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Nine Mile Point Nuclear Station

P.O. Box 63
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November 24, 2009

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

In accordance with 10 CFR 50.55a(g)(5)(iii), Nine Mile Point Nuclear Station, LLC (NMPNS) hereby submits 10 CFR 50.55a Request Number ISI-25 for the third ten-year inservice inspection (ISI) interval for Nine Mile Point Unit 1. Request ISI-25 (see Attachment) requests relief from certain requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, which NMPNS has determined to be impractical. NMPNS requests that the NRC grant the requested relief in order to close out documentation for the third ISI interval, which ended on August 22, 2009.

This letter contains no new regulatory commitments. 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

A047
NRR

Document Control Desk

November 24, 2009

Page 2

Attachment: Nine Mile Point Unit 1 – Third Inservice Inspection Interval, 10 CFR 50.55a Request
Number ISI-25, Rev. 00

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

ATTACHMENT

NINE MILE POINT UNIT 1

THIRD INSERVICE INSPECTION INTERVAL

10 CFR 50.55a REQUEST NUMBER ISI-25, Rev. 00

**NINE MILE POINT UNIT 1
THIRD INSERVICE INSPECTION INTERVAL
10 CFR 50.55a REQUEST NUMBER ISI-25, Rev. 00**

**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.

**NINE MILE POINT UNIT 1
THIRD INSERVICE INSPECTION INTERVAL
10 CFR 50.55a REQUEST NUMBER ISI-25, Rev. 00**

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 normally 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 is 50%.

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

**NINE MILE POINT UNIT 1
THIRD INSERVICE INSPECTION INTERVAL
10 CFR 50.55a REQUEST NUMBER ISI-25, Rev. 00**

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 because of the 10 CFR 50.55a (b)(2)(xv)(A)(2) requirements stated above. Therefore, surface conditioning was not performed. 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 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.

**NINE MILE POINT UNIT 1
THIRD INSERVICE INSPECTION INTERVAL
10 CFR 50.55a REQUEST NUMBER ISI-25, Rev. 00**

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. 00**

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
THIRD INSERVICE INSPECTION INTERVAL
10 CFR 50.55a REQUEST NUMBER ISI-25, Rev. 00**

Figure 1

Weld Identification: 39-WD-470

Weld Configuration: Pipe-to-Valve

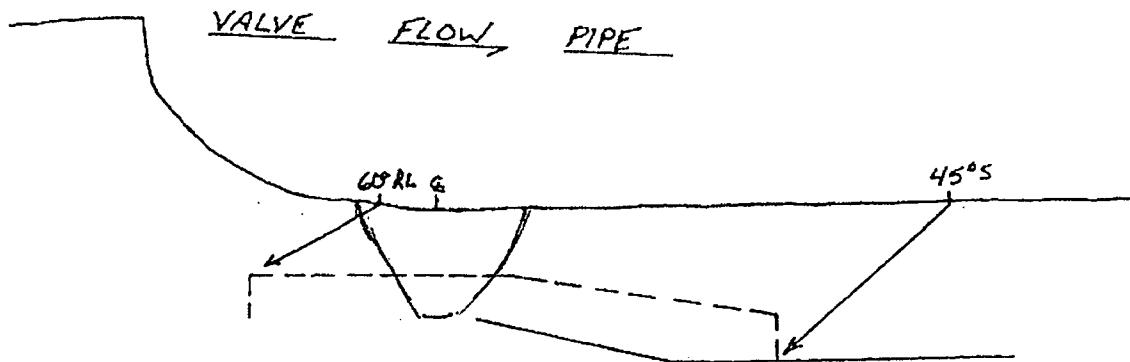
Limitation: Single side examination due to configuration. No scans performed upstream due to valve. No axial scan performed from 0" to 1" and 16.75" to 17.75" due to thermocouples.

Search Units: 45 degree shear wave, 0.375' round, 1.5 mhz.
60 degree refracted longitudinal wave, 2(7x10) mm rectangular, 2.0 mhz.

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 does not claim Code coverage on the far side of the weld. Therefore, the maximum Code coverage is 50%.



**NINE MILE POINT UNIT 1
THIRD INSERVICE INSPECTION INTERVAL
10 CFR 50.55a REQUEST NUMBER ISI-25, Rev. 00**

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.

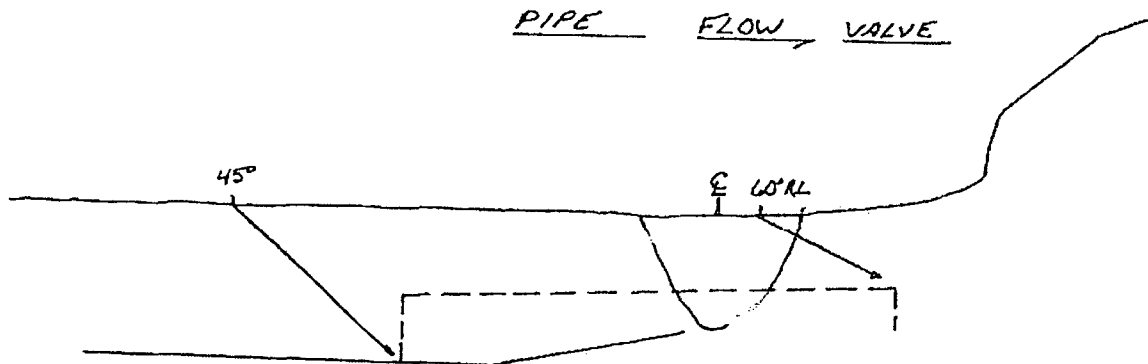
Search Units: 45 degree shear wave, 0.375' round, 1.5 mhz.

60 degree refracted longitudinal wave, 2(7x10) mm rectangular, 2.0 mhz.

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 does not claim Code coverage on the far side of the weld. Therefore, the maximum Code coverage is 50%.



**NINE MILE POINT UNIT 1
THIRD INSERVICE INSPECTION INTERVAL
10 CFR 50.55a REQUEST NUMBER ISI-25, Rev. 00**

Figure 3

Weld Identification: 33-WD-055

Weld Configuration: Reducer-to-Tee

Limitation: Single side examination due to configuration. Welded T-box

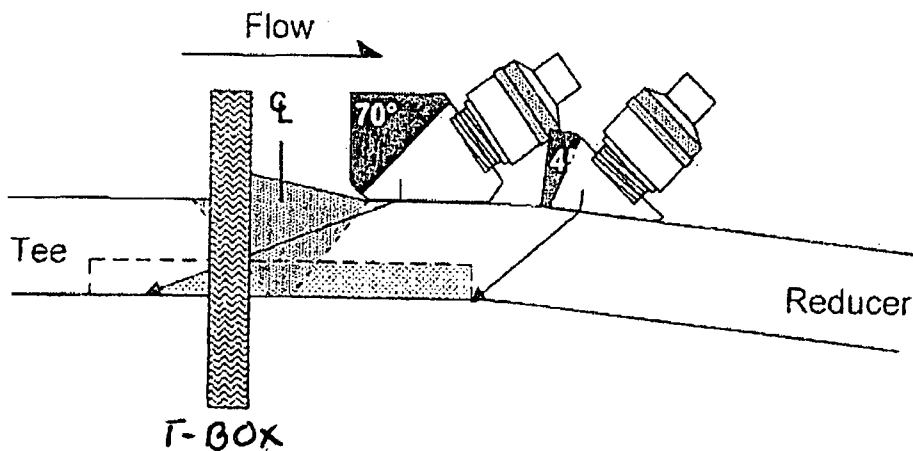
Search Units: 45 degree shear wave, 0.25' round, 5.0 mhz.

70 degree shear wave, 0.25" round, 5.0 mhz.

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. 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 does not claim Code coverage on the far side of the weld. Therefore, the maximum Code coverage is 50%.



**NINE MILE POINT UNIT 1
THIRD INSERVICE INSPECTION INTERVAL
10 CFR 50.55a REQUEST NUMBER ISI-25, Rev. 00**

Figure 4

Weld Identification: 32-WD-017

Weld Configuration: Pump-to-Elbow

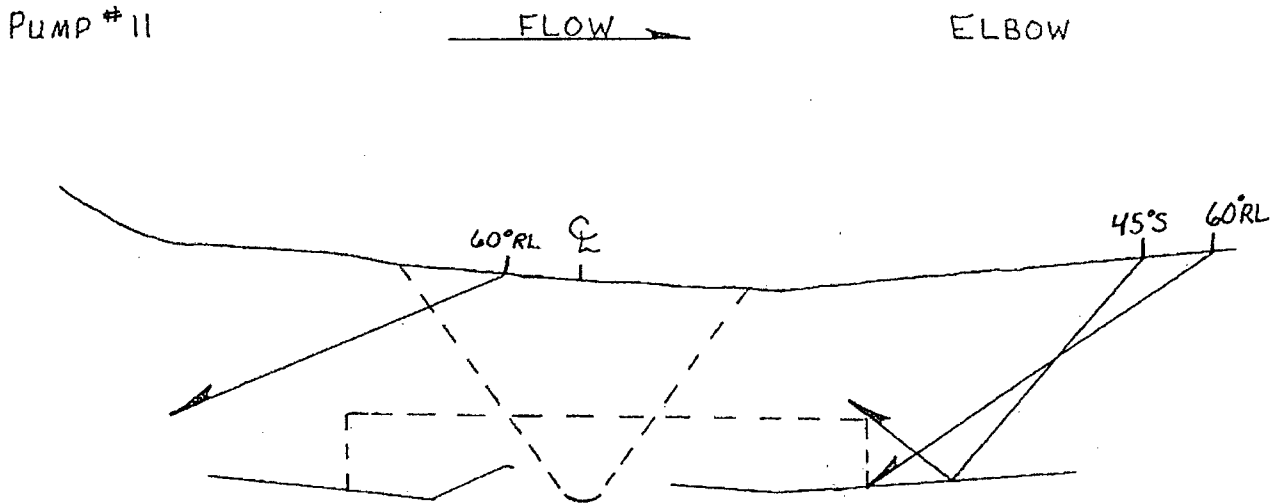
Limitation: Single side examination due to configuration. No scan from pump side.

Search Units: 45 degree shear wave, 0.375' round, 1.5 mhz.
60 degree refracted longitudinal wave, 2(10x18) mm rectangular, 2.0 mhz.

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 does not claim Code coverage on the far side of the weld. Therefore, the maximum Code coverage is 50%.



**NINE MILE POINT UNIT 1
THIRD INSERVICE INSPECTION INTERVAL
10 CFR 50.55a REQUEST NUMBER ISI-25, Rev. 00**

Figure 5

Weld Identification: 32-WD-002

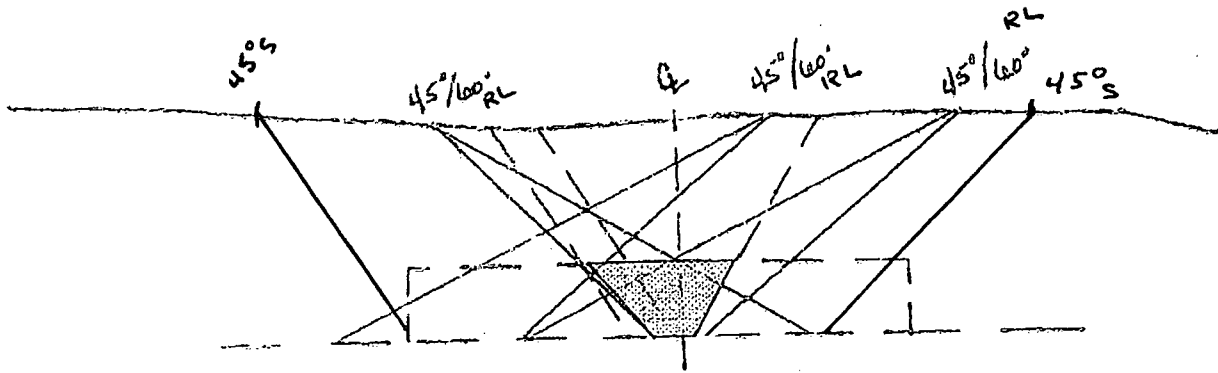
Weld Configuration: Nozzle-to-Safe End

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.

Thickness: 1.42"

Coverage Achieved: 62.5%



NINE MILE POINT UNIT 1
THIRD INSERVICE INSPECTION INTERVAL
10 CFR 50.55a REQUEST NUMBER ISI-25, Rev. 00

Figure 6

Weld Identification: 32-WD-045

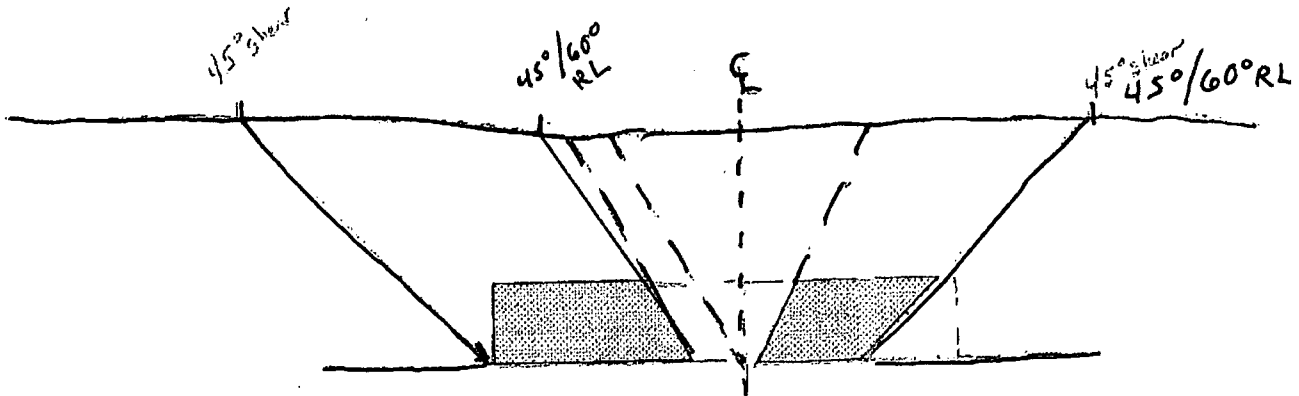
Weld Configuration: Nozzle-to-Safe End

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.

Thickness: 1.42"

Coverage Achieved: 62.5%



**NINE MILE POINT UNIT 1
THIRD INSERVICE INSPECTION INTERVAL
10 CFR 50.55a REQUEST NUMBER ISI-25, Rev. 00**

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.

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 does not claim Code coverage on the far side of the weld. Therefore, the maximum Code coverage is 50%.

