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NINE MILE POINT
NUCLEAR STATION

April 29, 2010

U. S. Nuclear Regulatory Commission
Washington, DC 20555-0001

ATTENTION: Document Control Desk

SUBJECT: Nine Mile Point Nuclear Station
Unit No. 1; Docket No. 50-220

American Society of Mechanical Engineers (ASME) Code, Section XI, Inservice Inspection Program for the Third Ten-Year Inservice Inspection Interval - 10 CFR 50.55a Request Number ISI-25, Response to NRC Request for Additional Information (TAC No. ME2812)

REFERENCES:

(a) Letter from J. E. Pacher (NMPNS) to Document Control Desk (NRC), dated November 24, 2009, American Society of Mechanical Engineers (ASME) Code, Section XI, Inservice Inspection Program for the Third Ten-Year Inservice Inspection Interval - 10 CFR 50.55a Request Number ISI-25

(b) Letter from R. V. Guzman (NRC) to S. L. Belcher (NMPNS), dated March 18, 2010, Request for Additional Information Regarding Nine Mile Point Nuclear Station, Unit No. 1 (NMP1) - Relief Request RR-ISI-25 (TAC No. ME2812)

Nine Mile Point Nuclear Station, LLC (NMPNS) hereby transmits supplemental information requested by the NRC in support of a 10 CFR 50.55a request (Number ISI-25) previously submitted under the provision of 10 CFR 50.55a(g)(5)(iii). In Reference (a), NMPNS requested that the NRC grant the requested relief in order to close out documentation for the third inservice inspection interval for Nine Mile Point Unit 1, which ended on August 22, 2009. The supplemental information, provided in Attachments 1 and 2 to this letter, responds to the request for additional information documented in the NRC's letter dated March 18, 2010 (Reference b). This letter contains no new regulatory commitments.

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NRR

Should you have any questions regarding the information in this submittal, please contact T. F. Syrell, Licensing Director, at (315) 349-5219.

Very truly yours,

Joseph E. Pacher
Manager Engineering Services

JEP/DEV

Attachments:
1. Nine Mile Point Unit 1 – Response to NRC Request for Additional Information Regarding Third Ten-Year Inservice Inspection Interval 10 CFR 50.55a Request Number ISI-25
2. Nine Mile Point Unit 1 – Third Inservice Inspection Interval, 10 CFR 50.55a Request Number ISI-25, Rev. 01

cc: S. J. Collins, NRC
R. V. Guzman, NRC
Resident Inspector, NRC

ATTACHMENT 1

NINE MILE POINT UNIT 1

RESPONSE TO NRC REQUEST FOR ADDITIONAL INFORMATION

REGARDING THIRD TEN-YEAR INSERVICE INSPECTION INTERVAL

10 CFR 50.55a REQUEST NUMBER ISI-25

ATTACHMENT 1

NINE MILE POINT UNIT 1
RESPONSE TO NRC REQUEST FOR ADDITIONAL INFORMATION
REGARDING THIRD TEN-YEAR INSERVICE INSPECTION INTERVAL
10 CFR 50.55a REQUEST NUMBER ISI-25

By letter dated November 24, 2009, Nine Mile Point Nuclear Station, LLC (NMPNS) submitted 10 CFR 50.55a Request Number ISI-25 for the third ten-year inservice inspection (ISI) interval for Nine Mile Point Unit 1 (NMP1). This attachment provides supplemental information in response to the request for additional information (RAI) documented in the NRC's letter dated March 18, 2010. Each individual NRC request is repeated (in italics), followed by the NMPNS response.

RAI No. 1

Please provide the piping and weld material for each component listed in Table 1 of the relief request submittal.

Response

Revision 01 to 10 CFR 50.55a Request Number ISI-25 is provided in Attachment 2. The component and weld materials for each of the seven components listed in Table 1 of the request are provided on the revised examination sketches, Figures 1 through 7. The revision also incorporates other minor clarifications. All changes are indicated by a vertical bar drawn in the right-hand margin.

During the review of design documentation to confirm the component and weld material information, it was determined that the Note on Figure 3 for weld 33-WD-055 incorrectly characterized the weld as austenitic. Weld 33-WD-055 is actually a carbon steel weld. Figure 3 has been corrected accordingly (see Attachment 2).

RAI No. 2

Please explain how you calculated 62.5% weld coverage for components 32-WD-002 and 32-WD-045.

Response

NMPNS calculated the overall weld coverage for components 32-WD-002 and 32-WD-045 by averaging the individual weld coverages obtained, as follows:

- 100% coverage of the required examination volume for the detection of circumferentially oriented flaws was obtained in two directions (axial scans were performed from both sides of the weld).

- 25% coverage of the required examination volume for the detection of axially oriented flaws was achieved on the safe end side of the weld in the clockwise and counter-clockwise directions.

Thus: (100% + 100% + 25% + 0%) / 4 = 225% / 4 = 62.5% weld coverage

ATTACHMENT 1

NINE MILE POINT UNIT 1
RESPONSE TO NRC REQUEST FOR ADDITIONAL INFORMATION
REGARDING THIRD TEN-YEAR INSERVICE INSPECTION INTERVAL
10 CFR 50.55a REQUEST NUMBER ISI-25

RAI No. 3

Under "Risk Category 4 Welds," you state that "surface conditioning may have improved the ability to scan over the weld; however, Code coverage would not have increased because of Title 10 of the Code of Federal Regulations *50.55a(b)(xv)(A)(2) requirements...therefore, surface conditioning was not performed." Figures 5 and 6 for components 32-WD-002 and 32-WD-045, respectively, indicate that the welds are accessible for examination from both sides. In light of this, please clarify why surface conditioning to improve the surface profile due to radial shrinkage would not have increased Code coverage.*

Response

For weld numbers 32-WD-002 and 32-WD-045, the required volume was examined with 100% coverage achieved for the detection of circumferentially oriented flaws, with scans performed from both sides of the weld. However, only 25% coverage was achieved for the detection of axially oriented flaws, with scans performed on the safe end side of the weld only.

The reduction in coverage for axially oriented flaws was caused by a surface condition (radial shrinkage) that reduced the effectiveness of circumferential scans as the search units traversed above the austenitic weld and nozzle materials. Some coverage of the safe end side of the weld was obtained, and the heat affected zone was interrogated.

Surface grinding to improve coverage was considered, but was not performed because the estimated amount of material to be removed on the nozzle side could have encroached on the minimum wall thickness. A full structural weld overlay would also have improved the surface condition; however, this repair activity had not been pre-planned. There were concerns with attempting to develop a high-quality weld overlay design package, procuring and mobilizing resources to perform the weld overlay, and minimizing radiation dose impacts during the existing outage. Thus, a weld overlay repair was not pursued.

The examinations for weld numbers 32-WD-002 and 32-WD-045 were performed to the extent practical with no reportable indications detected. NMPNS has concluded that the extent of examination coverage achieved along with the system pressure tests performed provide reasonable assurance of the continued structural integrity of these welds.

ATTACHMENT 2

NINE MILE POINT UNIT 1

THIRD INSERVICE INSPECTION INTERVAL

10 CFR 50.55a REQUEST NUMBER ISI-25, Rev. 01

NINE MILE POINT UNIT 1
THIRD INSERVICE INSPECTION INTERVAL
10 CFR 50.55a REQUEST NUMBER ISI-25, Rev. 01

Proposed Request for Relief
In Accordance with 10 CFR 50.55a(g)(5)(iii)

A. COMPONENT IDENTIFICATION

System: Various Piping Systems

Class: Quality Group A, ASME Code Class 1

Component Description: Alternate Risk-Informed Piping Examinations (see Table 1)

B. ASME SECTION XI INSPECTION REQUIREMENTS

ASME Code Case N-578-1, Table 1, Examination Category R-A:

Code Item No.	Component ID	Examination Description
R1.11[(1)]	Elements subject to Thermal Fatigue	Risk-Informed Piping Segments, Exam Volume [(2)]
R1.20[(1)]	Elements not subject to a damage mechanism	Risk-Informed Piping Segments, Exam Volume [(1)]

(1) The length for the examination volume shall be increased to include ½ inch beyond each side of the base metal thickness transition or counterbore.

(2) Risk-informed examination volumes are as provided in the Electric Power Research Institute (EPRI) Technical Report (TR) 112657, Figure 4-2.

The applicable ASME Code, Section XI, for the Nine Mile Point Unit 1 third 10-year inservice inspection (ISI) interval is the 1989 Edition with no addenda. The third 10-year ISI interval began on December 26, 1999 and ended on August 22, 2009.

C. RELIEF REQUESTED

Relief is requested from performing essentially 100% volumetric examination of the Risk-Informed Examination Volume for those components identified in Table 1, to the extent practical.

D. BASIS FOR RELIEF

During the initial alternate Risk-Informed Inservice Inspection (RI-ISI) element selection process, accessibility was an important consideration, and as such, locations were initially selected for examination where the desired coverage was determined to be achievable. However, the limitations identified in this request were not known until the examinations were performed, and in many cases were being examined for the first time under the alternate RI-ISI program requirements.

The RI-ISI examinations were performed in accordance with ASME Section XI, Appendix VIII (1995 Edition through the 1996 Addenda), as administered by the EPRI Performance Demonstration Initiative (PDI). Examinations were conducted utilizing new PDI procedures, techniques and equipment (such as UT search units) specifically identified and selected during the procedure qualification process to interrogate, detect, and size flaw indications associated with specific degradation mechanisms.

Other considerations contributed to the selection of locations where greater than 90 percent examination coverage is physically impossible. This is especially true for element selections in Risk Categories 2. For this risk category, elements are generally selected for examination on the basis of predicted degradation severity. As such, these locations will generally be selected for examination since they are considered more susceptible locations. Usually, less than 90 percent coverage of these locations will yield more valuable information than 100 percent coverage of a less susceptible location.

For Risk Category 4, a greater degree of flexibility exists in choosing inspection locations. Normally, when an element selection is found to be obstructed, a more suitable location will be chosen. Substitutions, additions and/or deletions are made following the re-evaluation as required by the living program criteria (at the end of each inspection period, and at the end of the ten-year inspection interval).

Additionally, 10 CFR 50.55a(b)(2)(xv)(A)(*2*) requires that when examination from both sides is not possible on austenitic welds, full coverage 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. Since the industry has not qualified single-sided examinations, Nine Mile Point Nuclear Station, LLC (NMPNS) does not claim Code coverage on the far side of the weld. Therefore, the maximum Code coverage that may be claimed is 50% (applies to welds 32-WD-017, 32-WD-171, 39-WD-470, and 39-WD-471).

RISK CATEGORY 2 WELDS

Welds 39-WD-470, 39-WD-471, and 33-WD-055 are Risk Category 2 welds with a degradation mechanism (DM) of Thermal Stratification, Cycling, and Striping (TASCS) assigned. Examination of all three (3) welds was limited due to permanent design configurations (pipe-to-valve and a welded T-box) which do not allow essentially 100% of the required volume to be interrogated. See attached examination sketches (Figures 1, 2, and 3) for coverage details.

Welds 39-WD-470 and 39-WD-471 are assigned to a group from which there are a total of 8 welds to select from. Four welds have the same pipe-to-valve configuration and four welds are inaccessible, located inside containment penetrations. In all cases, the weld and heat-affected zone (HAZ) were interrogated from the accessible side, thereby providing added assurance that no flaws are present.

Weld 33-WD-055 is in a group from which there are a total of 15 welds to select from. Weld 33-WD-055 is a tee-to-reducer configuration. The only other similar configurations within this group are a valve-to-pipe or pipe-to-reducer configuration. Previous code-required examinations on these

similar configurations achieved less coverage than the coverage achieved on weld 33-WD-055. The additional welds within this group are pipe-to-pipe configurations. The information gained from examining a pipe-to-pipe weld would yield less valuable information than the limited examination performed on weld 33-WD-055.

RISK CATEGORY 4 WELDS

Welds 32-WD-017, 32-WD-002, 32-WD-045, and 32-WD-171 are Risk Category 4 welds with no known degradation mechanism assigned. Examination of welds 32-WD-017 and 32-WD-171 was limited due to permanent design configurations which only allow a one-sided examination to be performed. Selection of an alternate inspection location within the same risk category will not improve examination coverage of the volume, due to similar structural discontinuities (single-sided exam). Examination of welds 32-WD-002 and 32-WD-045 was limited due to the size of the ultrasonic search units required by the PDI-qualified vendor procedure. The search units were not able to make contact on the entire surface due to radial shrinkage.

Weld 32-WD-017 is a pump-to-elbow configuration. This weld was selected due to previous examination data identifying that 100% of the required volume was achieved from one side. The current PDI examination only allows credit for 50% from one side. Welds 32-WD-002 and 32-WD-045 are also assigned to the same group and both are nozzle-to-safe end configurations. Since two of the three welds are dissimilar metal welds, selection of a pipe-to-pipe weld in lieu of the selected weld would yield less valuable information than the limited examinations performed.

As shown in the attached examination sketches (Figures 4 through 7), limitations were primarily due to the configuration (pipe-to-valve or pipe-to-flange). In a few cases, surface conditioning may have improved the ability to scan over the weld; however, Code coverage would not have increased for austenitic welds 32-WD-017 and 32-WD-171 because of the 10 CFR 50.55a(b)(2)(xv)(A)(2) requirements. Until a successful single-sided Appendix VIII demonstration using flaws on the opposite side of the weld has been performed by the industry, no other actions are currently considered to be a practical means for appreciably increasing Code-required coverage for the subject welds.

ASSESSMENT

The limited examination coverage on the subject welds was reviewed against the risk assessment. Based on the review, it was concluded that there is no impact on meeting the risk impact assessment acceptance criteria.

As required by the RI-ISI living program criteria, a re-evaluation will be performed following the end of the inspection interval (August 22, 2009). Based on the results of the re-evaluation, where alternate element selections would achieve greater than 90% coverage, substitutions for the elements with identified limited examination coverage will be made to the extent practical.

The extent of examination volume achieved for the components identified in Table 1, coupled with the system pressure tests, provide reasonable assurance of structural integrity of the subject components.

E. ALTERNATIVE EXAMINATIONS

The spring 2009 refueling outage was the last outage for the third ISI interval, which ended on August 22, 2009; therefore, no alternate examinations are proposed for the third ISI interval.

F. IMPLEMENTATION SCHEDULE

Third ISI interval (December 26, 1999 to August 22, 2009)

G. USNRC STATUS

Submitted to the NRC for review and approval.

NINE MILE POINT UNIT 1
THIRD INSERVICE INSPECTION INTERVAL
10 CFR 50.55a REQUEST NUMBER ISI-25, Rev. 01

Table 1
Limited Examination Coverage

Component ID	Component Description	DM	Risk Cat/ Item No.	% of Coverage Achieved	Description of Limitation
39-WD-470	Valve 39-03-to-Pipe	TASCS	2 R1.11	48%	One-side exam due to valve-to-pipe configuration. See Figure 1
39-WD-471	Pipe-to-Valve 39-01	TASCS	2 R1.11	48%	One-side exam due to valve-to-pipe configuration. See Figure 2
33-WD-055	Tee-Reducer	TASCS	2 R1.11	61.7%	One-side exam due to T-box configuration. See Figure 3
32-WD-017	Pump-to-Elbow	None	4 R1.20	50%	One-side exam due to pump-to-elbow configuration. See Figure 4
32-WD-002	Nozzle-to-Safe End	None	4 R1.20	62.5%	Surface profile inadequate due to radial shrinkage. See Figure 5
32-WD-045	Nozzle-to-Safe End	None	4 R1.20	62.5%	Surface profile inadequate due to radial shrinkage. See Figure 6
32-WD-171	Pipe-to-Tee	None	4 R1.20	50%	One-side exam due to pipe-to-tee configuration. See Figure 7

NINE MILE POINT UNIT 1
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Figure 1

Weld Identification: 39-WD-470
Weld Configuration: Pipe-to-Valve
Limitation: Single side examination due to configuration. No scans performed upstream due to valve. No axial scan performed from 0" to 1" and 16.75" to 17.75" due to thermocouples.
Search Units: 45 degree shear wave, 0.375' round, 1.5 mhz.
60 degree refracted longitudinal wave, 2(7x10) mm rectangular, 2.0 mhz.
Materials: Valve – SA 351, CF8M; Weld – 308L; Pipe – SA 312, Type 316L
Thickness: 0.8"
Coverage Achieved: 48%
Note: In accordance with Supplement 2 of Appendix VIII, welds limited to single-sided access that are greater than 0.50-inch thick were examined using 45-degree shear waves and a longitudinal wave search unit that provided adequate coverage on the far side of the weld. 10 CFR 50.55a(b)(2)(xv)(A)(2) requires that when examination from both sides is not possible on austenitic welds, full coverage 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. Since the industry has not qualified single-sided examinations, NMPNS performs best-effort examinations to the extent practical and does not claim Code coverage on the far side of the weld. Therefore, the maximum Code coverage that may be claimed is 50%.

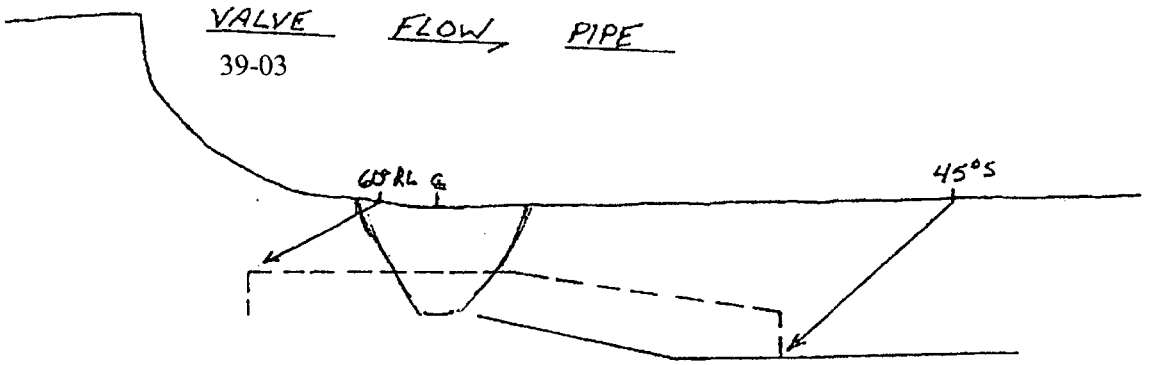

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Figure 2

Weld Identification: 39-WD-471
Weld Configuration: Pipe-to-Valve
Limitation: Single side examination due to configuration. No scans performed downstream due to valve.
No axial scan performed from 0" to 1" and 16.75" to 17.75" due to thermocouples.
Search Units: 45 degree shear wave, 0.375' round, 1.5 mhz.
60 degree refracted longitudinal wave, 2(7x10) mm rectangular, 2.0 mhz.
Materials: Pipe – SA 312, Type 316L; Weld – 308L; Valve – SA 182, F316
Thickness: 0.7"
Coverage Achieved: 48%
Note: In accordance with Supplement 2 of Appendix VIII, welds limited to single-sided access that are greater than 0.50-inch thick were examined using 45-degree shear waves and a longitudinal wave search unit that provided adequate coverage on the far side of the weld. 10 CFR 50.55a(b)(2)(xv)(A)(2) requires that when examination from both sides is not possible on austenitic welds, full coverage 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. Since the industry has not qualified single-sided examinations, NMPNS performs best-effort examinations to the extent practical and does not claim Code coverage on the far side of the weld. Therefore, the maximum Code coverage that may be claimed is 50%.

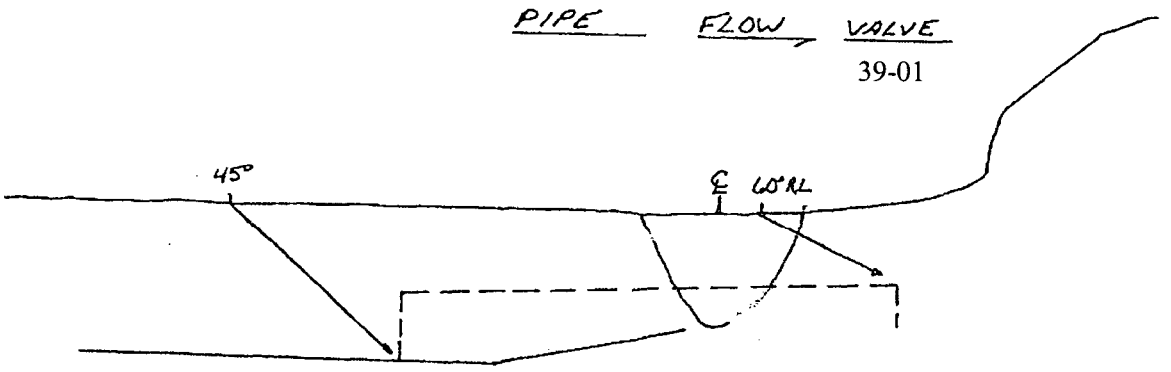

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Figure 3

Weld Identification: 33-WD-055
Weld Configuration: Reducer-to-Tee
Limitation: Single side examination due to configuration. Welded T-box
Search Units: 45 degree shear wave, 0.25' round, 5.0 mhz.
70 degree shear wave, 0.25" round, 5.0 mhz.
Materials: Tee – ASME SA 420, GR WPL6; Weld – Carbon steel, E70S-2; Reducer – ASME SA 420, GR WPL6
Thickness: 0.432"
Coverage Achieved: 61.7%
Note: In accordance with Supplement 2 of Appendix VIII, welds limited to single-sided access that are equal to or less than 0.50-inch thick were examined using 45-degree and 70-degree shear waves. When examination from both sides is not possible on carbon steel welds, full coverage 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. NMPNS has qualified a single-sided examination for carbon steel welds.

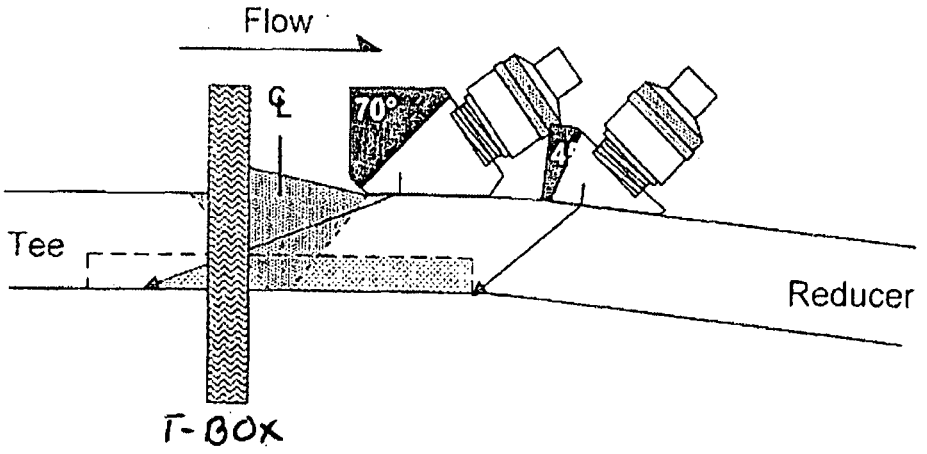

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Figure 4

Weld Identification: 32-WD-017
Weld Configuration: Pump-to-Elbow
Limitation: Single side examination due to configuration. No scan from pump side.
Search Units: 45 degree shear wave, 0.375' round, 1.5 mhz.
60 degree refracted longitudinal wave, 2(10x18) mm rectangular, 2.0 mhz.
Materials: Pump – ASTM SA 351, CF8M; Weld – 308L; Elbow – Type 316NG
Thickness: 1.26"
Coverage Achieved: 50%
Note: In accordance with Supplement 2 of Appendix VIII, welds limited to single-sided access that are greater than 0.50-inch thick were examined using 45-degree shear waves and a longitudinal wave search unit that provided adequate coverage on the far side of the weld. 10 CFR 50.55a(b)(2)(xv)(A)(2) requires that when examination from both sides is not possible on austenitic welds, full coverage 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. Since the industry has not qualified single-sided examinations, NMPNS performs best-effort examinations to the extent practical and does not claim Code coverage on the far side of the weld. Therefore, the maximum Code coverage being claimed is 50%.

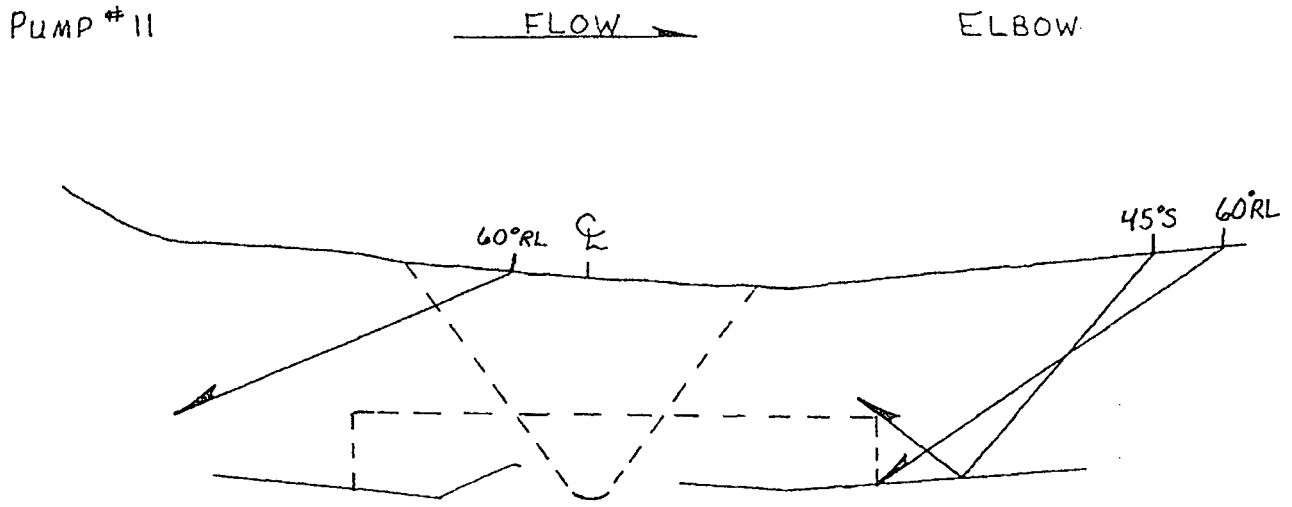

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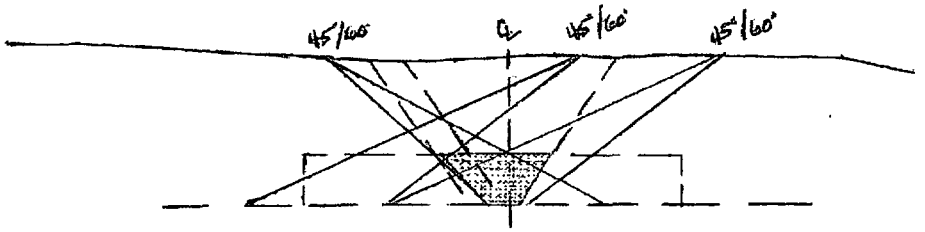
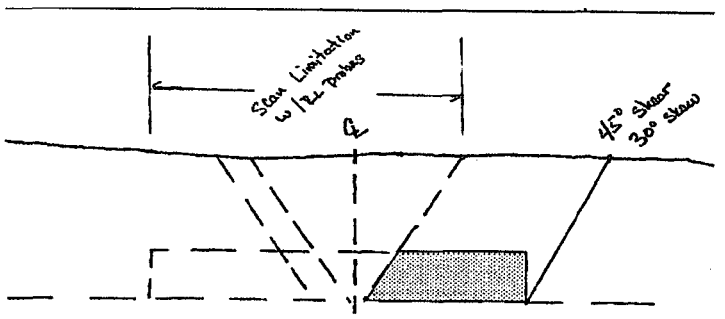
Figure 5

Weld Identification: 32-WD-002
Weld Configuration: Nozzle-to-Safe End
Limitation: Surface profile inadequate when traversing above the weld and nozzle material due to radial shrinkage.
Search Units: Automated Examination performed utilizing the following search units: 45 degree shear wave; 45 and 60 degree refracted longitudinal waves.
Materials: Nozzle – SA 336 Low Alloy Carbon Steel; Weld – Inconel 82; Safe End – SS 316NG
Thickness: 1.42"
Coverage Achieved: 62.5%

Nozzle Safe End





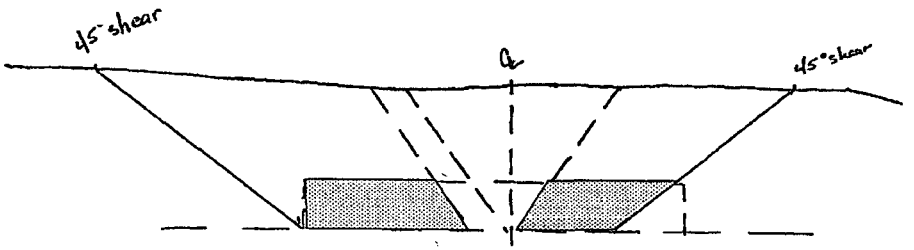


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Figure 6

Weld Identification: 32-WD-045
Weld Configuration: Nozzle-to-Safe End
Limitation: Surface profile inadequate when traversing above the weld and nozzle material due to radial shrinkage.
Search Units: Automated Examination performed utilizing the following search units: 45 degree shear wave; 45 and 60 degree refracted longitudinal waves.
Materials: Nozzle – SA 336 Low Alloy Carbon Steel; Weld – Inconel 82; Safe End – SS 316NG
Thickness: 1.42"
Coverage Achieved: 62.5%

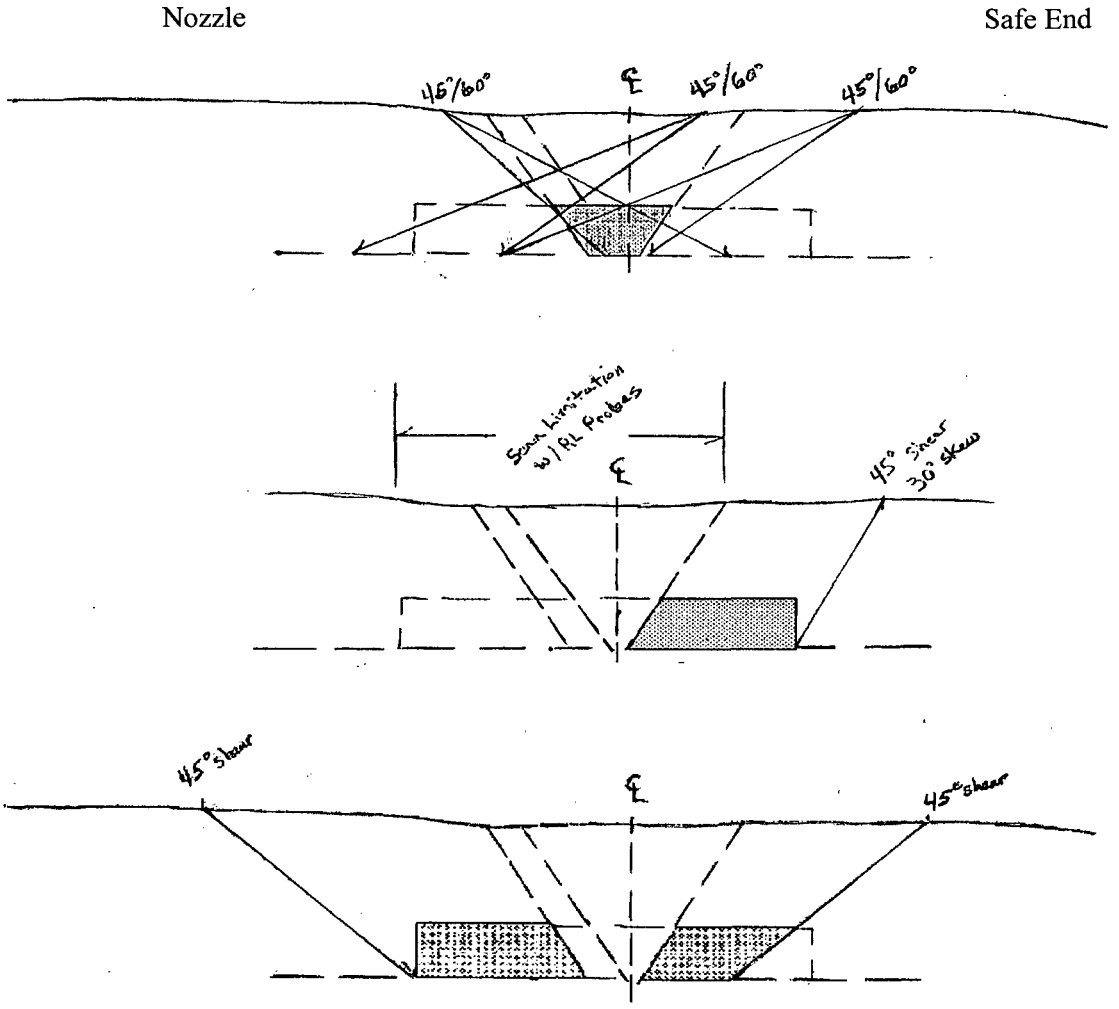

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Figure 7

Weld Identification: 32-WD-171
Weld Configuration: Pipe-to-Tee
Limitation: Single side examination due to configuration. No scan from tee side.
Search Units: 45 degree shear wave, 0.5' round, 1.5 mhz.
60 degree shear wave, 0.5" round, 1.5 mhz.
60 degree refracted longitudinal wave, 2(8x14) mm rectangular, 2.0 mhz.
Materials: Tee – SS 316NG; Weld – 308L; Pipe – SS 316
Thickness: 0.844"
Coverage Achieved: 50%
Note: In accordance with Supplement 2 of Appendix VIII, welds limited to single-sided access that are greater than 0.50-inch thick were examined using 45-degree shear waves and a longitudinal wave search unit that provided adequate coverage on the far side of the weld. 10 CFR 50.55a(b)(2)(xv)(A)(2) requires that when examination from both sides is not possible on austenitic welds, full coverage 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. Since the industry has not qualified single-sided examinations, NMPNS performs best-effort examinations to the extent practical and does not claim Code coverage on the far side of the weld. Therefore, the maximum Code coverage being claimed is 50%.