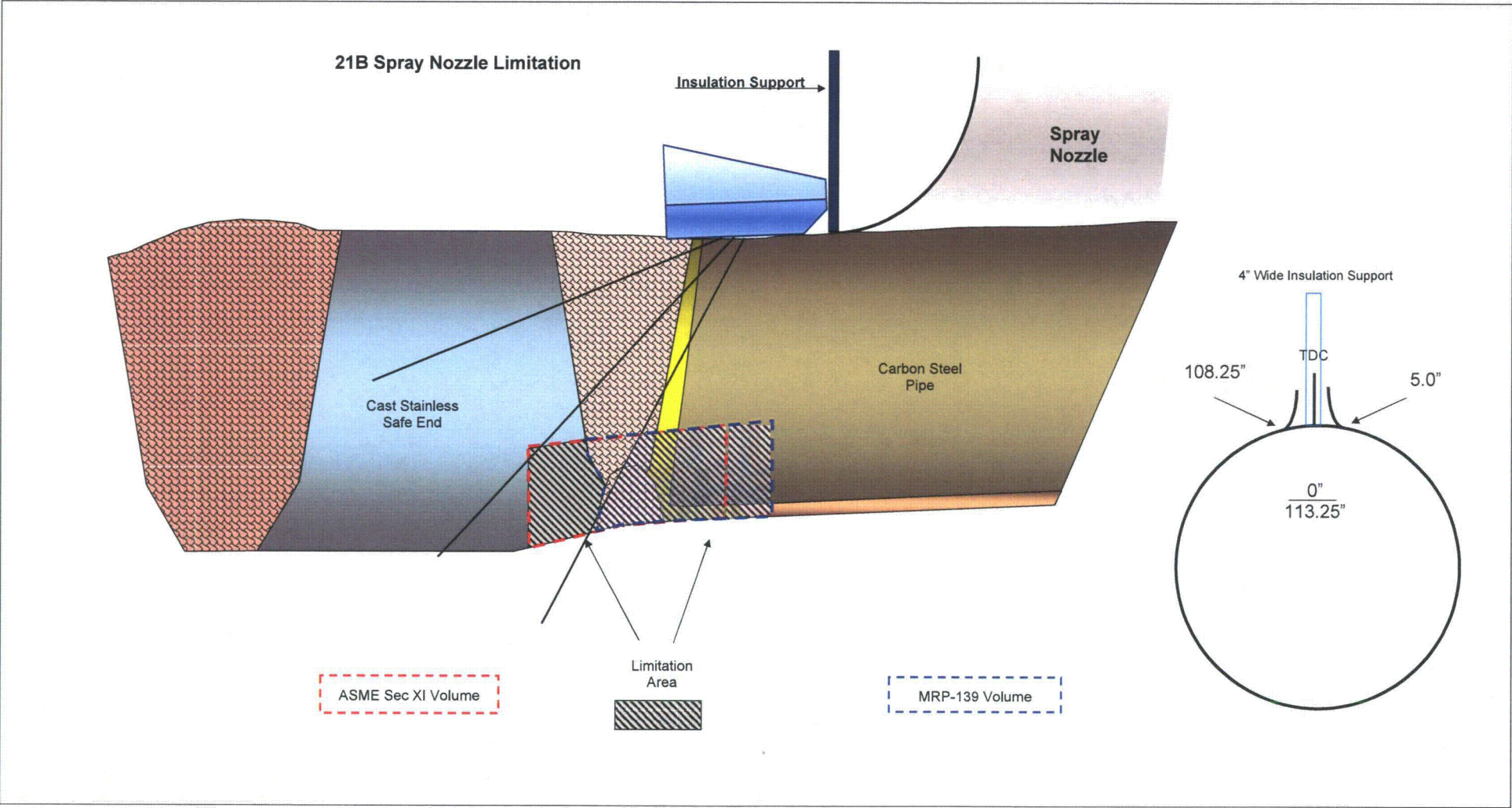
(29.4% Circumferential ASME Section XI Coverage Obtained)

MRP-139 Coverage limited due to configuration

(88.9% Circumferential MRP-139 Coverage Obtained)



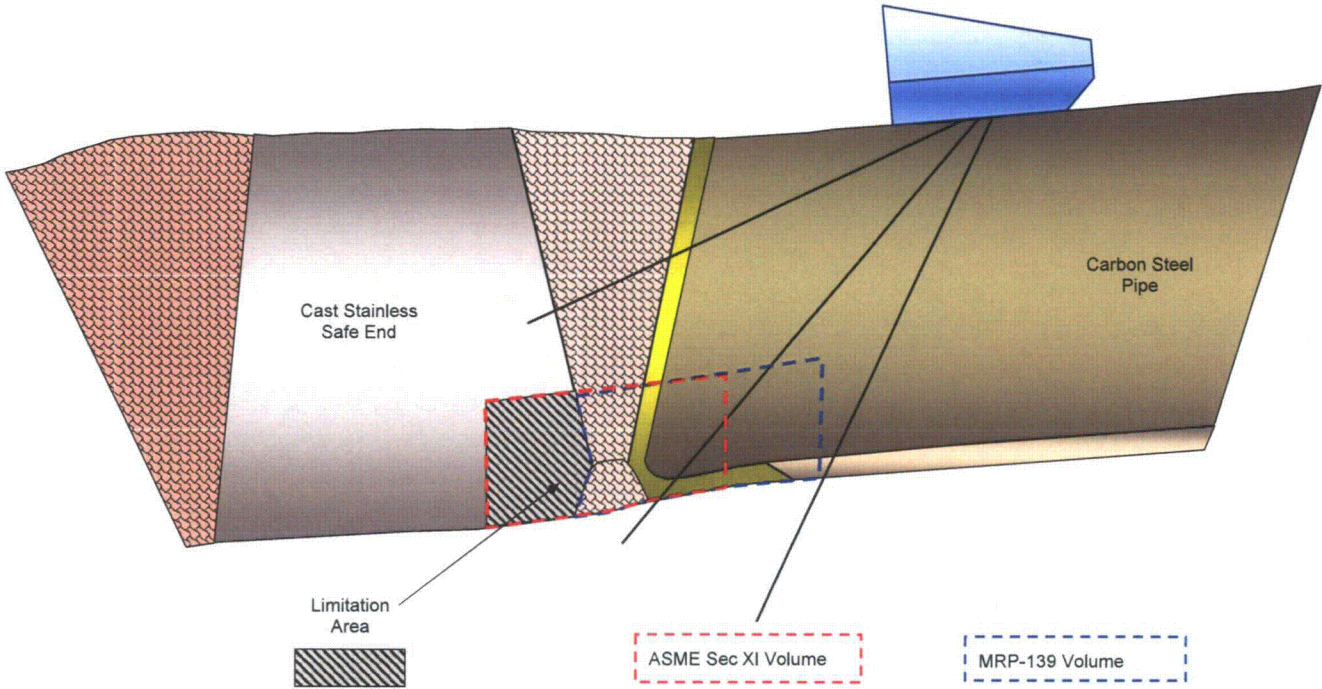
CCNPP U2 LTP # 110310 / 30-RC-21B-10
Examination Coverage



**CCNPP U2 LTP # 110310 / 30-RC-21B-10
Examination Coverage**

Sec XI Coverage limited due to cast stainless steel, Cold Leg Spray Nozzle and Insulation Support Piece
(60.3% Axial ASME Section XI Coverage Obtained)

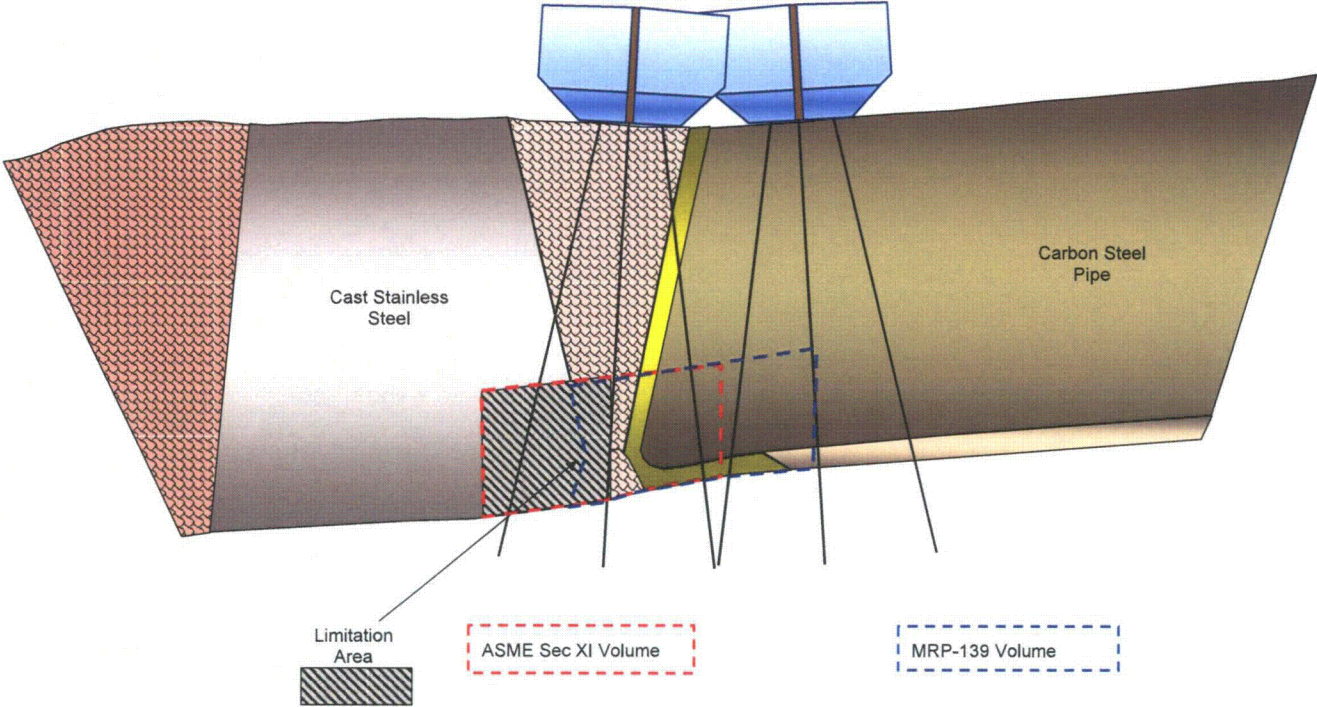
MRP-139 Coverage limitation due to Cold Leg Spray Nozzle obstruction
(94.3% Axial MRP-139 Coverage)



**CCNPP U2 LTP # 110310 / 30-RC-21B-10
Examination Coverage**

ASME Sec XI Coverage limited due to cast stainless steel and Configuration
(40% ASME Section XI Coverage Obtained)

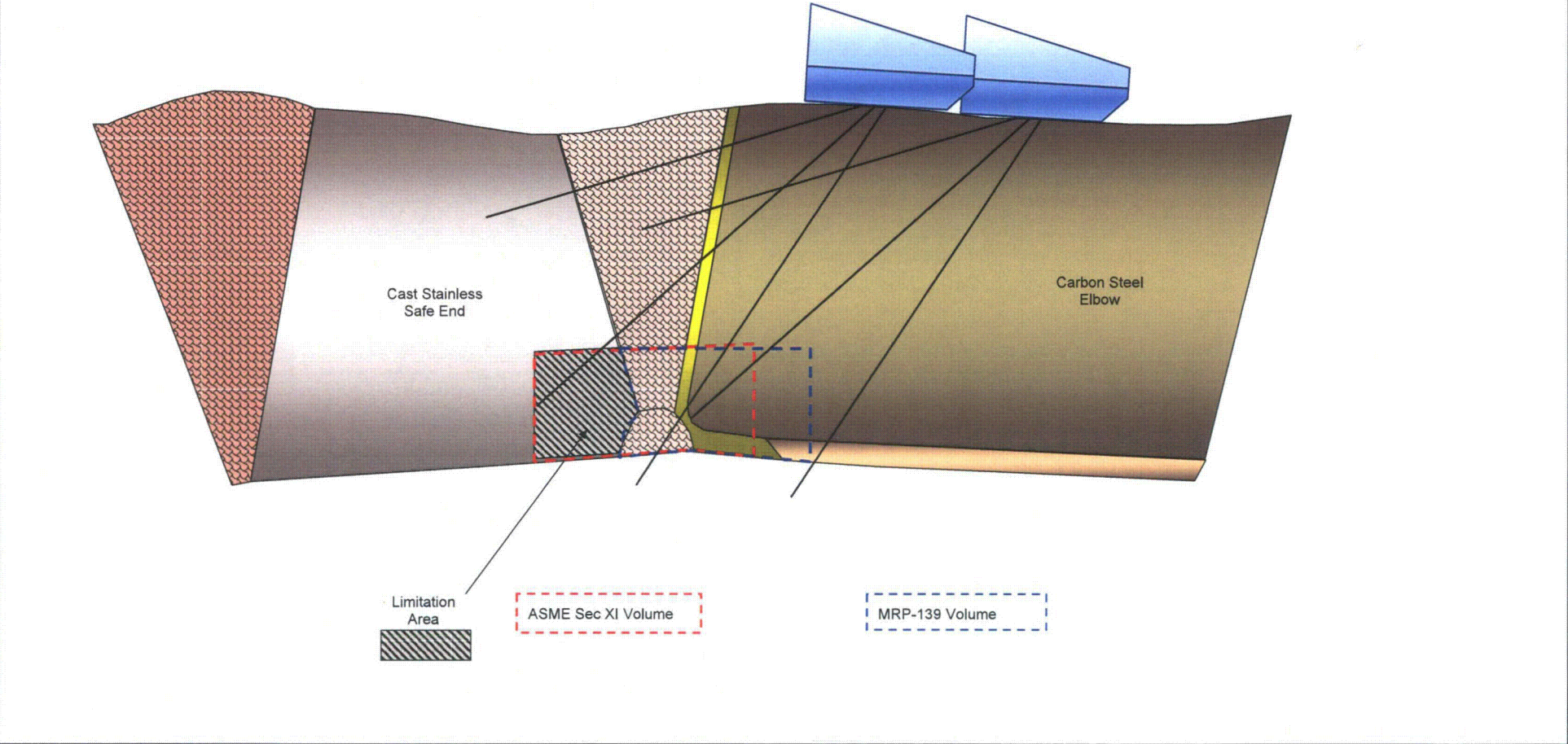
MRP-139 Coverage limited due to configuration
(85% MRP-139 Coverage Obtained)



**CCNPP U2 LTP # 111280 / 30-RC-22A-7
Examination Coverage**

ASME Sec XI Coverage limited due to cast stainless steel
(55% Axial ASME Section XI Coverage Obtained)

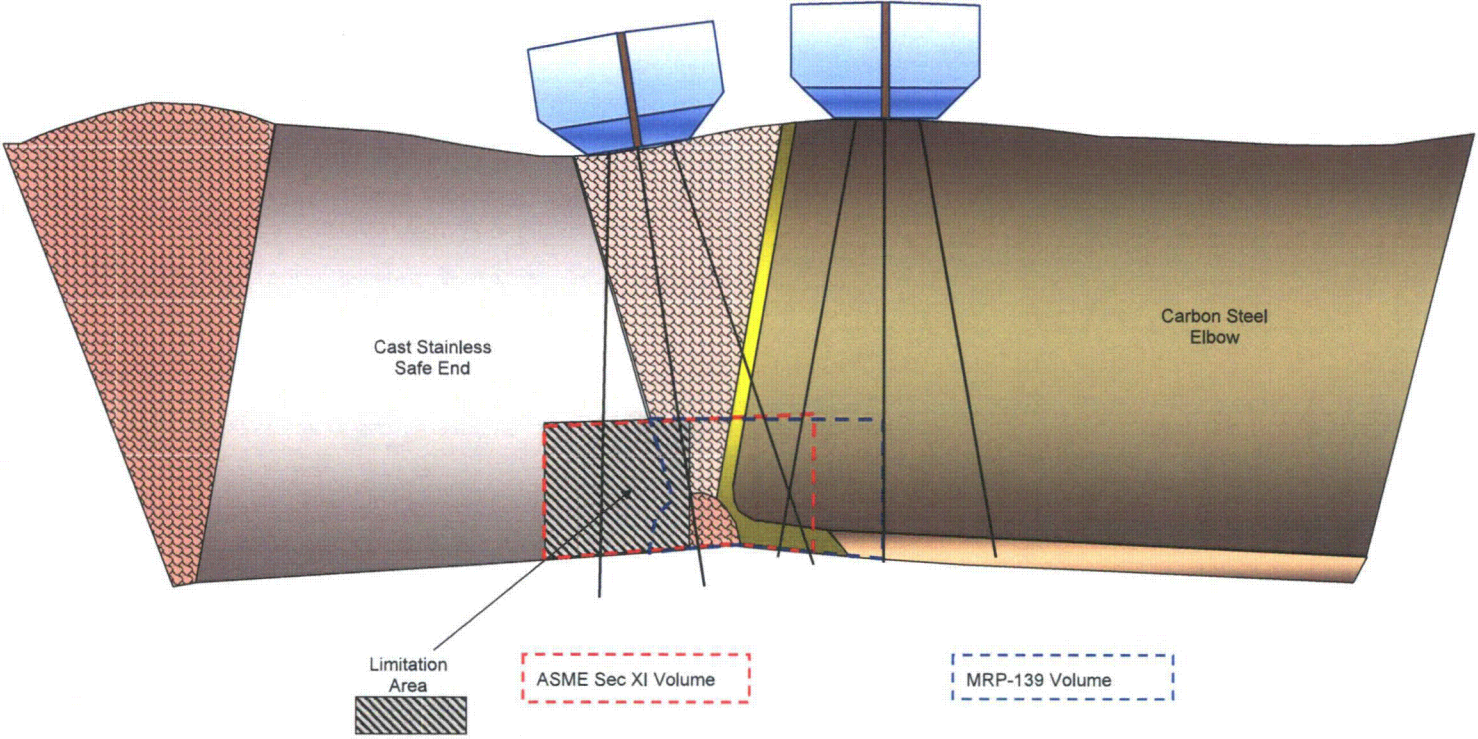
MRP-139 Coverage
(100% Axial MRP-139 Coverage Obtained)



**CCNPP U2 LTP # 111280 / 30-RC-22A-7
Examination Coverage**

ASME Sec XI Coverage limited due to cast stainless steel and Configuration
(43% Circumferential ASME Section XI Coverage Obtained)

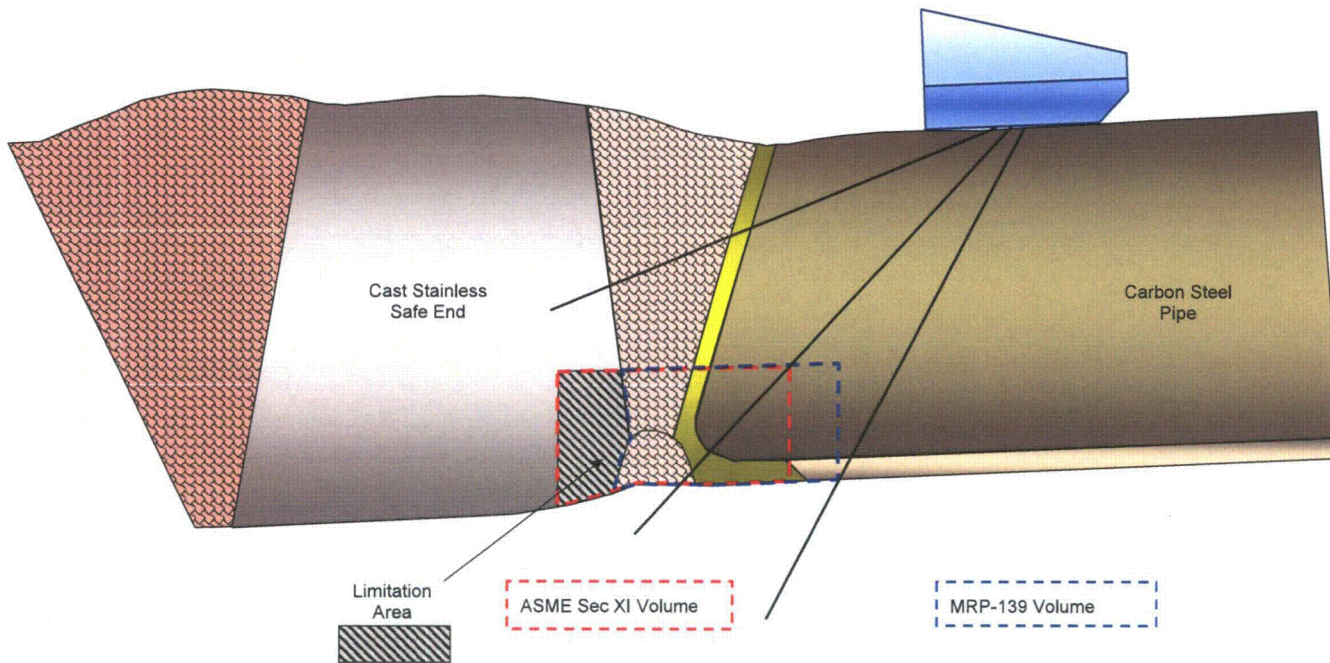
MRP-139 Coverage limited due to configuration
(85% Circumferential MRP-139 Coverage Obtained)



**CCNPP U2 LTP # 111310 / 30-RC-22A-10
Examination Coverage**

ASME Sec XI Coverage limited due to cast stainless steel
(68.2% Axial ASME Section XI Coverage Obtained)

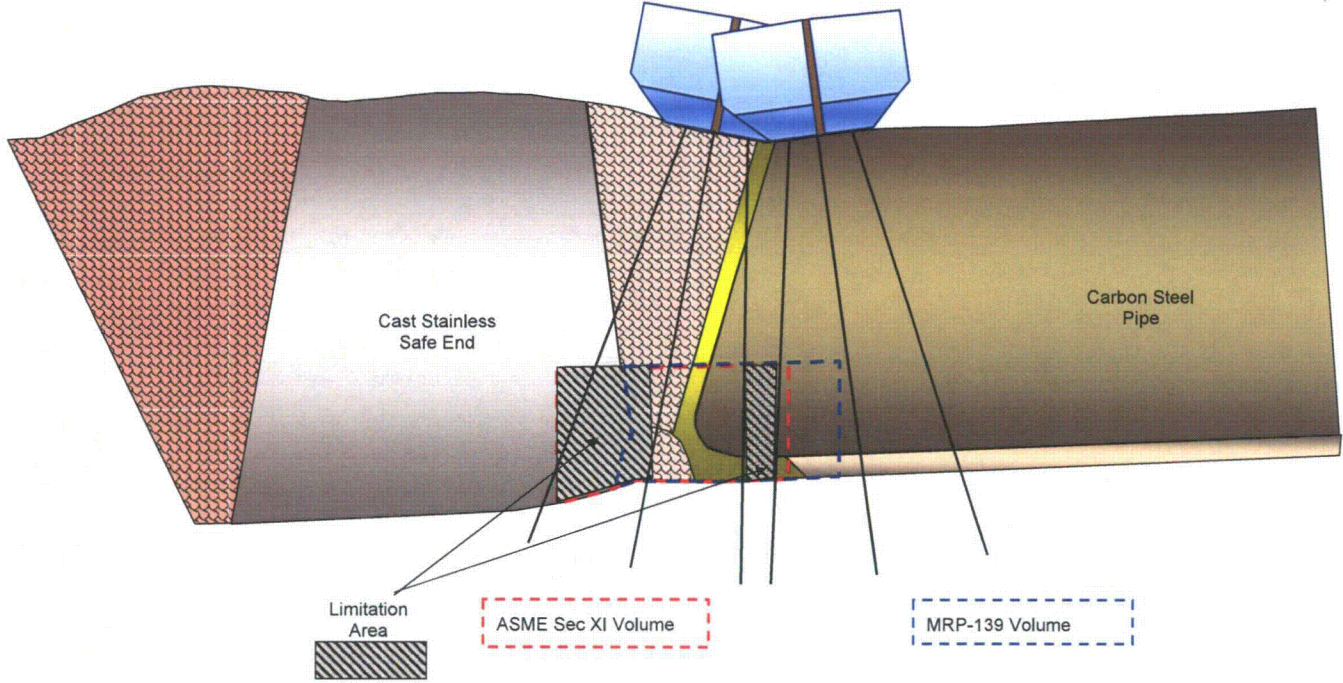
MRP-139 Coverage
(100% Axial MRP-139 Coverage Obtained)



**CCNPP U2 LTP # 111310 / 30-RC-22A-10
Examination Coverage**

ASME Sec XI Coverage limited due to cast stainless steel and Configuration
(57% Circumferential ASME Section XI Coverage Obtained)

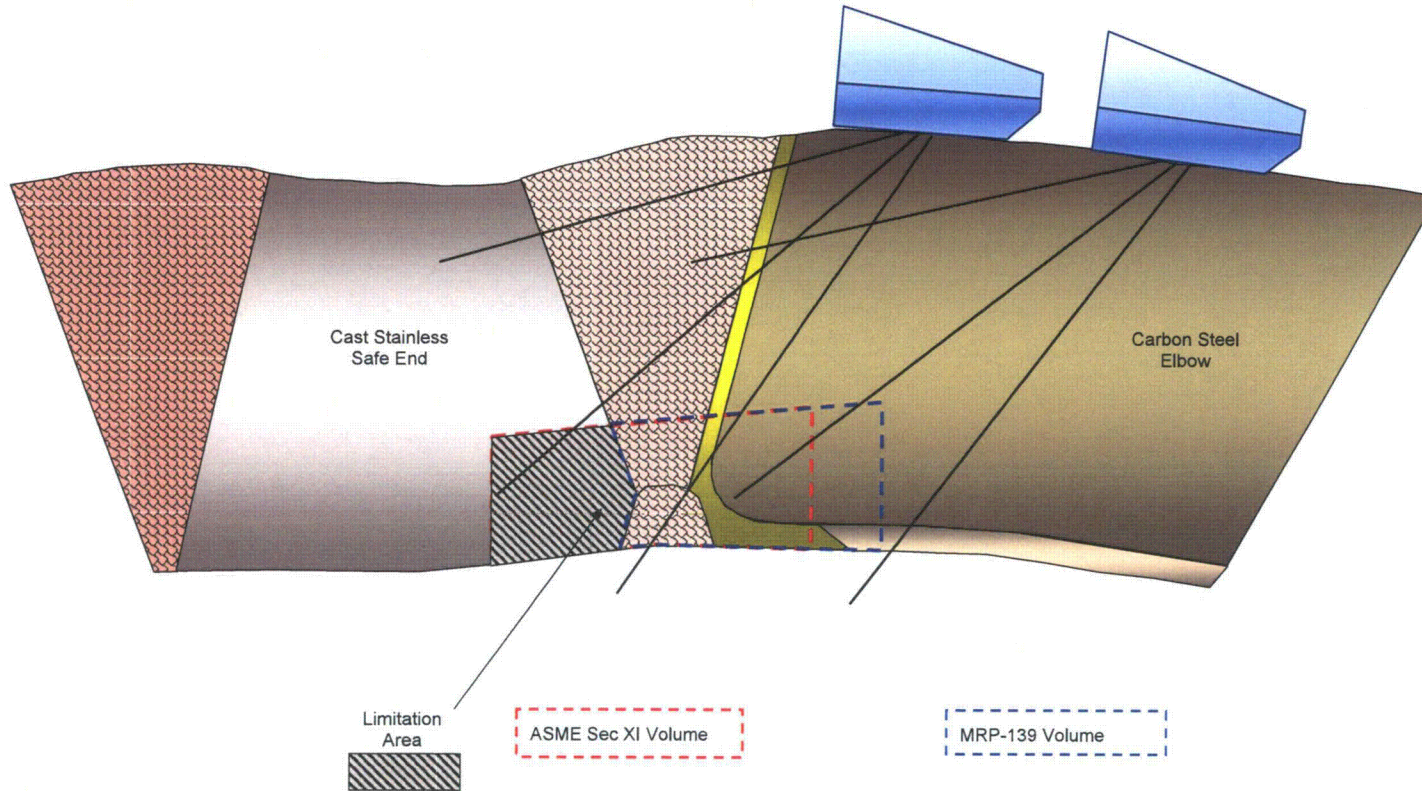
MRP-139 Coverage limited due to configuration
(84.9% Circumferential MRP-139 Coverage Obtained)



**CCNPP U2 LTP # 112280 / 30-RC-22B-7
Examination Coverage**

ASME Sec XI Coverage limited due to cast stainless steel
(58% Axial ASME Section XI Coverage Obtained)

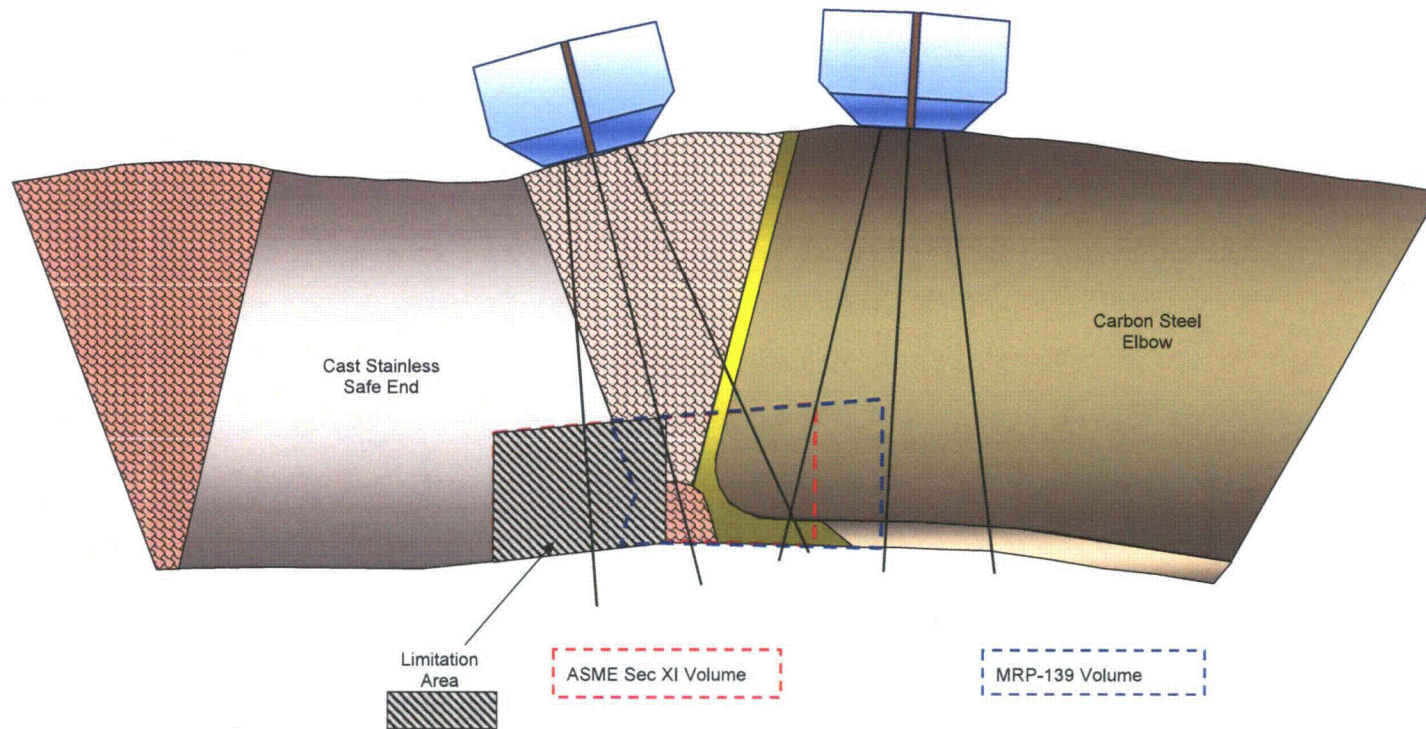
MRP-139 Coverage
(100% Axial MRP-139 Coverage Obtained)



**CCNPP U2 LTP # 112280 / 30-RC-22B-7
Examination Coverage**

ASME Sec XI Coverage limited due to cast stainless steel and Configuration
(44% Circumferential ASME Section XI Coverage Obtained)

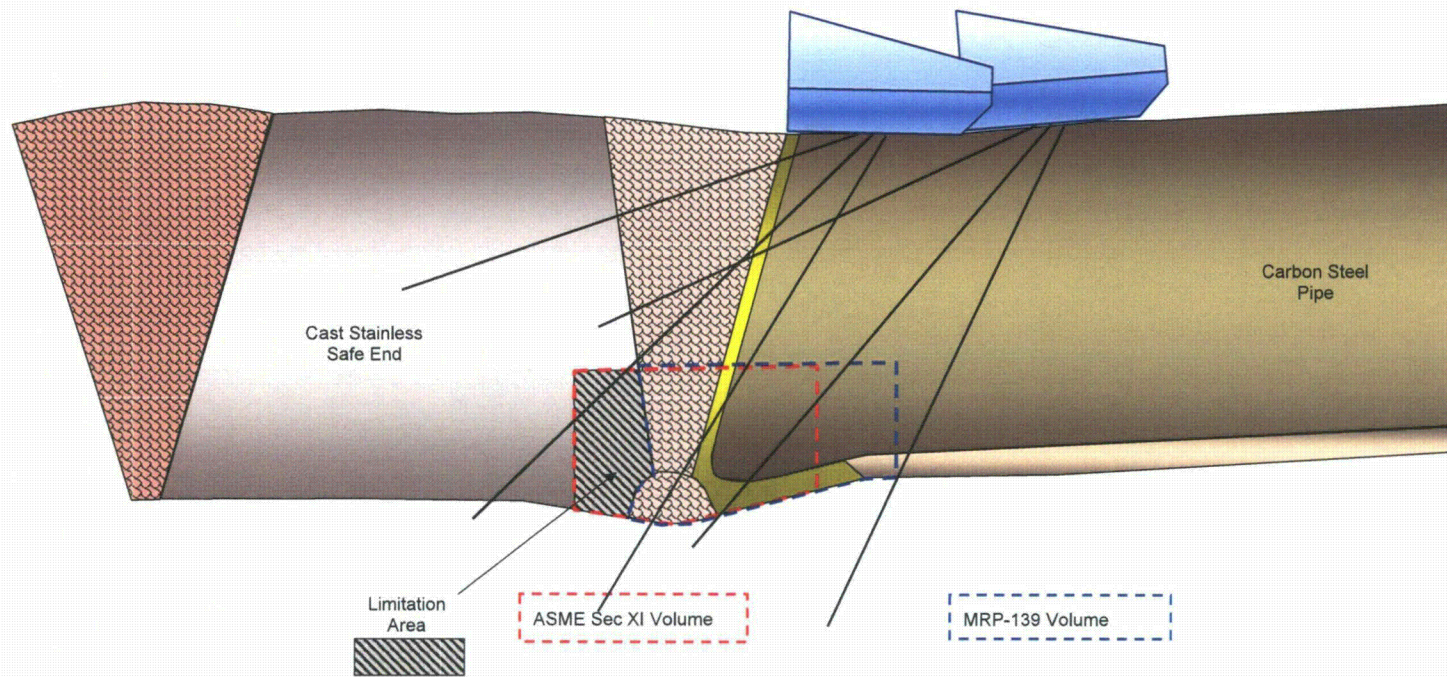
MRP-139 Coverage limited due to configuration
(87% Circumferential MRP-139 Coverage Obtained)



**CCNPP U2 LTP # 112310 / 30-RC-22B-10
Examination Coverage**

ASME Sec XI Coverage limited due to cast stainless steel
(72% Axial ASME Section XI Coverage Obtained)

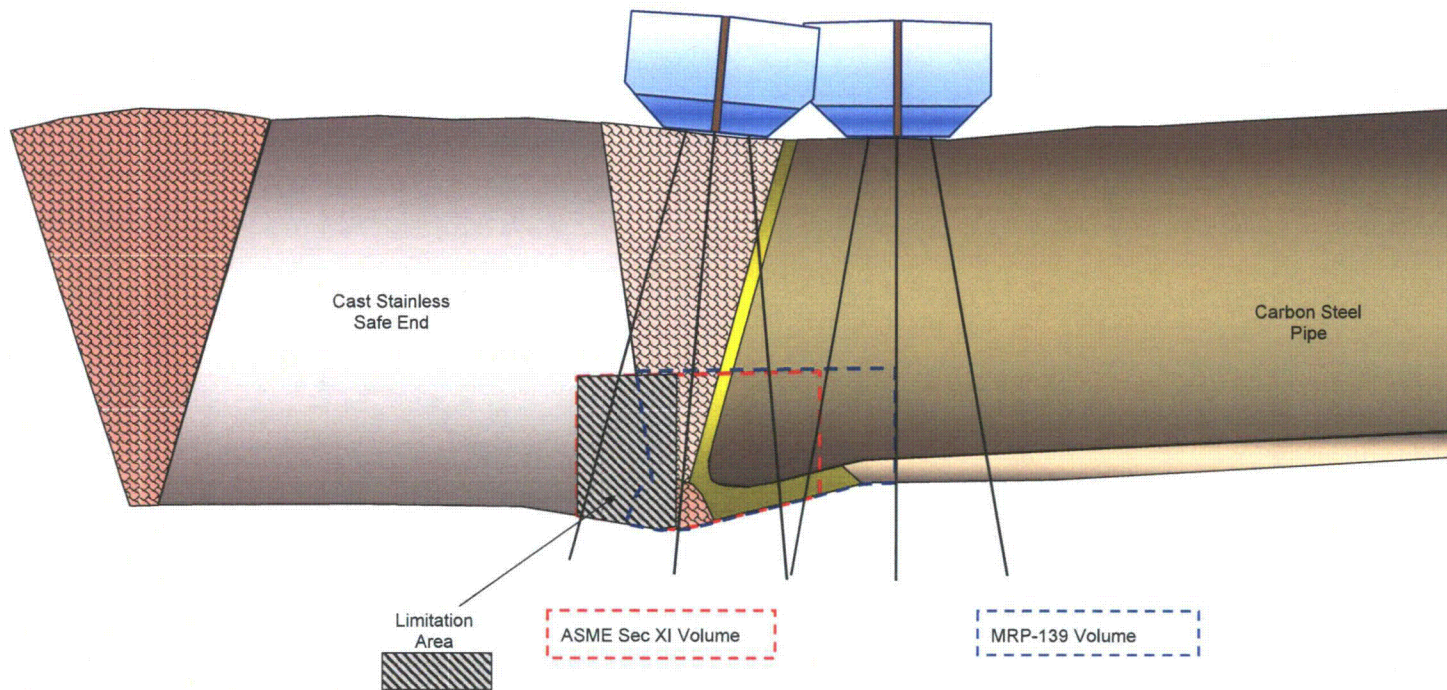
MRP-139 Coverage
(100% Axial MRP-139 Coverage Obtained)



**CCNPP U2 LTP # 112310 / 30-RC-22B-10
Examination Coverage**

ASME Sec XI Coverage limited due to cast stainless steel and Configuration
(50% Circumferential ASME Section XI Coverage Obtained)

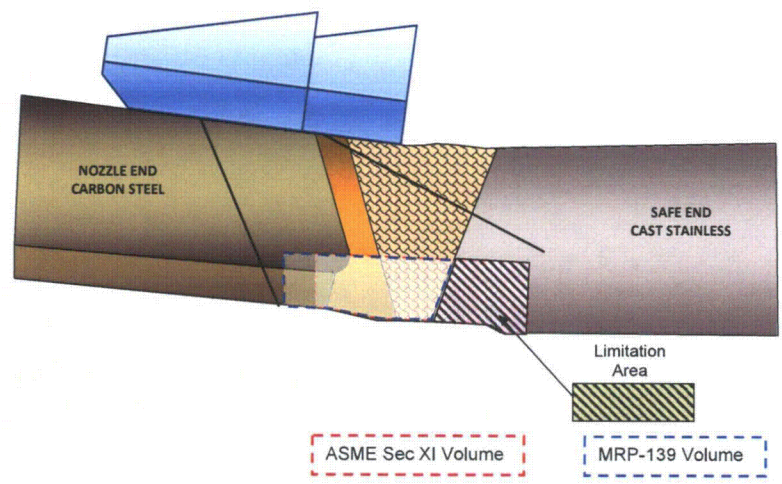
MRP-139 Coverage limited due to configuration
(74% Circumferential MRP-139 Coverage Obtained)



CCNPP U2 LTP # 113010 / 12-PSL-1 Examination Coverage

ASME Sec XI Coverage limited due to cast stainless steel
(57% Axial ASME Section XI Coverage Obtained)

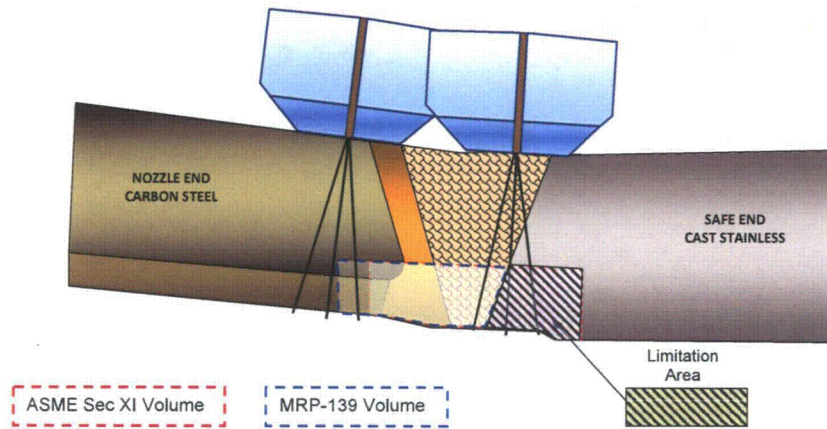
MRP-139 Coverage No Limitations 100% Axial Coverage



**CCNPP U2 LTP # 113010 / 12-PSL-1
Examination Coverage**

ASME Sec XI Coverage limited due to cast stainless steel
(57% Circumferential ASME Section XI Coverage Obtained)

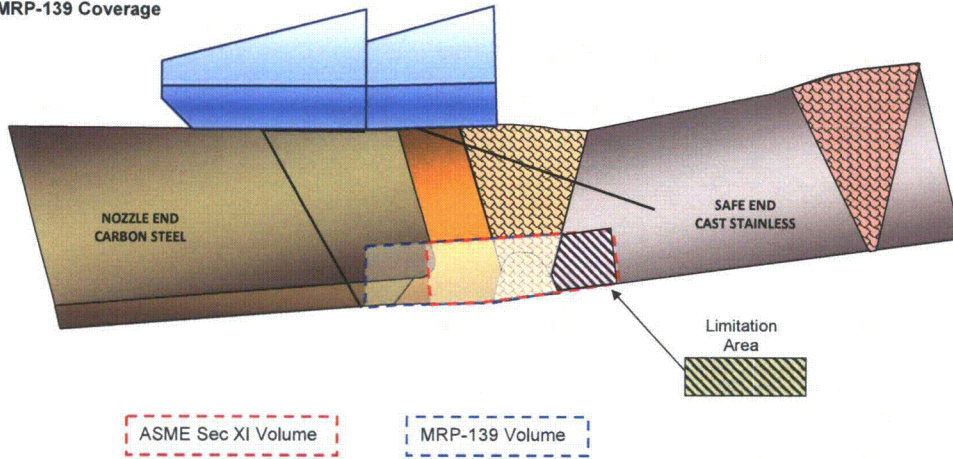
MRP-139 Circumferential Coverage No Limitations 100% Coverage



**CCNPP U2 LTP # 113030 / 12-PSL-13
Examination Coverage**

ASME Sec XI Coverage limited due to cast stainless steel
(70.5% Axial ASME Section XI Coverage Obtained)

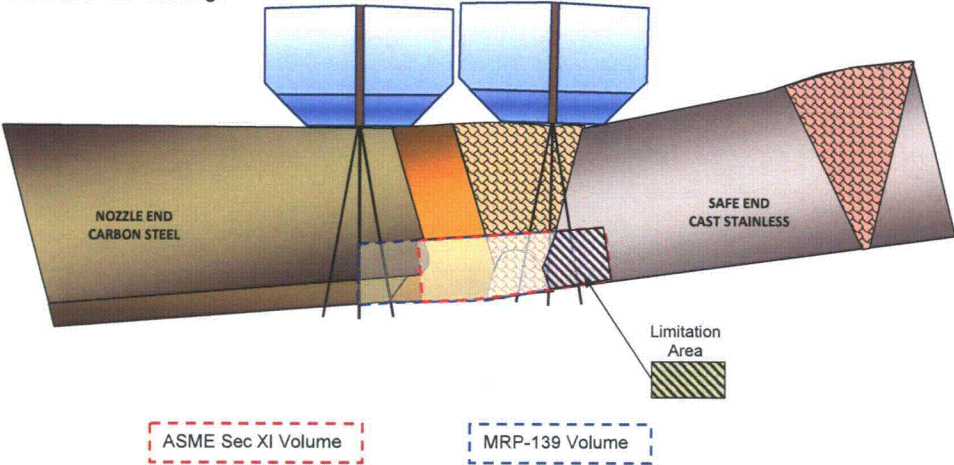
MRP-139 Coverage No Limitations
100% Axial MRP-139 Coverage



**CCNPP U2 LTP # 113130 / 12-PSL-13
Examination Coverage**

ASME Sec XI Coverage limited due to cast stainless steel
(70.5% Circumferential ASME Section XI Coverage Obtained)

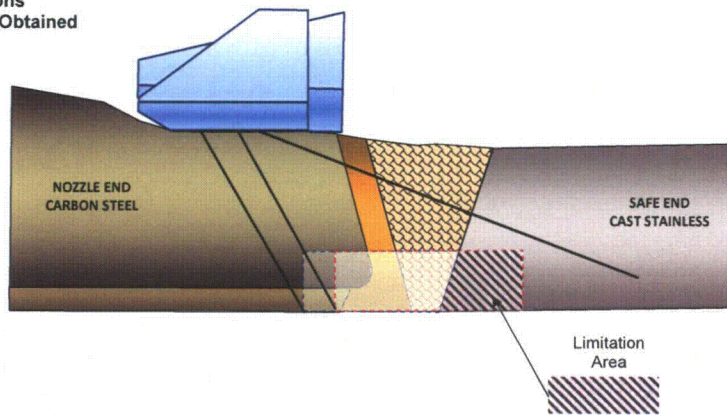
MRP-139 Coverage No Limitations
100% Circumferential MRP-139 Coverage



**CCNPP U2 LTP # 114900 / 12-SC-2004-1
Examination Coverage**

ASME Sec XI Coverage limited due to cast stainless steel
(61% Axial ASME Section XI Coverage Obtained)

MRP-139 Coverage No Limitations
100% Axial MRP-139 Coverage Obtained



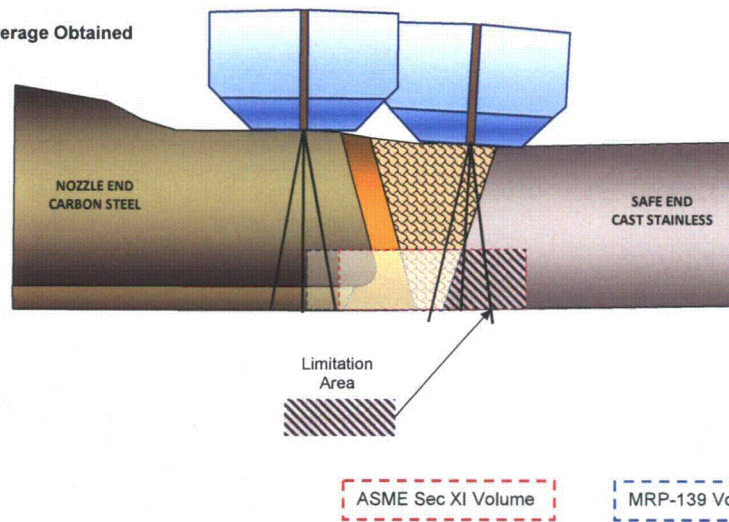
ASME Sec XI Volume

MRP-139 Volume

**CCNPP U2 LTP # 114900 / 12-SC-2004-1
Examination Coverage**

ASME Sec XI Coverage limited due to cast stainless steel
(61% Circumferential ASME Section XI Coverage Obtained)

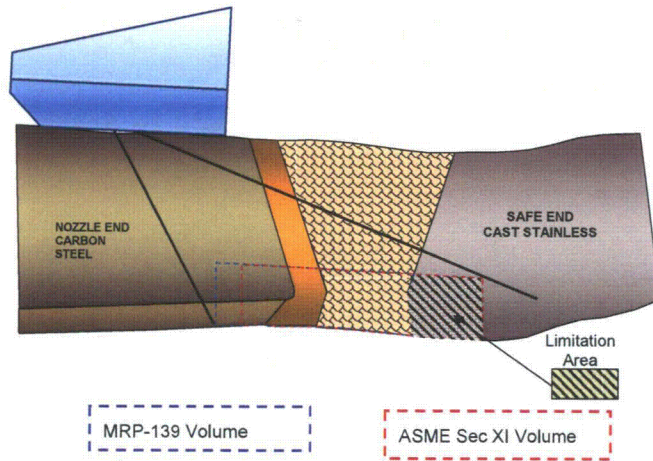
MRP-139 Coverage No Limitations
100% Circumferential MRP-139 Coverage Obtained



**CCNPP U2 LTP # 115140 / 12-SI-2009-15
Examination Coverage**

ASME Sec XI Coverage limited due to cast stainless steel
(68% Axial ASME Section XI Coverage Obtained)

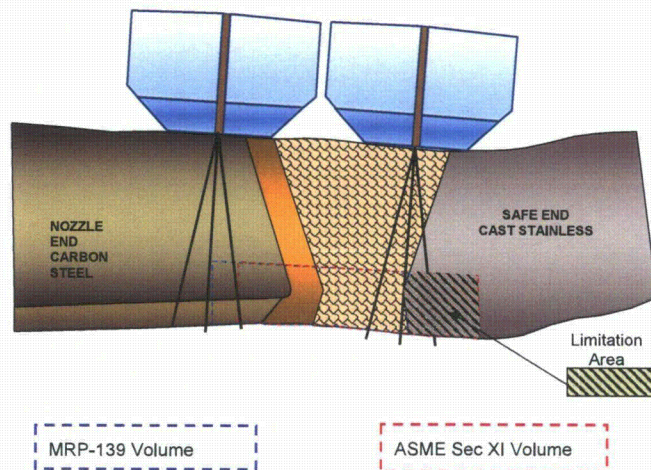
MRP-139 Coverage
(100% Axial MRP-139 Coverage Obtained)



**CCNPP U2 LTP # 115140 / 12-SI-2009-15
Examination Coverage**

**ASME Sec XI Coverage limited due to cast stainless steel
(68% Circumferential ASME Section XI Coverage Obtained)**

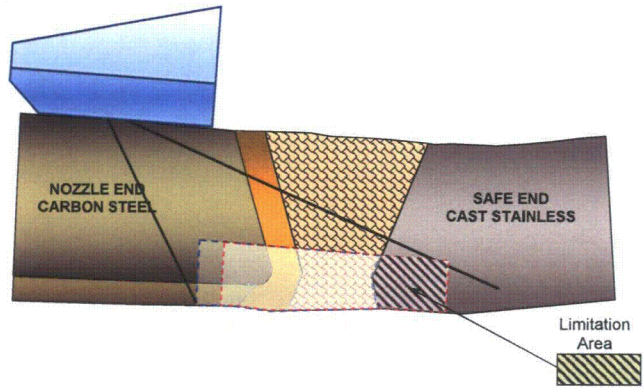
**MRP-139 Coverage
(100% Circumferential MRP-139 Coverage Obtained)**



CCNPP U2 LTP # 116190 / 12-SI-2010-13
Examination Coverage

ASME Sec XI Coverage limited due to cast stainless steel
(71% Axial ASME Section XI Coverage Obtained)

MRP-139 Coverage
(100% Axial MRP-139 Coverage Obtained)



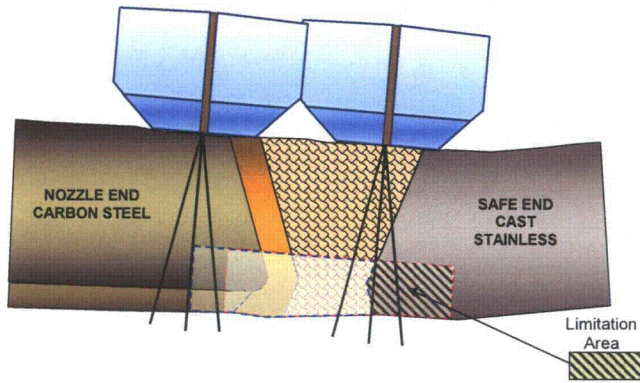
MRP-139 Volume

ASME Sec XI Volume

CCNPP U2 LTP # 116190 / 12-SI-2010-13
Examination Coverage

ASME Sec XI Coverage limited due to cast stainless steel
(71% Circumferential ASME Section XI Coverage Obtained)

MRP-139 Coverage
(100% Circumferential MRP-139 Coverage Obtained)



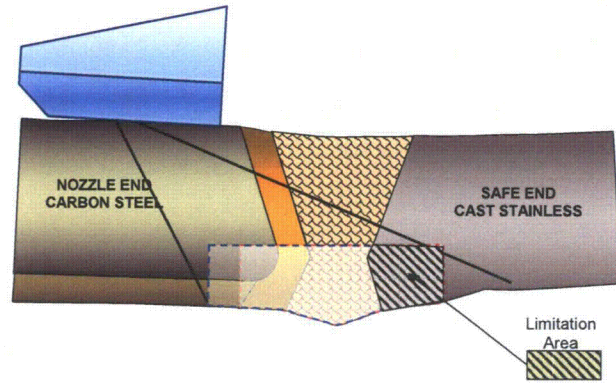
MRP-139 Volume

ASME Sec XI Volume

CCNPP U2 LTP # 117120 / 12-SI-2011-13
Examination Coverage

ASME Sec XI Coverage limited due to cast stainless steel
(68.5% Axial ASME Section XI Coverage Obtained)

MRP-139 Coverage
(100% Axial MRP-139 Coverage Obtained)



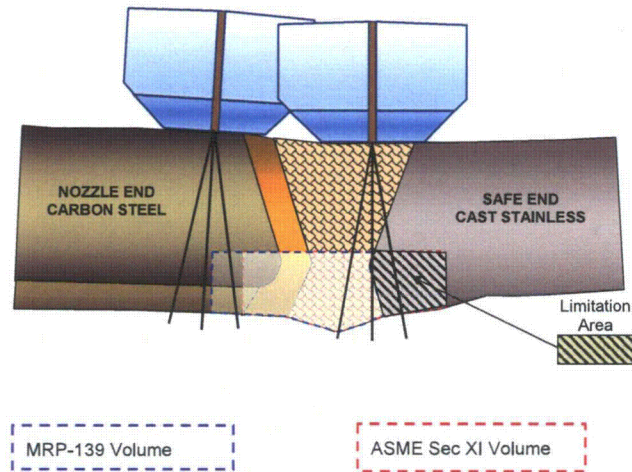
MRP-139 Volume

ASME Sec XI Volume

CCNPP U2 LTP # 117120 / 12-SI-2011-13
Examination Coverage

ASME Sec XI Coverage limited due to cast stainless steel
(68.5% Circumferential ASME Section XI Coverage Obtained)

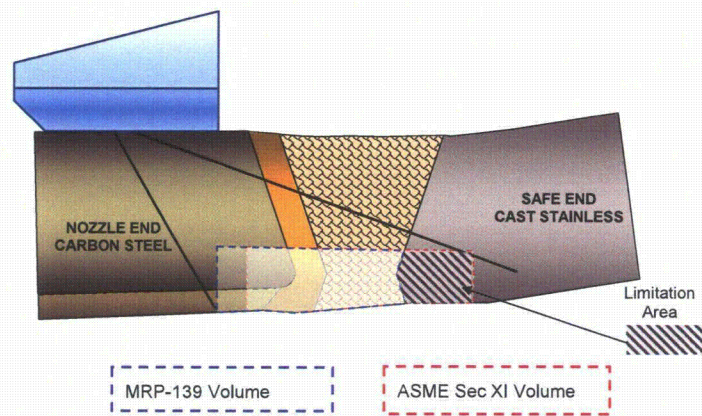
MRP-139 Coverage
(100% Circumferential MRP-139 Coverage Obtained)



CCNPP U2 LTP # 118120 / 12-SI-2012-13
Examination Coverage

ASME Sec XI Coverage limited due to cast stainless steel
(71% Axial ASME Section XI Coverage Obtained)

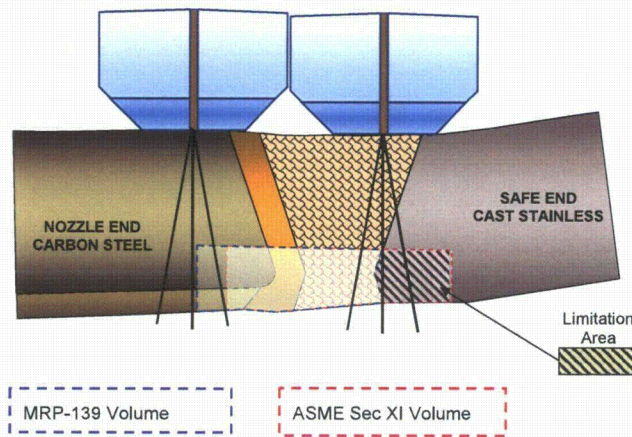
MRP-139 Coverage
(100% Axial MRP-139 Coverage Obtained)



**CCNPP U2 LTP # 118120 / 12-SI-2012-13
Examination Coverage**

**ASME Sec XI Coverage limited due to cast stainless steel
(71% Circumferential ASME Section XI Coverage Obtained)**

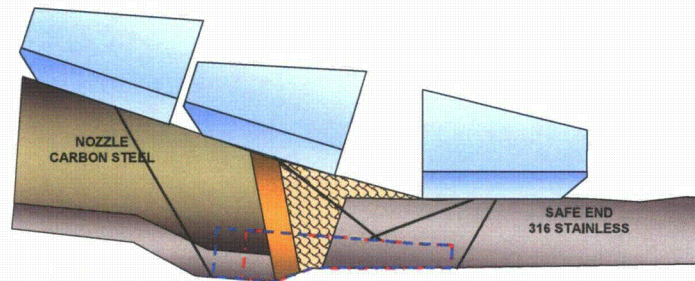
**MRP-139 Coverage
(100% Circumferential MRP-139 Coverage Obtained)**



**CCNPP U2 LTP # 136090 / 4-PS-2003-8
Examination Coverage**

ASME Sec XI Coverage No Limitations 100% Axial Coverage

MRP-139 Coverage No Limitations 100% Axial Coverage



ASME Sec XI Volume

MRP-139 Volume

**CCNPP U2 LTP # 136090 / 4-PS-2003-8
Examination Coverage**

ASME Sec XI Coverage Configuration Limitations = ~68% Coverage Achieved
(68% Circumferential ASME Section XI Coverage Obtained)

MRP-139 Coverage Configuration Limitations = ~74% Coverage Achieved
(74% Circumferential MRP-139 Coverage Obtained)

