Tennessee Valley Authority, 1101 Market Street, Chattanooga, Tennessee 37402

CNL-16-135

October 5, 2016

10 CFR 50.55a

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

Watts Bar Nuclear Plant, Unit 2
Facility Operating License No. NPF-96
NRC Docket No. 50-391

Subject: **Watts Bar Nuclear Plant (WBN) Unit 2 - Request for Approval of a Relief from the American Society of Mechanical Engineers (ASME) Section XI Coverage Examinations for Preservice Inspection (PSI) - Number WBN-2/PSI-1, Revision 1, and Submittal of the WBN Unit 2 PSI Program Plan, Revision 11**

Reference:
1. TVA letter to NRC, "Watts Bar Nuclear Plant (WBN) Unit 2 - American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code Transition - Revised Commitment," dated September 1, 2011 (ML102930299)
2. TVA letter to NRC, "Watts Bar Nuclear Plant (WBN) Unit 2 - American Society of Mechanical Engineers (ASME) Section XI Request for Relief WBN-2/PSI-1," dated October 11, 2010 (ML11306A022)
3. TVA letter to NRC, "Watts Bar Nuclear Plant, Unit 2 - American Society of Mechanical Engineers, Section XI, Preservice Inspection Summary Report," dated August 9, 2016

In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a, "Codes and Standards," paragraphs (g)(5)(iii) and (g)(6), Tennessee Valley Authority (TVA) is submitting a revised relief request for Nuclear Regulatory Commission (NRC) approval for the Watts Bar Nuclear Plant (WBN) Unit 2 Preservice Inspection (PSI) period. In accordance with Reference 1, the WBN Unit 2 PSI period ended with initial turbine-generator synchronization following initial criticality on June 3, 2016.

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Enclosure 1 provides relief request WBN-2/PSI-1, Revision 1 that requests relief from the requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," Subarticle IWB-2200, "Preservice Examination," ASME Code Class 1, Table IWB-2500-1, and ASME Code Class 2, Table IWC-2500-1, which require either a volumetric examination of essentially 100 percent (%) of the weld volume or a surface examination of essentially 100% of the weld area. The specific item numbers from Tables IWB-2500-1 and IWC-2500-1, for which relief is requested, are shown in Table 1 of Enclosure 1. The ASME B&PV Code, Section XI, 2001 Edition through 2003 Addenda was the code of record for the WBN Unit 2 PSI period. This revised relief request supersedes the one submitted by TVA for WBN Unit 2 in Reference 2. Attachment 1 to Enclosure 1 provides a compact disc (CD) containing the drawings that support the relief request.

The definition of "essentially 100%" is provided by NRC Information Notice 98-42, "Implementation of 10 CFR 50.55a(g) Inservice Inspection Requirements," and Code Case N-460, "Alternative Examination Coverage for Class 1 and Class 2 Welds, Section XI, Division 1," which requires examination coverage of "more than 90 percent of the specified examination volume" in lieu of "essentially 100%."

10 CFR 50.55a(g)(6) authorizes the NRC to grant relief for determinations under 10 CFR 50.55a(g)(5) when Code requirements are impractical. TVA is requesting relief on the basis that the Code-required "essentially 100%" examination coverage is impractical due to physical obstructions and limitations imposed by design, geometry, or physical obstructions for the welds and associated components listed in Table 1 to Enclosure 1. As an alternative, TVA has invoked ASME Section XI Code Case N-460, which states: "when the entire examination volume or area cannot be examined due to interference by another component or part geometry, a reduction in examination coverage on any Class 1 or Class 2 weld may be accepted provided the reduction in coverage for that weld is less than 10%." Therefore, TVA is requesting relief only for those welds that were inspected and received Code coverage of 90% or less.

Examination coverage of greater than 90% was not achieved for the welds listed in the proposed relief request and the applicable coverage percentage is specified in the relief request for each weld (Table 1 to Enclosure 1). The examination coverage achieved for the subject welds in conjunction with acceptable construction code examinations provides reasonable assurance that unallowable flaws do not exist in the subject component welds and that the welds are acceptable for service. Thus, an acceptable level of quality and safety was achieved and public health and safety was not endangered by allowing the proposed alternative examination coverage in lieu of the Code requirement.

The nondestructive examination (NDE) reports listed in Table 1 to Enclosure 1 are available for NRC review.

Enclosure 2 to this submittal contains Revision 11 to the WBN Unit 2 PSI Program Plan for NRC information. This revision contains the final ASME Section XI examinations and results performed for the WBN Unit 2 PSI program. Additionally, in accordance with Reference 1, TVA previously submitted to the NRC the WBN Unit 2 PSI summary report (Reference 3) that provided an overview of the results from preservice examinations that were performed on components within the ASME Section XI boundary of WBN Unit 2 prior to initial turbine generator synchronization.

There are no regulatory commitments associated with this submittal. Please address any questions regarding this request to Edward D. Schrull at 423-751-3850.

Respectfully,

J. W. Shea
Vice President, Nuclear Licensing

Enclosures:

1. American Society of Mechanical Engineers (ASME) Section XI Request for Relief WBN-2/PSI-1, Revision 1
2. Watts Bar Nuclear Plant Unit 2, Preservice Inspection Program Plan, Revision 11

cc (Enclosure):

NRC Regional Administrator - Region II
NRC Senior Resident Inspector - Watts Bar Nuclear Plant
NRR Project Manager - Watts Bar Nuclear Plant

Enclosure 1

Tennessee Valley Authority
Watts Bar Nuclear Plant (WBN) Unit 2

American Society of Mechanical Engineers (ASME) Section XI
Request for Relief
WBN-2/PSI-1, Revision 1
ASME Code Class 1 and 2 Welds with Limited (</= 90%) Coverage Examinations for Preservice Inspection (PSI)

I. American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code Component(s) Affected

ASME Code Classes	ASME Examination Category	Code Item No.	Component ID	Component Description	Exam Method
1 & 2	Various, as listed in Table 1	Various, as listed in Table 1	Various, as listed in Table 1	Various, as listed in Table 1	Ultrasonic testing (UT) and Dye Penetrant (PT) Testing

II. Applicable Code Edition and Addenda

The ASME Boiler and Pressure Vessel B&PV Code, Section XI, 2001 Edition through 2003 Addenda was the code of record, as conditioned by 10 CFR 50.55a, for the PSI period for WBN Unit 2. In accordance with Reference 1, the PSI period for WBN Unit 2 ended with initial turbine-generator synchronization following initial criticality on June 3, 2016.

III. Applicable Code Requirements

ASME Section XI, Subarticle IWB-2200, "Preservice Examination," requires that "preservice examination be extended to include essentially 100% of the pressure retaining welds in all Class 1 components." ASME Section XI, Subarticle IWB-2500, "Examination and Pressure Test Requirements," states that components shall be examined and tested as specified in Table IWB-2500-1, which also requires either a volumetric examination of essentially 100 percent (%) of the weld volume or a surface examination of essentially 100% of the weld area. The specific item numbers from Table IWB-2500-1 are shown in Table 1.

ASME Code Class 2, Table IWC-2500-1, requires either a volumetric examination of essentially 100% of the weld volume or a surface examination of essentially 100% of the weld area. The specific item numbers from Table IWC-2500-1 are shown in Table 1.

TVA has invoked ASME Section XI Code Case N-460, which states: "when the entire examination volume or area cannot be examined due to interference by another component or part geometry, a reduction in examination coverage on any Class 1 or Class 2 weld may be accepted provided the reduction in coverage for that weld is less than 10%." Therefore, TVA is requesting relief only for those welds that were inspected and received Code coverage of 90% or less.

IV. Reason for Request

10 CFR 50.55a(g)(5)(iii), "ISI program update: Notification of impractical ISI Code requirements," states:

> "If the licensee has determined that conformance with a Code requirement is impractical for its facility the licensee must notify the NRC and submit, as specified in § 50.4, information to support the determinations. Determinations of impracticality in accordance with this section must be based on the demonstrated limitations experienced when attempting to comply with the Code requirements during the inservice inspection interval for which the request is being submitted. Requests for relief made in accordance with this section must be submitted to the NRC no later than 12 months after the expiration of the initial or subsequent 120-month inspection interval for which relief is sought."

10 CFR 50.55a(g)(6) authorizes the Nuclear Regulatory Commission (NRC) to grant relief for determinations under 10 CFR 50.55a(g)(5) that code requirements are impractical.

In accordance with 10 CFR 50.55a(g)(6) and 10 CFR 50.55a(g)(5)(iii), TVA is requesting relief from the "essentially 100%" Code-coverage-required weld examination volume or area. As noted in Section III of this enclosure, Code Case N-460 states that a reduction in examination coverage on any Class 1 or Class 2 weld may be accepted provided the reduction in coverage for that weld is less than 10%, when the entire examination volume or area cannot be examined due to interference by another component or part geometry. Therefore, TVA is requesting relief only for those welds that were inspected and received Code coverage of 90% or less.

This relief request addresses ASME Section XI Code Class 1 and 2 welds with limited examination coverage in examination categories and item numbers as listed in Table 1. The examination limitations described in this relief request are inherent in the component design, geometry, and materials of construction utilized in the manufacture of the installed components given the original construction permit date for WBN Unit 2 of January 23, 1973.

NRC Information Notice 98-42, "Implementation of 10 CFR 50.55a(g) Inservice Inspection Requirements," states, "'Essentially 100 percent' examination is defined as more than 90 percent of the specified examination volume." Additionally, 10 CFR 50.55a(a)(3)(ii) endorses Regulatory Guide 1.147, Rev 17, which unconditionally approves the use of ASME Code Case N-460, "Alternative Examination Coverage for Class 1 and Class 2 Welds, Section XI, Division 1." Code Case N-460 states:

> "It is the opinion of the Committee that when the entire examination volume or area cannot be examined due to interference by another component or part geometry, a reduction in examination coverage on any Class 1 or Class 2 weld may be accepted provided the reduction in coverage for that weld is less than 10%."

The above quote from Code Case N-460 is consistent with the guidance in Information Notice 98-42.

This relief request supersedes the one submitted by TVA for WBN Unit 2 in Reference 2.

V. Impracticality of Compliance

Relief is requested on the basis that the Code-required "essentially 100%" examination coverage is impractical due to physical obstructions and limitations imposed by design, geometry, and/or physical obstructions for the welds and associated components listed in Table 1.

For ASME Code Class 1 components, ASME Section XI, IWB-2200, "Preservice Examination" requires that "preservice examination be extended to include essentially 100% of the pressure retaining welds in all Class 1 components." Therefore, no alternate Class 1 welds are available for selection. Compliance with the examination requirements of ASME Section XI would require significant modification of plant components to remove obstructions, redesign of plant systems/components, or replacement of components where geometry is inherent to the component design.

For ASME Code Class 2 components, ASME Section XI, IWC-2200, "Preservice Examination," requires in part, that all examinations required for those components initially selected for examination for ISI, and not exempt, shall be completed prior to initial plant startup as a PSI. Compliance with the examination requirements of ASME Section XI would require significant modification of plant components to remove obstructions, redesign of plant systems/components, or replacement of components where geometry is inherent to the component design.

VI. Proposed Alternative and Basis for Use

TVA performed the ASME Section XI Code-required Preservice volumetric and surface examinations for WBN Unit 2 listed in Table 1, to the maximum extent possible, given the materials and configurations, utilizing qualified/certified personnel, approved procedures, and multiple inspection techniques. The various types of ultrasonic beams, beam angles, and transducer shapes and sizes utilized for each examination are listed in Table 1 in the column titled Additional Information.

The welds listed in Table 1 were examined, to the maximum extent possible, utilizing qualified/certified personnel, qualified equipment, and approved procedures to meet the PSI acceptance standards of ASME Section XI 2001 Edition through the 2003 Addenda.

Surface conditioning of the piping welds was performed to the extent necessary to preclude a reduction in coverage associated with weld crowns, weld shrinkage, and/or surface roughness.

These welds have not been in service and were acceptable to the construction code standards for installation. The examinations performed on these welds for both construction code and the limited coverage preservice examination are sufficient to ensure structural adequacy of the subject welds.

These welds also met the ASME Section III NDE acceptance criteria associated with construction. The construction code radiography, while providing additional assurance of the structural integrity of the subject welds, is not qualified in accordance with ASME Section XI, Appendix VIII, and cannot be credited for ASME Section XI coverage.

The welds listed in Table 1 were subjected to an ASME Code Section III hydrostatic pressure test prior to initial plant startup.

The PSI examination, along with the construction NDE, provides reasonable assurance that unallowable inservice flaws do not exist in the subject welds or that they have been detected and repaired prior to placement into service. Thus, an acceptable level of quality and safety has been achieved and public health and safety has not been endangered by allowing the proposed alternative examination in lieu of the Code requirement.

Attachment 1 to Enclosure 1 provides a compact disc (CD) containing the drawings that support the relief request.

VII. Duration of Proposed Alternative

This relief request applies to the PSI period for Watts Bar Unit 2 that ended on June 3, 2016, at initial turbine-generator synchronization after initial criticality.

VIII. Precedents

This relief request is similar to the following relief requests submitted by TVA for WBN Unit 1 and approved by the NRC:

- PDI-2 (Reference 3)
- 1-ISI-20 (Reference 4)
- 1-ISI-16, 1-ISI-17, 1-ISI-18, and 1-ISI-19 (Reference 5)

IX. References

1. TVA letter to NRC, "Watts Bar Nuclear Plant (WBN) Unit 2 - American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code Transition - Revised Commitment," dated September 1, 2011 (ML102930299)

2. TVA letter to NRC, "Watts Bar Nuclear Plant (WBN) Unit 2 - American Society of Mechanical Engineers (ASME) Section XI Request for Relief WBN-2/PSI-1," dated October 11, 2010 (ML102930299)

3. NRC letter to TVA, "Watts Bar Nuclear Plant, Unit 1 - Safety Evaluation of Relief Requests PDI-2 and PDI-4 for the Second 10-Year Inservice Inspection Program for Reactor Pressure Vessel Weld Examinations (TAC Nos. MD4448 and MD4449)," dated February 29, 2008 (ML080630679)

4. NRC letter to TVA, "Watts Bar Nuclear Plant, Unit 1 - Safety Evaluation for Relief Request 1-ISI-20 Regarding Pressurizer Surge Line Weld Inspection (TAC No. MD5267)," dated August 29, 2007 (ML072280088)

5. NRC letter to TVA, "Watts Bar Nuclear Plant, Unit 1 - Relief Requests Nos. 1-ISI-16, 1-ISI-17, 1-ISI-18, and 1-ISI-19 Requesting Relief from the Inservice Inspection Program," dated October 27, 2006 (ML062480232)

X. Tables

Table 1 - ASME Code Class 1 and 2 Welds with Limited Coverage (</=90%)

XI. Attachments

CD containing the drawings that support the relief request.

Table 1

ASME Code Class 1 and 2 Welds with Limited Coverage (</=90%)

System / Component ID	Materials (Configuration)	Category / Item No.	Dia. / Thickness	Report Number	Limited Scan %	Additional Information
RPV / W02-03	SA-533 GR B Cl 1 / SA-508 Cl 2 (RPV Bottom Head-to-Lower Shell Weld)	B-A / B1.11	173" / 5.392"	R-P1755	88%	Automated underwater UT from ID. Beam angle: Phased Array PA60° - 80°L, PA40° - 50°S, PA30° - 60°L, & PAS0° L. UT exam limited by support lugs on the ID. NRI*.
RPV / W08-09	SA-508 Cl 2 / SA-508 Cl 2 (RPV Top-Head-to-Flange Weld)	B-A / B1.40	173" / 7.30"	R-P1014	75%	Manual UT exam of RPV Head-to-Flange. Beam angle: 1) 0° longitudinal 2) 45° shear and 3) 60° shear, Transducer Size: 1) 1", 2) .5" x 1.0", and 3) .5" x 1.0" Limitations from the flange profile configuration and three lifting lugs (4.0" tall x 5.9" length each and have a 12.8" arc length in contact with RPV head). NRI* (PT NRI*).
RPV / N-15	SA-508 Cl 2 / SA-508 Cl 2 (RPV HL Nozzle-to-Shell Weld at 22°)	B-D / B3.90	31" / 10.98"	R-P1763	84%	Automated underwater UT from ID. Beam angle: Phased Array PA60° - 80°L, PA40° - 50°S, PA30° - 60°L, PAS0° L, PA5° - 40°L, & PA35° - 45°S. UT exam limited due to the proximity of the nozzle integral extension. NRI*.
RPV / N-16	SA-508 Cl 2 / SA-508 Cl 2 (RPV HL Nozzle-to-Shell Weld at 158°)	B-D / B3.90	31" / 10.98"	R-P1766	84%	Automated underwater UT from ID. Beam angle: Phased Array PA60° - 80°L, PA40° - 50°S, PA30° - 60°L, PAS0° L, PA5° - 40°L, & PA35° - 45°S. UT exam limited due to the proximity of the nozzle integral extension. NRI*.

Table 1

ASME Code Class 1 and 2 Welds with Limited Coverage (</=90%)

System / Component ID	Materials (Configuration)	Category / Item No.	Dia. / Thickness	Report Number	Limited Scan %	Additional Information
RPV / N-17	SA-508 Cl 2 / SA-508 Cl 2 (RPV HL Nozzle-to-Shell Weld at 202°)	B-D / B3.90	31" / 10.98"	R-P1767	83%	Automated underwater UT from ID. Beam angle: Phased Array PA60° - 80°L, PA40° - 50°S, PA30° - 60°L, PAS0° L, PA5° - 40°L, & PA35° - 45°S. UT exam limited due to the proximity of the nozzle integral extension. NRI*.
RPV / N-18	SA-508 Cl 2 / SA-508 Cl 2 (RPV HL Nozzle-to-Shell Weld at 338°)	B-D / B3.90	31" / 10.98"	R-P1770	83%	Automated underwater UT from ID. Beam angle: Phased Array PA60° - 80°L, PA40° - 50°S, PA30° - 60°L, PAS0° L, PA5° - 40°L, & PA35° - 45°S. UT exam limited due to the proximity of the nozzle integral extension. NRI*.
PZR / WP-10	SA-533 GR A CL 2 / SA-508 CL 2 (Surge Nozzle-to-Vessel Weld)	B-D / B3.110	14" / 3.35"	R-P1291	56%	Beam angle: 0°L, 45°S, and 60°S. Transducer Size: .75", .5", & .5". Manual UT exam limited due to nozzle configuration and heater penetrations. NRI*.
PZR / WP-11	SA-533 GR A CL 2 / SA-508 CL 2 (Spray Nozzle-to-Vessel Weld)	B-D / B3.110	4" / 2.85"	R-P1283	69%	Beam angle: 0°L, 45°S, and 60°S. Transducer Size: .75", .5"x1", & .5"x1". Manual UT exam limited due to nozzle configuration. NRI*.
PZR / WP-12	SA-533 GR A CL 2 / SA-508 CL 2 (Relief Nozzle-to-Vessel Weld)	B-D / B3.110	6" / 2.85"	R-P1282	61%	Beam angle: 0°L, 45°S, and 60°S. Transducer Size: .75", .5"x1", & .5"x1". Manual UT exam limited due to nozzle configuration. NRI*.
PZR / WP-13	SA-533 GR A CL 2 / SA-508 CL 2 (Safety Nozzle-to-Vessel Weld)	B-D / B3.110	6" / 2.85"	R-P1284	59%	Beam angle: 0°L, 45°S, and 60°S. Transducer Size: .75", .5"x1", & .5"x1". Manual UT exam limited due to nozzle configuration. NRI*.

Table 1 ASME Code Class 1 and 2 Welds with Limited Coverage (</=90%)						
System / Component ID	**Materials (Configuration)**	**Category / Item No.**	**Dia. / Thickness**	**Report Number**	**Limited Scan %**	**Additional Information**
PZR / WP-14	SA-533 GR A CL 2 / SA-508 CL 2 (Safety Nozzle-to-Vessel Weld)	B-D / B3.110	6" / 2.85"	R-P1281	59%	Beam angle: 0^{o}L, 45°S, and 60°S. Transducer Size: .75", .5"x1", & .5"x1". Manual UT exam limited due to nozzle configuration. NRI*.
PZR / WP-15	SA-533 GR A CL 2 / SA-508 CL 2 (Safety Nozzle-to-Vessel Weld)	B-D / B3.110	6" / 2.85"	R-P1280	61%	Beam angle: 0^{o}L, 45°S, and 60°S. Transducer Size: .75", .5"x1", & .5"x1". Manual UT exam limited due to nozzle configuration. NRI*.
RCS / RCF-E1-2-SE	SA-216 GR WCC/ SA-351 GR CF8A (SG# 1 HL Nozzle-to-safe-end weld)	B-F / B5.70	28.94" ID / 2.33"	R-P2440	39%	Beam angle: 45^{o}L. Transducer Size: 1". Manual UT exam of Dissimilar Metal (DM) weld (carbon steel to stainless steel) limited due to nozzle configuration. NRI*. (PT NRI*). No Alloy 600 material subjected to PWSCC.
RCS / RCF-G1-1-SE	SA-216 GR WCC/ SA-351 GR CF8A (SG# 1 CL Nozzle-to-safe-end weld)	B-F / B5.70	27.44" ID / 2.21"	R-P2439	30%	Beam angle: 45^{o}L. Transducer Size: 1". Manual UT exam of Dissimilar Metal (DM) weld (carbon steel to stainless steel) limited due to nozzle configuration. NRI*. (PT NRI*). No Alloy 600 material subjected to PWSCC.
RCS / RCF-E2-2-SE	SA-216 GR WCC/ SA-351 GR CF8A (SG# 2 HL Nozzle-to-safe-end weld)	B-F / B5.70	28.94" ID / 2.33"	R-P2442	27%	Beam angle: 45^{o}L. Transducer Size: 1". Manual UT exam of Dissimilar Metal (DM) weld (carbon steel to stainless steel) limited due to nozzle configuration. NRI*. (PT NRI*). No Alloy 600 material subjected to PWSCC.

Table 1 ASME Code Class 1 and 2 Welds with Limited Coverage (</=90%)						
System / Component ID	**Materials (Configuration)**	**Category / Item No.**	**Dia. / Thickness**	**Report Number**	**Limited Scan %**	**Additional Information**
RCS / RCF-G2-1-SE	SA-216 GR WCC/ SA-351 GR CF8A (SG# 2 CL Nozzle-to-safe-end weld)	B-F / B5.70	27.44" ID / 2.21"	R-P2441	31%	Beam angle: 45°L. Transducer Size: 1". Manual UT exam of Dissimilar Metal (DM) weld (carbon steel to stainless steel) limited due to nozzle configuration. NRI*. (PT Sat). No Alloy 600 material subjected to PWSCC.
RCS / RCF-E3-2-SE	SA-216 GR WCC/ SA-351 GR CF8A (SG# 3 HL Nozzle-to-safe-end weld)	B-F / B5.70	28.94" ID / 2.33"	R-P2443	26%	Beam angle: 45°L. Transducer Size: 1". Manual UT exam of Dissimilar Metal (DM) weld (carbon steel to stainless steel) limited due to nozzle configuration. NRI*. (PT Sat). No Alloy 600 material subjected to PWSCC.
RCS / RCF-G3-1-SE	SA-216 GR WCC/ SA-351 GR CF8A (SG# 3 CL Nozzle-to-safe-end weld)	B-F / B5.70	27.44" ID / 2.21"	R-P2438	29%	Beam angle: 45°L. Transducer Size: 1". Manual UT exam of Dissimilar Metal (DM) weld (carbon steel to stainless steel) limited due to nozzle configuration. NRI*. (PT Sat). No Alloy 600 material subjected to PWSCC.
RCS / RCF-E4-2-SE	SA-216 GR WCC/ SA-351 GR CF8A (SG# 4 HL Nozzle-to-safe-end weld)	B-F / B5.70	28.94" ID / 2.33"	R-P2437	33%	Beam angle: 45°L. Transducer Size: 1". Manual UT exam of Dissimilar Metal (DM) weld (carbon steel to stainless steel) limited due to nozzle configuration. NRI*. (PT NRI*). No Alloy 600 material subjected to PWSCC.
RCS / RCF-G4-1-SE	SA-216 GR WCC/ SA-351 GR CF8A (SG# 4 CL Nozzle-to-safe-end weld)	B-F / B5.70	27.44" ID / 2.21"	R-P2444	28%	Beam angle: 45°L. Transducer Size: 1". Manual UT exam of Dissimilar Metal (DM) weld (carbon steel to stainless steel) limited due to nozzle configuration. NRI*. (PT - punch marks - Sat). No Alloy 600 material subjected to PWSCC.

Table 1

ASME Code Class 1 and 2 Welds with Limited Coverage (</=90%)

System / Component ID	Materials (Configuration)	Category / Item No.	Dia. / Thickness	Report Number	Limited Scan %	Additional Information
RCS / RCF-C2-2	SA-351 CF-8A (pipe and pump)	B-J / B9.11	27.5" / 2.21"	R-P0147	75%	Beam angle: 45° refracted longitudinal. Transducer Size: .5"x1.0". Limitation upstream due to pump housing configuration. NRI* (PT NRI*).
RCS / RCF-C3-2	SA-351 CF-8A (pipe and pump)	B-J / B9.11	27.5" / 2.21"	R-P0149	75%	Beam angle: 45° refracted longitudinal Transducer Size: .5"x1.0". Limitation upstream due to pump housing configuration. NRI* (PT NRI*).
RCS / RCF-D145-05	SA-403 WP304 (tee and reducer)	B-J / B9.11	4" / 0.531"	R-P0228	90%	Beam angle: 1) 45° shear and 2) 70° shear. Transducer Size: 1) .250" and 2) .250". Limitation due to tee and reducer configuration. NRI* (PT NRI*).
RCS / RCF-D145-08	SA-403 WP304 / SA-182 F316 (elbow/valve)	B-J / B9.11	4" / 0.531"	R-P0226	50%	Beam angle: 1) 45° shear and 2) 60° refracted longitudinal. Transducer Size: 1) .250" and 2) dual 8x14mm. Limitation due to valve body taper. NRI* (PT NRI*).
RCS / RCF-G1-4	SA-351 CF-8A (pipe and pump)	B-J / B9.11	31" / 2.48"	R-P0152	75%	Beam angle: 45° refracted longitudinal. Transducer Size: .5"x1.0". Limitation downstream due to pump housing configuration. NRI* (PT NRI*).
RCS / RCF-G2-4	SA-351 CF-8A (pipe and pump)	B-J / B9.11	31" / 2.48"	R-P0156	75%	Beam angle: 45° refracted longitudinal. Transducer Size: .5"x1.0". Limitation downstream due to pump housing configuration. NRI* (PT NRI*).

Table 1 ASME Code Class 1 and 2 Welds with Limited Coverage (</=90%)						
System / Component ID	**Materials (Configuration)**	**Category / Item No.**	**Dia. / Thickness**	**Report Number**	**Limited Scan %**	**Additional Information**
RCS / RCF-G3-4	SA-351 CF-8A (pipe and pump)	B-J / B9.11	31" / 2.48"	R-P0150	75%	Beam angle: 45° refracted longitudinal. Transducer Size: .5"x1.0". Limitation downstream due to pump housing configuration. NRI* (PT NRI*).
RCS / RCF-G4-4	SA-351 CF-8A (pipe and pump)	B-J / B9.11	31" / 2.48"	R-P0155	75%	Beam angle: 45° refracted longitudinal. Transducer Size: .5"x1.0". Limitation downstream due to pump housing configuration. NRI* (PT NRI*).
RCS / RCS-011	SA-403 WP304 / SA-182 F316 (elbow/flange)	B-J / B9.11	6" / 0.719"**	R-P1359	75%	Beam angle: 1) 45° shear and 2) 60° refracted longitudinal. Transducer Size: 1) .375" and 2) dual 7x10mm. Limitation from flange side due to configuration. NRI* (PT NRI*).
RCS / RCS-018	SA-403 WP304 / SA-182 F316 (elbow/flange)	B-J / B9.11	6" / 0.719"**	R-P1364	75%	Beam angle: 1) 45° shear and 2) 60° refracted longitudinal. Transducer Size: 1) .375" and 2) dual 7x10mm. Limitation from flange side due to configuration. NRI* (PT NRI*).

Table 1

ASME Code Class 1 and 2 Welds with Limited Coverage (</=90%)

System / Component ID	Materials (Configuration)	Category / Item No.	Dia. / Thickness	Report Number	Limited Scan %	Additional Information
RV / 2-085-W001-A5-1-0 2-085-W001-E15-1-0 2-085-W001-L1-1-0 2-085-W001-L15-1-0 2-085-W001-R11-1-0	SA-182 TP 304 / SA-403WP TP 304 or 316 (adapter / cap)	B-J / B9.11	4" / 0.67"**	R-P1850 R-P1851 R-P1853 R-P1852 R-P1854	73% 74% 74% 74% 74%	Beam angle: 1) 45° shear and 2) 60° refracted longitudinal. Transducer Size: 1) .375" and 2) dual 8x14mm. Limitation from cap side due to configuration. NRI* (PT NRI*).
RCS / 2-087B-W001-01 2-087B-W001-02 2-087B-W001-03 2-087B-W001-04	SA-403 TP 316 / SA-182 TP 304 (cap/pipe)	B-J / B9.11	6.28" / 0.64"**	R-P1842 R-P1844 R-P1843 R-P1845	73% 74% 74% 74%	Beam angle: 1) 45° shear and 2) 60° refracted longitudinal. Transducer Size: 1) .375" and 2) dual 8x14mm. Limitation from cap side due to configuration. NRI* (PT NRI*).
RHRS / RHRF-D031-04	SA-403 WP316 / SA-182 F316 (tee/valve)	B-J / B9.11	14" / 1.250"	R-P0689	76%	Phased array 25° to 70° shear wave sector (16 element probe) and 40° to 70° refracted longitudinal wave sector (15 element probe supplemental). Limitation due to valve to tee configuration. NRI* (PT NRI*).

Table 1

ASME Code Class 1 and 2 Welds with Limited Coverage (</=90%)

System / Component ID	Materials (Configuration)	Category / Item No.	Dia. / Thickness	Report Number	Limited Scan %	Additional Information
RHRS / RHRF-D031-13	SA-376 TP316 / SA-182 F316 (pipe/valve)	B-J / B9.11	14" / 1.250"	R-P0766	83%	Phased array 25° to 70° shear wave sector (16 element probe) and 40° to 70° refracted longitudinal wave sector (15 element probe supplemental). Limitation from valve side due to configuration. NRI* (PT NRI*).
RHRS / RHRF-D031-14	SA-403 WP316 / SA-182 F316 (elbow/valve)	B-J / B9.11	10" / 1.00"	R-P0767	90%	Phased array 25° to 70° shear wave sector (16 element probe) and 40° to 70° refracted longitudinal wave sector (15 element probe supplemental). Limitation due to valve to elbow configuration. NRI* (PT NRI*).
RHRS / RHRF-D032-12	SA-182 F316 / SA-403 WP304 (valve/elbow)	B-J / B9.11	6" / 0.719"	R-P2479	26%	Beam angle: 1) 45° shear and 2) 60° refracted longitudinal. Transducer Size: 1) .375" and 2) dual 10x18mm. Limitation due to valve to elbow configuration. NRI* (PT NRI*).
RHRS / RHRS-015	SA-403 TP316 / SA-403 WP316 (pipe/tee)	B-J / B9.11	10" / 1.00"	R-P0759	88%	Phased array 25° to 70° shear wave sector (16 element probe). Limitation from tee side due to configuration. NRI* (PT NRI*).
SIS / SIF-D196-03	SA-376 TP316 / SA-182 F316 (pipe/valve)	B-J / B9.11	10" / 1.00"	R-P0437	68%	Phased array 25° to 70° shear wave sector (16 element probe) and 40° to 70° refracted longitudinal wave sector (15 element probe supplemental). Limitation from valve side due to configuration. NRI* (PT NRI*)
SIS / SIF-D196-05	SA-376 TP316 / SA-182 F316 (pipe/valve)	B-J / B9.11	10" / 1.00"	R-P0472	73%	Beam angle: 1) 45° shear and 2) 70° refracted longitudinal. Transducer Size: 1) .375" and 2) dual 8x14mm. Limitation from valve side due to configuration. NRI* (PT NRI*).

Table 1

ASME Code Class 1 and 2 Welds with Limited Coverage (</=90%)

System / Component ID	Materials (Configuration)	Category / Item No.	Dia. / Thickness	Report Number	Limited Scan %	Additional Information
SIS / SIF-D196-06	SA-403 WP316 / SA-182 F316 (tee/valve)	B-J / B9.11	10" / 1.00"	R-P0486	75%	Phased array 25° to 70° shear wave sector (16 element probe) and 40° to 70° refracted longitudinal wave sector (15 element probe supplemental). Limitation due to valve to tee configuration. NRI* (PT NRI*).
SIS / SIF-D196-07	SA-403 WP316 / SA-182 F316 (elbow/valve)	B-J / B9.11	6" / 0.719"	R-P0440	73%	Beam angle: 1) 45° shear and 2) 70° refracted longitudinal. Transducer Size: 1) .375" and 2) dual 8x14mm. Limitation from valve side due to configuration. NRI* (PT NRI*).
SIS / SIF-D196-10	SA-376 TP316 / SA-182 F316 (pipe/valve)	B-J / B9.11	10" / 1.00"	R-P0487	73%	Phased array 25° to 70° shear wave sector (16 element probe) and 40° to 70° refracted longitudinal wave sector (15 element probe supplemental). Limitation from valve side due to configuration. NRI* (PT NRI*).
SIS / SIF-D196-11	SA-403 WP316 / SA-182 F316 (elbow/valve)	B-J / B9.11	10" / 1.00"	R-P0488	75%	Phased array 25° to 70° shear wave sector (16 element probe) and 40° to 70° refracted longitudinal wave sector (15 element probe supplemental). Limitation from valve side due to configuration. NRI* (PT NRI*).
SIS / SIF-D197-03	SA-376 TP316 / SA-182 F316 (pipe/valve)	B-J / B9.11	10" / 1.00"	R-P0304	75%	Phased array 25° to 70° shear wave sector (16 element probe) and 40° to 70° refracted longitudinal wave sector (15 element probe supplemental). Limitation from valve side due to configuration. NRI* (PT NRI*).

Table 1

ASME Code Class 1 and 2 Welds with Limited Coverage (</=90%)

System / Component ID	Materials (Configuration)	Category / Item No.	Dia. / Thickness	Report Number	Limited Scan %	Additional Information
SIS / SIF-D197-04	SA-376 TP316 / SA-182 F316 (pipe/valve)	B-J / B9.11	10" / 1.00"	R-P2265	74%	Beam angle: 1) 45° shear and 2) 60° refracted longitudinal. Transducer Size: 1) .5" and 2) dual 10x18mm. Limitation from valve side due to configuration. NRI* (PT NRI*).
SIS / SIF-D197-05	SA-403 WP316 / SA-182 F316 (tee/valve)	B-J / B9.11	10" / 1.00"	R-P0287	73%	Beam angle: 1) 45° shear and 2) 70° refracted longitudinal. Transducer Size: 1) .375" and 2) dual 8x14mm. Limitation from valve side due to configuration. NRI* (PT - 1/8" recordable linear - Sat).
SIS / SIF-D197-06	SA-182 F316/ SA-376 TP316 (valve/pipe)	B-J / B9.11	6" / .719"	R-P1812	69%	Beam angle: 1) 45° shear and 2) 60° refracted longitudinal. Transducer Size: 1) .375" and 2) dual 10x18mm. Limitation from valve side due to configuration and coupling downstream. NRI* (PT NRI*).
SIS / SIF-D197-08	SA-376 TP316 / SA-182 F316 (pipe/valve)	B-J / B9.11	10" / 1.00"	R-P0306	74%	Beam angle: 1) 45° shear and 2) 70° refracted longitudinal. Transducer Size: 1) .375" and 2) dual 8x14mm. Limitation from valve side due to configuration. NRI* (PT NRI*).
SIS / SIF-D197-09	SA-403 WP316 / SA-182 F316 (elbow/valve)	B-J / B9.11	10" / 1.00"	R-P0305	74%	Beam angle: 1) 45° shear and 2) 70° refracted longitudinal. Transducer Size: 1) .375" and 2) dual 8x14mm. Limitation from valve side due to configuration. NRI* (PT NRI*).

Table 1

ASME Code Class 1 and 2 Welds with Limited Coverage (</=90%)

System / Component ID	Materials (Configuration)	Category / Item No.	Dia. / Thickness	Report Number	Limited Scan %	Additional Information
SIS / SIF-D197-11	SA-376 TP316 / SA-182 F316 (pipe/valve)	B-J / B9.11	6" / .719"	R-P2466	29%	Beam angle: 1) 45° shear and 2) 60° refracted longitudinal. Transducer Size: 1) .25" and 2) dual 10x18mm. Limitation from valve side due to configuration. NRI* (PT NRI*).
SIS / SIF-D197-11A	SA-376 TP316 / SA-182 F316 (pipe/valve)	B-J / B9.11	6" / 0.719"	R-P0620	50%	Phased array 25° to 70° shear wave sector (16 element probe) and 40° to 70° refracted longitudinal wave sector (dual element probe). Limitation from valve side due to configuration. NRI* (PT NRI*).
SIS / SIF-D198-03	SA-376 TP316 / SA-182 F316 (pipe/valve)	B-J / B9.11	10" / 1.00"	R-P0348	75%	Phased array 25° to 70° shear wave sector (16 element probe) and 40° to 70° refracted longitudinal wave sector (15 element probe supplemental). Limitation from valve side due to configuration. NRI* (PT NRI*).
SIS / SIF-D198-04	SA-376 TP316 / SA-182 F316 (pipe/valve)	B-J / B9.11	10" / 1.00"	R-P0341	75%	Beam angle: 1) 45° shear and 2) 70° refracted longitudinal. Transducer Size: 1) .375" and 2) dual 8x14mm. Limitation from valve side due to configuration. NRI* (PT NRI*).
SIS / SIF-D198-05	SA-403 WP316 / SA-182 F316 (tee/valve)	B-J / B9.11	10" / 1.00"	R-P0344	75%	Beam angle: 1) 45° shear and 2) 70° refracted longitudinal. Transducer Size: 1) .375" and 2) dual 8x14mm. Limitation from valve side due to configuration. NRI* (PT NRI*).

Table 1

ASME Code Class 1 and 2 Welds with Limited Coverage (</=90%)

System / Component ID	Materials (Configuration)	Category / Item No.	Dia. / Thickness	Report Number	Limited Scan %	Additional Information
SIS / SIF-D198-06	SA-403 WP316 / SA-182 F316 (elbow/valve)	B-J / B9.11	6" / 0.719"	R-P0349	75%	Beam angle: 1) 45° shear and 2) 70° refracted longitudinal. Transducer Size: 1) .375" and 2) dual 8x14mm. Limitation from valve side due to configuration. NRI* (PT NRI*).
SIS / SIF-D198-09	SA-376 WP316 / SA-182 F316 (pipe/valve)	B-J / B9.11	10" / 1.000"	R-P1819	50%	Beam angle: 1) 45° shear and 2) 60° refracted longitudinal. Transducer Size: 1) .375" and 2) dual 10x18mm. Limitation from valve side due to configuration. NRI* (PT NRI*).
SIS / SIF-D198-10	SA-403 WP316 / SA-182 F316 (elbow/valve)	B-J / B9.11	10" / 1.00"	R-P0343	75%	Beam angle: 1) 45° shear and 2) 60° refracted longitudinal. Transducer Size: 1) .375" and 2) dual 8x14mm. Limitation from valve side due to configuration. NRI* (PT NRI*).
SIS / SIF-D199-03	SA-403 WP316 / SA-182 F316 (elbow/valve)	B-J / B9.11	10" / 1.00"	R-P0434	57%	Beam angle: 1) 45° shear and 2) 70° refracted longitudinal. Transducer Size: 1) .375" and 2) dual 8x14mm. Limitation from valve side due to configuration. NRI* (PT NRI*).
SIS / SIF-D199-05	SA-376 TP316 / SA-182 F316 (pipe/valve)	B-J / B9.11	10" / 1.00"	R-P0369	74%	Phased array 25° to 70° shear wave sector (16 element probe) and 40° to 70° refracted longitudinal wave sector (15 element probe supplemental). Limitation from valve side due to configuration. Recordable root geometry 360° at varying amplitude. (PT NRI*).

Table 1

ASME Code Class 1 and 2 Welds with Limited Coverage (</=90%)

System / Component ID	Materials (Configuration)	Category / Item No.	Dia. / Thickness	Report Number	Limited Scan %	Additional Information
SIS / SIF-D199-06	SA-403 WP316 / SA-182 F316 (tee/valve)	B-J / B9.11	10" / 1.00"	R-P0370	75%	Phased array 25° to 70° shear wave sector (16 element probe) and 40° to 70° refracted longitudinal wave sector (15 element probe supplemental). Limitation from valve side due to configuration. Recordable root geometry 360° at varying amplitude. (PT NRI*).
SIS / SIF-D199-07	SA-403 WP316 / SA-182 F316 (elbow/valve)	B-J / B9.11	6" / 0.719"	R-P0405	70%	Manual UT limited from valve side due to configuration. Beam angle: 1) 45° shear and 2) 70° refracted longitudinal. Transducer Size: 1) .375" and 2) dual 8x14mm. NRI* (PT NRI*).
SIS / SIF-D199-10	SA-376 TP316 / SA-182 F316 (pipe/valve)	B-J / B9.11	10" / 1.00"	R-P0382	73%	Phased array 25° to 70° shear wave sector (16 element probe) and 40° to 70° refracted longitudinal wave sector (15 element probe supplemental). Limitation from valve side due to configuration. NRI* (PT NRI*).
SIS / SIF-D199-11	SA-403 WP316 / SA-182 F316 (elbow/valve)	B-J / B9.11	10" / 1.00"	R-P0383	73%	Phased array 25° to 70° shear wave sector (16 element probe) and 40° to 70° refracted longitudinal wave sector (15 element probe supplemental). Limitation from valve side due to configuration. NRI* (PT NRI*).
SIS / SIF-D199-15	SA-403 WP316 (tee and elbow)	B-J / B9.11	6" / 0.719"	R-P0491	61%	Phased array 25° to 70° shear wave sector (16 element probe) and 40° to 70° refracted longitudinal wave sector (15 element probe supplemental). Limitation from tee side due to configuration. NRI* (PT NRI*).

Table 1

ASME Code Class 1 and 2 Welds with Limited Coverage (</=90%)

System / Component ID	Materials (Configuration)	Category / Item No.	Dia. / Thickness	Report Number	Limited Scan %	Additional Information
RCS / RCF-C4-1	SA-182 TP 304 / SA-351 GR CF8A (RPV CL Nozzle safe end-to-pipe at 67°, Nozzle N-11)	B-J / B9.11	27.44" ID / 2.21"	R-P1788	50%	Automated underwater UT Beam Angle PA 60°-88° from ID. Scanned 100% of examination area. However, no examination credit is taken for the cast stainless-steel side of the weld. NRI* (PT NRI*).
RCS / RCF-C3-1	SA-182 TP 304 / SA-351 GR CF8A (RPV CL Nozzle safe end-to-pipe at 113°, Nozzle N-12)	B-J / B9.11	27.44" ID / 2.21"	R-P1789	50%	Automated underwater UT Beam Angle PA 60°-88° from ID. Scanned 100% of examination area. However, no examination credit is taken for the cast stainless-steel side of the weld. NRI* (PT NRI*).
RCS / RCF-C2-1	SA-182 TP 304 / SA-351 GR CF8A (RPV CL Nozzle safe end-to-pipe at 247°, Nozzle N-13)	B-J / B9.11	27.44" ID / 2.21"	R-P1792	50%	Automated underwater UT Beam Angle PA 60°-88° from ID. Scanned 100% of examination area. However, no examination credit is taken for the cast stainless-steel side of the weld. NRI* (PT NRI*).
RCS / RCF-C1-1	SA-182 TP 304 / SA-351 GR CF8A (RPV CL Nozzle safe end-to-pipe at 293°, Nozzle N-14)	B-J / B9.11	27.44" ID / 2.21"	R-P1793	50%	Automated underwater UT Beam Angle PA 60°-88° from ID. Scanned 100% of examination area. However, no examination credit is taken for the cast stainless-steel side of the weld. NRI* (PT NRI*).
RCS / RCF-C1-2	SA-351 GR CF8M/ SA-351 GR CF8A (Pump / Pipe)	B-J / B9.11	27.5" ID / 2.21"	R-P1469	75%	Manual UT limited from pump side due to configuration. Beam angle: 45° refracted longitudinal. Transducer Size: .5"x1.0". NRI* (PT NRI*).

Table 1

ASME Code Class 1 and 2 Welds with Limited Coverage (</=90%)

System / Component ID	Materials (Configuration)	Category / Item No.	Dia. / Thickness	Report Number	Limited Scan %	Additional Information
RCS / RCF-C4-2	SA-351 GR CF8M/ SA-351 GR CF8A (Pump / Pipe)	B-J / B9.11	27.5" ID / 2.21"	R-P1367	62%	Manual UT exam limited from pump side due to configuration. Beam angle: 45° refracted longitudinal. Transducer Size: .5"x1.0". NRI* (PT NRI*).
RCS / RCF-D145-03	SA-376 TP 304 / SA-403 WP 304 (Pipe / Valve)	B-J / B9.11	4" / 0.531"	R-P1328	50%	Manual UT exam limited from valve side due to configuration. Beam Angle: 1) Phased Array, 2.0 MHZ, 8 element probe with a 25° to 70° shear wave display. 2) 1.5 MHZ dual 15 element probe with a 25° to 70° shear wave display. NRI* (PT NRI*).
RCS / RCF-D145-04	SA-376 TP 304 / SA-403 WP 304 (Valve / Elbow)	B-J / B9.11	4" / 0.531"	R-P1329	50%	Manual UT exam limited from valve side due to configuration. Beam Angle: 1) Phased Array, 2.0 MHZ, 8 element probe with a 25° to 70° shear wave display. 2) 1.5 MHZ dual 15 element probe with a 25° to 70° shear wave display. NRI* (PT NRI*).
RCS / RCF-D145-09	SA-376 TP 304 / SA-403 WP 304 (Valve / Pipe)	B-J / B9.11	4" / 0.531"	R-P2044	75%	Manual UT exam limited from valve side due to configuration. Beam angle: 1) 45° shear and 2) 60° refracted longitudinal. Transducer Size: 1) .25" and 2) dual 8x14mm. NRI* (PT NRI*).
SIS / SIF-B-T076-06	SA-376 TP304 / SA-182 F316 (pipe/flange)	B-J / B9.22	1.5" / 0.281"	R-P0590	50%	Phased array 35° to 80° shear wave sector (8 element probe). Limitation from flange side configuration NRI* (UT only).
SIS / SIF-B-T076-23	SA-376 TP304 / SA-182 F316 (pipe/flange)	B-J / B9.22	1.5" / 0.281"	R-P0591	50%	Phased array 35° to 80° shear wave sector (8 element probe). Limitation from flange side configuration NRI* (UT only).

Table 1

ASME Code Class 1 and 2 Welds with Limited Coverage (</=90%)

System / Component ID	Materials (Configuration)	Category / Item No.	Dia. / Thickness	Report Number	Limited Scan %	Additional Information
SIS / SIF-B-T077-01	SA-376 TP304 / SA-403 WP304 (pipe/tee)	B-J / B9.22	1.5" / 0.281"	R-P0650	75%	Phased array 35° to 80° shear wave sector (8 element probe). Limitation from tee side configuration. NRI* (UT only).
SIS / SIF-B-T095-01	SA-376 TP304 / SA-182 F316 (pipe/nozzle)	B-J / B9.22	1.5"/ 0.281"	R-P0588	50%	Phased array 35° to 70° circ/80° axial shear wave sector (8 element probe). Limitation from nozzle side configuration. NRI* (UT only).
SIS / SIF-B-T097-12	SA-182 F316 / SA-376 TP304 (flange/pipe)	B-J / B9.22	1.5" / 0.281"	R-P2473	50%	Manual UT using 45° and 70° shear waves. Limitation from flange side configuration. NRI* (UT only).
SIS / SIF-B-T097-13	SA-376 TP304 / SA-182 F316 (pipe/flange)	B-J / B9.22	1.5" / 0.281"	R-P2474	50%	Manual UT using 45° and 70° shear waves. Limitation from flange side configuration. NRI* (UT only).
SIS / SIF-B-T107-04	SA-376 TP304 / SA-182 F316 (pipe/flange)	B-J / B9.22	1.5" / 0.281"	R-P0646	50%	Phased array 35° to 80° shear wave sector (8 element probe). Limitation from flange side configuration. NRI* (UT only).
SIS / SIF-B-T107-05	SA-376 TP304 / SA-182 F316 (pipe/flange)	B-J / B9.22	1.5" / 0.281"	R-P2475	50%	Manual UT using 45° and 70° shear waves. Limitation from flange side configuration. NRI* (UT only).
SIS / SIF-B-T107-26	SA-376 TP304 / SA-182 F316 (pipe/nozzle)	B-J / B9.22	1.5" / 0.281"	R-P0647	75%	Phased array 35° to 80° shear wave sector (8 element probe). Limitation from nozzle side configuration. NRI* (UT only).
SIS / SIF-B-T142-01	SA-376 TP304 / SA-182 F316 (pipe/nozzle)	B-J / B9.22	1.5" / 0.281"	R-P0651	49%	Phased array 35° to 80° shear wave sector (8 element probe). Limitation from nozzle side configuration. NRI* (UT only).

Table 1 ASME Code Class 1 and 2 Welds with Limited Coverage (</=90%)						
System / Component ID	**Materials (Configuration)**	**Category / Item No.**	**Dia. / Thickness**	**Report Number**	**Limited Scan %**	**Additional Information**
SIS / SIF-B-T142-24	SA-182 F316 / SA-376 TP 304 (flange/pipe)	B-J / B9.22	1.5" / 0.281"	R-P2476	50%	Beam angle: 1) 45° shear and 2) 70° shear. Transducer Size: 1) .25" and 2) .25". Limitation from flange side due to configuration. NRI* (UT only).
SIS / SIF-B-T142-25	SA-376 TP 304 / SA-182 F316 (pipe/flange)	B-J / B9.22	1.5" / 0.281"	R-P2477	50%	Beam angle: 1) 45° shear and 2) 70° shear. Transducer Size: 1) .25" and 2) .25". Limitation from flange side due to configuration. NRI* (UT only).
SIS / SIF-B-T154-01	SA-376 TP304 / SA-182 F316 (pipe/nozzle)	B-J / B9.22	1.5" / 0.281"	R-P0648	71%	Phased array 35° to 80° shear wave sector (8 element probe). Limitation from nozzle side configuration. NRI* (UT only).
SIS / SIF-D193-03	SA-376 TP304 / SA-182 F316 (pipe/valve)	B-J / B9.22	3" / 0.281"	R-P0508	70%	Beam angle: 1) 45° shear and 2) 70° shear. Transducer Size: 1) .250" and 2) .250". Limitation from valve side due to configuration. NRI* (UT only).
SIS / SIF-D193-08	SA-376 TP304 / SA-403 WP 304 (pipe/flange)	B-J / B9.22	2.5" / 0.375"	R-P2075	50%	Beam angle: 1) 45° shear and 2) 70° shear. Transducer Size: 1) .250" and 2) .250". Limitation from flange side due to configuration. NRI* (UT only).
SIS / SIF-D193-13	SA-403 WP 304/ SA-376 TP304 (flange/pipe)	B-J / B9.22	2.5" / 0.375"	R-P2077	50%	Beam angle: 1) 45° shear and 2) 70° shear. Transducer Size: 1) .250" and 2) .250". Limitation from flange side due to configuration. NRI* (UT only).
RCS / RCS-1-6	SA-351 CF-8A / SA-182 F316 (pipe/branch)	B-J / B9.31	6" / 2.33"**	R-P0101	50%	Beam angle: 45° refracted longitudinal. Transducer Size: .5"x1.0". Limitation from branch connection side due to configuration. NRI* (PT NRI*).

Table 1 ASME Code Class 1 and 2 Welds with Limited Coverage (</=90%)						
System / Component ID	**Materials (Configuration)**	**Category / Item No.**	**Dia. / Thickness**	**Report Number**	**Limited Scan %**	**Additional Information**
RCS / RCS-2-6	SA-351 CF-8A / SA-182 F316 (pipe/branch)	B-J / B9.31	6" / 2.33"**	R-P0105	50%	Beam angle: 45° refracted longitudinal. Transducer Size: .5"x1.0". Limitation from branch connection side due to configuration. NRI* (PT NRI*).
RCS / RCS-3-6	SA-351 CF-8A / SA-182 F316 (pipe/branch)	B-J / B9.31	6" / 2.33"**	R-P0106	50%	Beam angle: 45° refracted longitudinal. Transducer Size: .5"x1.0". Limitation from branch connection side due to configuration. NRI* (PT NRI*).
RCS / RCS-4-6	SA-351 CF-8A / SA-403 WP316 (pipe/branch)	B-J / B9.31	14" / 2.33"**	R-P1349	84%	Beam angle: 45° refracted longitudinal. Transducer Size: .5"x1.0". Limitation from branch connection side due to configuration. NRI* (PT NRI*).
RCS / RCS-P-1	SA-376 TP 316/ SA-351 CF-8A (pipe/branch)	B-J / B9.31	14" / 2.33"**	R-P1460	68%	Beam angle: 45° refracted longitudinal. Transducer Size: .5"x1.0". Limitation from branch connection side due to configuration. NRI* (PT NRI*).
RCS / RCW-01	SA-351 CF-8A / SA-182 F316 (pipe/branch)	B-J / B9.31	4" / 2.21"**	R-P0107	46%	Beam angle: 1) 45° shear and 2) 60° refracted longitudinal. Transducer Size: 1) .375" and 2) dual 8x14mm. Limitation from branch side due to configuration. NRI* (PT NRI*).
RCS / RCW-02	SA-351 CF-8A / SA-182 F316 (pipe/branch)	B-J / B9.31	4" / 2.21"**	R-P0108	41%	Beam angle: 1) 45° shear and 2) 60° refracted longitudinal. Transducer Size: 1) .375" and 2) dual 8x14mm. Limitation from branch side due to configuration. NRI* (PT NRI*).

Table 1

ASME Code Class 1 and 2 Welds with Limited Coverage (</=90%)

System / Component ID	Materials (Configuration)	Category / Item No.	Dia. / Thickness	Report Number	Limited Scan %	Additional Information
BIT Tank / BIT-2	SA-351 CF8A / SA-240 TP 304 (Shell/Head Weld)	C-A / C1.20	53" / 2.0" HD, 3.12" SH	R-P2183	61%	Manual UT exam limited by component configuration and material. Beam angle: 1) 0°L, 2) 45° shear, 3) 60° shear and 4) 60° RL. Transducer Size: 1) .75", 2) .5", 3) .5", and 4) dual 15x25mm. NRI*.
BIT Tank / BIT-3	SA-351 CF8A / SA-240 TP 304 (Shell/Head Weld)	C-A / C1.20	53" / 2.0" HD, 3.12" SH	R-P2184	61%	Manual UT exam limited by component configuration and material. Beam angle: 1) 0°L, 2) 45° shear, 3) 60° shear and 4) 60° RL. Transducer Size: 1) .75", 2) .5", 3) .5", and 4) dual 15x25mm. NRI*.
RHRHX / RHRHX-1-2B	SA-240 TP304/ SA-240 TP304 (Shell/Head)	C-A / C1.20	37" / 1.00"	R-P1379	73%	Manual UT exam limited by integral attachments and nozzles. Beam angle: 1) 45° shear, and 2) 60° refracted longitudinal. Transducer Size: 1) .5", 2) dual 10x18mm. NRI*.
RHRHX / RHRHX-2-2B	SA-240 TP304/ SA-240 TP304 (Shell/Flange)	C-A / C1.20	37" / 1.00"	R-P1378	75%	Manual UT exam limited by integral attachments and nozzles. Beam angle: 1) 45° shear, and 2) 60° refracted longitudinal. Transducer Size: 1) .5", 2) dual 10x18mm. NRI*.
Seal Water Injection Filter / SWIFLTR-62-96	SA-240 TP304/ SA-182 F304 (Shell/Head)	C-A / C1.20	4" / 0.674"	R-P2373	77%	Manual UT exam limited by component configuration. Beam angle: 1) 45° shear, and 2) 60° refracted longitudinal. Transducer Size: 1) .25", 2) dual 8x14mm. NRI*.

Table 1

ASME Code Class 1 and 2 Welds with Limited Coverage (</=90%)

System / Component ID	Materials (Configuration)	Category / Item No.	Dia. / Thickness	Report Number	Limited Scan %	Additional Information
Steam Generator #2 / SG-2-3-2	SA-508 CL 2/ SA-533 Gr A CL 2 (tubesheet / shell)	C-A / C1.30	135" / 3.35"	R-P2455	89%	Manual UT exam limited by component configuration. Beam angle: 1) 0°L, 2) 45°S, & 3) 60° S. Transducer Size: 1) .1", 2) .5"x1", and 3) .5"x1". NRI*.
BIT Tank / BIT-1	SA-182 TP 304 / SA-240 TP 304 (Nozzle / Bottom Head Weld)	C-B / C2.21	6" / 2.0"	R-P2182	75%	Manual UT exam limited by component configuration. Beam angle: 1) 0°L, 2) 45° shear, and 3) 60° RL. Transducer Size: 1) .75", 2) .5", and 3) dual 15x25mm. NRI*.
BIT Tank / BIT-4	SA-182 TP 304 / SA-240 TP 304 (Nozzle / Top Head Weld)	C-B / C2.21	6" / 2.0"	R-P2185	75%	Manual UT exam limited by component configuration. Beam angle: 1) 0°L, 2) 45° shear, and 3) 60° RL. Transducer Size: 1) .75", 2) .5", and 3) dual 15x25mm. NRI*.
BIT Tank / BIT-5-IA BIT-6-IA BIT-7-IA BIT-8-IA	SA-240 TP 304/ SA-351 CF8A (Integral Attachment Pads to Shell Welds)	C-C / C3.10	53" / 0.625"	R-P2148 R-P2147 R-P2146 R-P2145	77% 77% 77% 77%	Manual PT exams are limited due to component configuration. The 4 support legs cover portions of the support pads, which are welded to the vessel shell.
CVCS / Centrifugal Charging Pumps (CCPs) CCPH-2B-B-IA	SA-240 TP 304 / SA-182 F304 (Integral Attachments to Casing Welds)	C-C / C3.30	18" / 1" 21.6" /1"	R-P3950	75%	Manual PT exams are limited due to component configuration. Four pump supports, two located on smaller diameter, and two located on larger diameter of pump casings.

Table 1

ASME Code Class 1 and 2 Welds with Limited Coverage (</=90%)

System / Component ID	Materials (Configuration)	Category / Item No.	Dia. / Thickness	Report Number	Limited Scan %	Additional Information
RHRS / RHRF-D033-01	SA-403 WP 304/ SA-376 TP 304 (tee/pipe)	C-F-1 / C5.11	8" / 0.906"	R-P0930	89%	Beam Angle: 1) Phased Array, 1.5 MHZ, 16 element probe with a 20° to 70° shear wave display. 2) PA 1.5 MHZ dual 15 element probe with a 40° to 70° shear wave display. Limitation from tee side due to configuration. NRI* (PT NRI*).
SIS / SIF-D123-05	SA-403 WP 304/ SA-403 F 304 (valve/elbow)	C-F-1 / C5.11	14" / 0.500"	R-P2472	50%	Manual UT exam limited by component configuration. Beam angle: 1) 45° shear, and 2) 60° refracted longitudinal. Transducer Size: 1) .375", 2) dual 8x14mm. NRI*.
SIS / SIF-D194-15	SA-376 TP 316/ SA-403 WP 316 (pipe/tee)	C-F-1 / C5.11	8" / 0.906"	R-P1180	75%	Manual UT exam limited by component configuration. Beam angle: 1) 45° shear, and 2) 60° refracted longitudinal. Transducer Size: 1) .375", 2) dual 8x14mm. NRI*.
SIS / SIF-D195-13	SA-403 WP 316/ SA-403 WP 316 (elbow/valve)	C-F-1 / C5.11	6" / 0.719"	R-P1132	74%	Manual UT exam limited by component configuration. Beam angle: 1) 45° shear, and 2) 70° refracted longitudinal. Transducer Size: 1) .375", 2) dual 7x10mm. NRI*.
CVCS / CVCF-D007-12	SA-312 TP 304/ SA-403 WP304 (pipe/valve)	C-F-1 / C5.11	8" / 0.322"	R-P1519	75%	Manual UT exam limited by component configuration. Beam angle: 1) 45° shear, and 2) 70° shear. Transducer Size: 1) .25", 2) .25". NRI*.
CVCS / CVCF-A-T122-40	SA-376 TP 304/ SA-182 F 304 (pipe/flange)	C-F-1 / C5.21	2" / 0.343"	R-P1590	73%	Manual UT exam limited by component configuration. Beam angle: 1) 45° shear, and 2) 70° shear. Transducer Size: 1) .25", 2) .25". NRI*.

Table 1 ASME Code Class 1 and 2 Welds with Limited Coverage (</=90%)						
System / Component ID	**Materials (Configuration)**	**Category / Item No.**	**Dia. / Thickness**	**Report Number**	**Limited Scan %**	**Additional Information**
CVCS / CVCF-A-T122-41	SA-182 F 304/ SA-376 TP 304 (flange/pipe)	C-F-1 / C5.21	2" / 0.343"	R-P1591	73%	Manual UT exam limited by component configuration. Beam angle: 1) 45° shear, and 2) 70° shear. Transducer Size: 1) .25", 2) .25". NRI*.
CVCS / CVCF-D011-01	SA-312 TP 304/ SA-403 WP 304 (pipe/penetration)	C-F-1 / C5.21	4" / 0.237"	R-P1592	75%	Manual UT exam limited by component configuration. Beam angle: 1) 45° shear, and 2) 70° shear. Transducer Size: 1) .25", 2) .25". NRI*.
SIS / SIF-B-T071-08	SA-182 F 316/ SA-376 TP 304 (flange/pipe)	C-F-1 / C5.21	2" / 0.343"	R-P1107	75%	Manual UT exam limited by component configuration. Beam angle: 1) 45° shear, and 2) 70° shear. Transducer Size: 1) .25", 2) .25". Root geometry recorded only.
SIS / SIF-B-T071-09	SA-376 TP 304/ SA-182 F 316 (pipe/flange)	C-F-1 / C5.21	2" / 0.343"	R-P1106	75%	Manual UT exam limited by component configuration. Beam angle: 1) 45° shear, and 2) 70° shear. Transducer Size: 1) .25", 2) .25". NRI*.
SIS / SIF-B-T090-06	SA-376 TP 304/ SA-182 F 316 (pipe/flange)	C-F-1 / C5.21	2" / 0.343"	R-P1116	75%	Manual UT exam limited from flange side due to configuration. Beam Angle: 1) Phased Array, 2.0 MHZ, 8 element probe with a 35° to 80° shear wave display. NRI* (PT NRI*).
SIS / SIF-B-T090-07	SA-182 F 316/ SA-376 TP 304 (flange/pipe)	C-F-1 / C5.21	2" / 0.343"	R-P1117	75%	Manual UT exam limited from flange side due to configuration. Beam Angle: 1) Phased Array, 2.0 MHZ, 8 element probe with a 35° to 80° shear wave display. NRI* (PT NRI*).

Table 1

ASME Code Class 1 and 2 Welds with Limited Coverage (</=90%)

System / Component ID	Materials (Configuration)	Category / Item No.	Dia. / Thickness	Report Number	Limited Scan %	Additional Information
SIS / SIF-D116-01D	SA-182 F 304/ SA-403 WP 304 (flange/elbow)	C-F-1 / C5.21	3" / 0.300"	R-P1133	75%	Manual UT exam limited by component configuration. Beam angle: 1) 45° shear, and 2) 70° shear. Transducer Size: 1) .25", 2) .25". NRI*.
SIS / SIF-D116-06	SA-403 WP 304/ SA-312 TP 304 (tee/pipe)	C-F-1 / C5.21	4" / 0.337"	R-P1079	86%	Manual UT exam limited by component configuration. Beam angle: 1) 45° shear, and 2) 60° shear. Transducer Size: 1) .25", 2) .25". NRI*.
SIS / SIF-D118-02	SA-403 WP 304/ SA-403 WP 304 (elbow/valve)	C-F-1 / C5.21	4" / 0.531"	R-P1129	75%	Manual UT exam limited by component configuration. Beam angle: 1) 45° shear, & 2) 60° RL. Transducer Size: 1) .25", 2) 4x8mm. NRI*.
SIS / SIF-D118-13A	SA-376 TP 304/ SA-403 WP 304 (pipe/flange)	C-F-1 / C5.21	4" / 0.531"	R-P1162	75%	Manual UT exam limited by component configuration. Beam angle: 1) 45° shear, & 2) 60° RL. Transducer Size: 1) .25", 2) 4x8mm. NRI*.
SIS / SIF-D119-03	SA-403 WP 304/ SA-312 TP 304 (valve/pipe)	C-F-1 / C5.21	4" / 0.237"	R-P1161	75%	Manual UT exam limited by component configuration. Beam angle: 1) 45° shear, and 2) 70° shear. Transducer Size: 1) .25", 2) .25". NRI*.
SIS / SIF-D120-10	SA-403 WP 304/ SA-182 F 304 (elbow/flange)	C-F-1 / C5.21	4" / 0.237"	R-P1163	75%	Manual UT exam limited by component configuration. Beam angle: 1) 45° shear, & 2) 60° RL. Transducer Size: 1) .25", 2) 4x8mm. NRI*.
FWS / FWF-D212-04	SA-420 WPL-6/ SA-420 WPL-6 (valve/elbow)	C-F-2 / C5.51	6" / 0.432"	R-P1429	84%	Manual UT exam limited by component configuration. Beam angle: 1) 45° shear, and 2) 60° shear. Transducer Size: 1) .375", 2) .375". NRI*.

Table 1 ASME Code Class 1 and 2 Welds with Limited Coverage (</=90%)						
System / Component ID	**Materials (Configuration)**	**Category / Item No.**	**Dia. / Thickness**	**Report Number**	**Limited Scan %**	**Additional Information**
FWS / FWF-D213-03	SA-420 WPL-6/ SA-420 WPL-6 (valve/elbow)	C-F-2 / C5.51	6" / 0.432"	R-P1426	82%	Manual UT exam limited by component configuration. Beam angle: 1) 45° shear, and 2) 60° shear. Transducer Size: 1) .375", 2) .375". NRI*.

* NRI: No Recordable Indications

** Nominal wall thickness is given from the piping side of a branch connection
PA: Phased Array ultrasonic beams
L: Longitudinal wave ultrasonic beam
RL: Refracted Longitudinal ultrasonic beam
S: Shear Wave ultrasonic beam