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Michael E. Mason
Licensing Manager, Acting
Waterford 3

W3F1-2012-0099

November 30, 2012

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

Subject: Waterford 3 Request for Alternative W3-ISI-021, ASME Code Case N-770-1 Baseline Examination Request for Alternative
Waterford Steam Electric Station, Unit 3
Docket No. 50-382
License No. NPF-38

Dear Sir or Madam:

Pursuant to 10 CFR 50.55a(a)(3)(i), Entergy Operations, Inc. (Entergy) hereby requests NRC approval of the attached Inservice Inspection (ISI) Request for Alternative for Waterford Steam Electric Station Unit 3 (WF3). This alternative is for the current third ten-year ISI interval.

The request is associated with the use of an alternative to the requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Code Case N-770-1 as conditioned in the Final Rule 10 CFR 50.55a(g)(6)(ii)(F)(3), dated June 21, 2011.

To support the startup of WF3 following its refueling outage in the Fall of 2012, Entergy requests approval of this alternative by December 21, 2012.

This letter contains one commitment. If you have any questions or require additional information, please contact the acting Licensing Manager, Michael E. Mason, at (504) 739-6673.

Sincerely,

MEM/RJP

Attachments:
1) Request for Alternative W3-ISI-021
2) Weld 08-007 Examination Report: Refueling Outage 18
3) List of Regulatory Commitments

A047
NRR

cc: Mr. Elmo E. Collins, Jr. RidsRgn4MailCenter@nrc.gov
Regional Administrator
U. S. Nuclear Regulatory Commission
Region IV
1600 E. Lamar Blvd.
Arlington, TX 76011-4511

NRC Senior Resident Inspector Marlone.Davis@nrc.gov
Waterford Steam Electric Station Unit 3 Dean.Overland@nrc.gov
P.O. Box 822
Killona, LA 70066-0751

U. S. Nuclear Regulatory Commission Kaly.Kalyanam@nrc.gov
Attn: Mr. N. Kalyanam
Mail Stop O-07D1
Washington, DC 20555-0001

Attachment 1 to W3F1-2012-0099

Request for Alternative W3-ISI-021

Waterford 3 Request for Alternative
In Accordance with 10 CFR50.55a(g)(3)(i)
--Alternative Provides Acceptable Level of Quality and Safety--

1. ASME Code Component Affected

Class 1 Weld 08-007, RCP-1A Cold Leg Charging Nozzle

2. Applicable Code Edition

Code of Record:	AMSE Section XI, 2001 Edition through 2003 Addenda as amended by 10CFR50.55a (2011) ASME Code Case N-770-1
Code Class:	American Society of Mechanical Engineers (ASME) Class 1
Code Case N-770-1:	Item B – Unmitigated butt weld at cold leg operating temperature
Unit / Inspection Interval:	Waterford Steam Electric Station, Unit 3 / Third Ten-Year Interval May 31, 2008 through June 30, 2017

3. Applicable Code Requirement

The American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Rules for Inservice Inspection of Nuclear Power Plant Components, Section XI, 2001 Edition through 2003 Addenda, as amended by 10CFR50.55a (2011).

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

A. 10 CFR 50.55a(g)(6)(ii)(F)(1), effective date August 22, 2011, requires "licensees of existing, operating pressurized water reactors as of July 21,2011, shall implement the requirements of ASME Code Case N-770-1, subject to the conditions specified in paragraphs (g)(6)(ii)(F)(2) through (g)(6)(ii)(F)(10) of this section, by the first refueling outage after August 22, 2011."

B. Regulation 10 CFR 50.55a(g)(6)(ii)(F)(3) states that baseline examinations for welds in Code Case N-770-1, Table 1, Inspection Items A-1, A-2, and B, "shall be completed by the end of the next refueling outage after January 20, 2012.

Weld 08-007 is classified as Inspection item B (described below) for which visual and essentially 100% volumetric examination, as amended by 10 CFR 50.55a(g)(6)(ii)(F)(4), are required.

ASME Code Case N-770-1 as Amended by 10CFR50.55a(g)(6)(ii)(F)(4)		
Class 1 PWR Pressure Retaining Dissimilar Metal Piping and Vessel Nozzle Butt Welds Containing Alloy 82/182		
Parts Examined	Insp Item	Extent and Frequency of Examination
Unmitigated butt weld at Cold Leg operating temperature (-2410) ≥ 525°F (274°C) and < 580°F (304°C)	B	Bare metal visual examination once per interval Essentially 100% volumetric examination for axial and circumferential flaws in accordance with the applicable requirements of ASME Section XI, Appendix VIII, every second inspection period not to exceed 7 years. Baseline examinations shall be completed by the end of the next refueling outage after January 20, 2012.

4. Reason for Request

Class 1 Weld 08-007, RCP-1A Cold Leg Charging Nozzle, is required to have a visual and essentially 100% volumetric examination, as amended by 10 CFR 50.55a(g)(6)(ii)(F)(4), prior to startup following Refueling Outage 18, which is currently in progress.

There is not a currently qualified procedure to examine Weld 08-007 due to the weld configuration being outside the Performance Demonstrative Initiative (PDI) qualified mockups and procedures for the thickness and tapered angle ranges.

Prior to the current refueling outage (RF18), Entergy requested Electric Power Research Institute (EPRI) to review the dissimilar metal (DM) welds scheduled to be performed during the outage, to confirm these welds were covered by the PDI mockups and procedures. As a result of this assessment, EPRI identified weld 08-007 as potentially being outside of the configurations covered by PDI mockups and EPRI procedures. Entergy requested EPRI to expand the EPRI DM Phased Array procedure to include the Waterford Unit 3 Charging nozzle tapered angle. In order to ensure that the 08-007 component would be covered under this expansion, it was necessary for Waterford 3 to obtain additional measurements of the weld during the outage to verify the thicknesses and diameters were within the PDI configuration mockup qualified ranges. Following EPRI's review of the additional field measurements taken, they concluded the weld thickness and tapered angles were outside of the PDI mockup range of applicability.

Entergy collaborated with our Ultrasonic Examination (UT) vendor to determine what technique would provide a reliable examination with high confidence of the detection of an ID connected planer flaws in either the axial or circumferential directions. The examination technique recommended and performed in Refueling Outage 18 was the technique qualified by EPRI for the other Charging Nozzle. The resultant examination volume coverage was 100% of the susceptible material. See Attachment 2, Weld 08-007 Examination Report: Refueling Outage 18, for technique information and examination results. This technique was qualified and used on other components with similar configurations, tapers, and thicknesses.

Pursuant to 10 CFR 50.55a(a)(3)(i), Entergy Operations, Inc. (Entergy) requests an alternative to the requirements of Code Case N770-1, as conditioned in the Final Rule 10

CFR 50.55a(g)(6)(ii)(F)(3) for the Fall 2012 Waterford 3 refueling outage. Entergy is requesting permission to defer the 10 CFR50.55a(g)(6)(ii)(F)(3) baseline volumetric examination of weld 08-007, 2 inch cold leg charging nozzle to safe end DM butt weld, for one cycle past the required deadline specified in 10 CFR 50.55a(g)(6)(ii)(F)(3).

5. Proposed Alternative and Basis for Use

Proposed Alternative

Entergy will perform appropriate actions to comply with ASME Section XI Code Case N-770-1 baseline examinations for dissimilar metal weld 08-007, which did not meet the examination requirements during the 2012 refueling outage, prior to startup from the planned Spring 2014 refueling outage. Actions to accomplish compliance with ASME Section XI Code Case N-770-1 consist of the following:

1. Entergy will work with EPRI to design a mock up that incorporates the configuration of the Waterford 3 08-007 DM weld.
2. This mock-up will be used to demonstrate/qualify the UT technique utilized during the Fall 2012 refueling outage (RF18). This UT technique will be performed in accordance with the PDI Site Specific Configuration Mockup Requirements for DM Welds or through procedure expansion in accordance with the PDI Program. If the demonstration should determine that additional scanning is required, Entergy will reexamine weld 08-007 during the scheduled Spring 2014 refueling outage using the newly qualified PDI technique for this configuration.

Basis for Use

Entergy's Waterford Steam Electric Station Unit 3 plant is a Combustion Engineering design. Weld 08-007 on the charging nozzle joins a SA-182 nozzle with SA-240-304L stainless steel cladding and ENiCrFe-3 bevel face buttering to a SA-182, Type 316 stainless steel safe end.

A "best effort" examination technique was performed on Weld 08-007 using the technique qualified by EPRI for the Charging Nozzle tapered configuration. EPRI procedure for Manual Phased Array Ultrasonic examination of Dissimilar Metal Welds (EPRI-DMW-PA-1) provides for this technique, and was successfully used on this and other components with similar configurations, tapers, and thicknesses.

The equipment, procedure, and personnel utilized for the performance of the "best effort" examination were qualified in accordance with the requirements of ASME Section XI, Appendix VIII, Supplement 10, as implemented through the Performance Demonstration Initiative (PDI) program. Our Vendor was qualified through the Performance Demonstration Initiative (PDI) and we provided Entergy oversight of the process. Procedure EPRI-DMW-PA-1 Revision 2, for the Phased Array Ultrasonic Examination of Dissimilar Metal Welds, was used to perform the examinations.

While the thickness and tapers of weld 08-007 were outside the EPRI qualified ranges, the technique used provided a reliable examination with high confidence of the detection of an ID connected planer flaw in either the axial or circumferential directions. Entergy considers this a "best effort" examination and fully believes that the techniques employed for this

examination were sufficient and capable of detecting any ID connected flaws, thus providing assurance the weld is acceptable. Note, there was an acceptable recordable spot indication found on one scan direction of 32% of reference in the safe end base metal outside of the examination volume with the indication being seen in the other 3 scanning directions but at below recordable amplitudes.

The Materials Reliability Program document MRP-139 "Primary System Piping Butt Weld Inspection and Evaluation Guidelines" was not applicable for welds less than 4 inch NPS. Issuance of the revised final rule 10CFR50.55a effective on August 22, 2011 to require implementation of ASME Code Case N-770-1 made UT exams applicable for welds up to 2 inch NPS. Therefore, this weld was never inspected using a PDI qualified examination.

Weld 08-007 is found in cold leg temperature (Tcold) regions of the system. This means there is a lower probability of crack initiation, and a slower crack growth rate. This weld is also very highly flaw tolerant, as demonstrated in the MRP-109 report (reference 1). PWSCC is least likely to occur in cold leg temperature penetrations. No service-induced flaws have been found in small diameter pipes, even though most of the plants of interest have been in service for over 25 years (reference 2).

If a flaw in this nozzle to safe end weld led to leakage, the leak detection methodology presently used by the industry is very sensitive. After a number of recent operating events, the industry imposed an NEI 03-08 "needed" requirement, to improve leak detection capability. As a result, virtually all pressurized water reactors (PWRs) in the United States, including Waterford 3, have a leak detection capability of less than or equal to 0.1 gpm (reference 3). All plants, including Waterford 3, also monitor seven day moving averages of reactor coolant system leak rates.

Action response times following a leak detection vary based on the action level exceeded, and range up to containment entry to identify the source of the leak. Utilities take the commitment of shutdowns due to unidentified leakage seriously.

Action levels have been standardized for all PWRs, and are based on deviations from:
- The seven day rolling average,
- Specific values, and
- The baseline mean.

Leak rate action levels are identified in Pressurized Water Reactor Owners Group (PWROG) report, WCAP-16465 (reference 4), and are stated below:

Each PWR utility is required to implement the following standard action levels for reactor coolant system (RCS) inventory balance in their RCS leakage monitoring program.

A. Action levels on the absolute value of unidentified RCS inventory balance (from surveillance data):

   Level 1 - One seven day rolling average of unidentified RCS inventory balance values greater than 0.1 gpm.

   Level 2 - Two consecutive unidentified RCS inventory balance values greater than 0.15 gpm.

Level 3 - One unidentified RCS inventory balance value greater than 0.3 gpm.

Note: Calculation of the absolute RCS inventory balance values must include the rules for the treatment of negative values and missing observations.

1. Action levels on the deviation from the baseline mean:

Level 1 - Nine consecutive unidentified RCS inventory balance values greater than the baseline mean [~] value.

Level 2 - Two of three consecutive unidentified RCS inventory balance values greater than [~ + 20], where 0 is the baseline standard deviation.

Level 3 - One unidentified RCS inventory balance value greater than [~ +30].

These action levels have been incorporated into Waterford Steam Electric Station Unit 3 operating procedures. The enhanced leak detection capability provides an increased level of safety that if a flaw were to grow through wall, although unlikely, that it would be detected prior to it growing to a safety significant size.

Based on the "best effort" 100% examination volume coverage of weld 08-007 using a qualified technique that just fell out of the acceptable parameters for use, the likelihood that a qualified PDI procedure will support that there are no flaws in the susceptible material, and the existing sensitive leak detection methodology, the proposed alternative provides an acceptable level of quality and safety for identifying degradation from PWSCC prior to a safety significant flaw developing.

6. Duration of Proposed Alternative

The duration of the proposed alternative for Weld 08-007 is until prior to startup following the next WF3 refueling outage planned for the Spring 2014.

7. Precedent

There were no precedents identified for this alternative request.

8. References

1. Material Reliability Program, Alloy 82/182 Pipe Butt Weld Safety Assessment for US PWR Plant Designs (MRP-109): Westinghouse and CE Design Plants, EPRI, Palo Alto, CA: 2005. 1009804.

2. "Changing the Frequency of Inspections for PWSCC Susceptible Welds at Cold Leg Temperature," in Proceedings of PVP2011 ASME Pressure Vessels and Piping Conference (PVP2011-57829), July 17-21, 2011, Baltimore, Maryland, USA.

3. WCAP-16423-NP, Rev. 0, "Pressurized Water Reactor Owners Group Standard Process and Methods for Calculating RCS Leak Rate for Pressurized Water Reactors," Westinghouse Electric Co., September 2006.

4. WCAP-16465-NP, Rev. 0, "Pressurized Water Reactor Owners Group Standard RCS Leakage Action Levels and Response Guidelines for Pressurized Water Reactors," Westinghouse Electric Co., September 2006.

Attachment 2 to W3F1-2012-0099

Weld 08-007 Examination Report: Refueling Outage 18

(This attachment contains 22 pages.)

Entergy

Ultrasonic Examination

Site/Unit:	W3 / 3	Procedure:	URS-UT-PA-DMW-1	Outage No.:	RF-18-ISI
Summary No.:	W3.R1.11.0002	Procedure Rev.:	2	Report No.:	ISI-VE-12-001
Workscope:	ISI	Work Order No.:	284096	Page:	1 of 1

Code: ASME Sec XI, 2001 Ed w/03 Add Cat./Item: R-A/R1.11 Location: LOOP 1A

Drawing No.: E-3029-LW3-RC-17 Description: 2" CHARGING NOZZLE TO SAFE-END WELD

System ID: CH

Component ID: 08-007 Size/Length: 2 in. Thickness/Diameter: N/A

Limitations: None

Comments:

Manual Phased Array Examination performed by URS-WGI.
Code Case N-770-1 Baseline Examination.
Vendor report URS-PADM-08-007 is attached.

Results: Accept ☑ Reject ☐ Info ☐ N/A

Percent Of Coverage Obtained > 90%: Yes - 100% Reviewed Previous Data: N/A

Examiner	Level	Signature	Date	Reviewer	Signature	Date
Briley, Jr., Robert E. (Signature on URS report			11/17/2012	N/A		
Examiner	Level	Signature	Date	Site Review	Signature	Date
Briley, Jordon M. (Signature on URS report)			11/17/2012	Briley, Mike (Signature on URS report)		11/17/2012
Other	Level N/A	Signature	Date	ANII Review	Signature	Date
N/A				Melder, Alan (Signature on URS report)		11/17/2012

Vendor Examination For UT

URS

EXAMINATION SUMMARY SHEET REPORT NO.: **URS-PADM-08-007**

Site: **Waterford 3** Component ID: **08-007**

Outage: **RF18** Description: **RCP 1A – 2" Charging Nozzle**

System: **CH** ASME Cat.: **R-A** ASME Item: **R1.11** Aug. Req.: **N-770-1**

2" Charging Nozzle - 18 Taper

Scan Direction	GEIT Search Unit	GEIT Wedge	OMNIscan Setup File	Contour Dia.	Wave Mode	Probe Angles	Focus	Notch	Angle	Approx. Theoretical MP(in)	Measured MP	Db	% FSH
Axial LKDNT	115-000-545	360-152-321	ANO 545 321 LONG.ops	7.0"	Long	25° - 80°	1.25"	SDH 1"	50°	1.555	1.559	38.4	83.0
Axial LKDNT	115-000-545	360-152-321	ANO 545 321 SHEAR.ops	7.0"	Shear	25° - 65°	1.25"	SDH 1"	50°	1.555	1.570	39.3	79.5
Axial LKDNT	115-000-485	360-152-331	ANO 485 331 LONG.ops	4.0"	Long	25° - 80°	1.25"	6	50°	1.589	1.589	41.0	80.1
Axial LKUPT	115-000-485	360-152-331	ANO 485 331 SHEAR.ops	4.0"	Shear	25° - 65°	1.25"	6	30°	1.179	1.178	41.0	82.2
Axial LKUPT	115-000-485	360-152-331	ANO 485 331 LONG.ops	4.0"	Long	25° - 80°	1.25"	6	30°	1.179	1.180	41.0	87.2
Axial LKDNT	115-000-545	360-152-325	ANO 545 325 LONG.ops	5.5"	Long	25° - 80°	1.25"	8	50°	1.881	1.882	41.0	82.6
Axial LKDNT	115-000-545	360-152-325	ANO 545 325 SHEAR.ops	5.5"	Shear	25° - 65°	1.25"	8	50°	1.881	1.880	25.0	81.4
CIRC	115-000-485	360-152-430	ANO 485 430 LONG.ops	4.0"	Long	0° - 70°	1.25"	5	25°	1.278	1.276	37.2	80.2
CIRC	115-000-485	360-152-430	ANO 485 430 SHEAR.ops	4.0"	Shear	25° - 65°	1.25"	5	25°	1.278	1.278	45.3	86.8
CIRC	115-000-485	360-152-432	ANO 485 432 LONG.ops	4.0"	Long	0° - 70°	1.25"	5	25°	1.278	1.278	46.0	84.2
CIRC	115-000-485	360-152-432	ANO 485 432 SHEAR.ops	4.0"	Shear	25° - 65°	1.25"	5	25°	1.278	1.279	46.0	85.0
CIRC	115-000-485	360-152-410	ANO 485 410 LONG.ops	6.25"	Long	0° - 70°	1.25"	7	25°	1.571	1.592	29.9	80.6
CIRC	115-000-485	360-152-410	ANO 485 410 SHEAR.ops	6.25"	Shear	25° - 65°	1.25"	7	25°	1.571	1.566	40.5	79.1
CIRC	115-000-485	360-152-412	ANO 485 412 LONG.ops	6.25"	Long	0° - 70°	1.25"	7	25°	1.571	1.551	26.1	83.0
CIRC	115-000-485	360-152-412	ANO 485 412 SHEAR.ops	6.25"	Shear	25° - 65°	1.25"	7	25°	1.571	1.587	42.7	84.5

Examination Results:

The thickness and tapers associated with this component did not fall within qualified parameters of the EPRI Procedure, 1016645 for manual Phased Array UT of DM Welds. This exam was performed as a best effort utilizing the qualified techniques for similar nozzle configurations.

During the examination of the above referenced weld, no indications associated with PWSCC were recorded.

Examinations for the detection of circumferential flaws were performed utilizing a manual raster patterns and phased array focal laws in ranges from 0°and 25° to 70° and 80° respectively. These examinations were performed from both the upstream and downstream sides of the DM weld. Inside surface geometry, acoustic interface, non relevant indications, beam re-direct and embedded reflectors were seen but at below recordable amplitudes. 100% of the code required exam volume was ensonified in both directions.

Examinations for the detection of axially oriented flaws were performed utilizing manual raster patterns and focal laws and phased array focal laws in a range from 25° to 65°. These examinations were performed in both the clockwise and counterclockwise directions on the upstream and downstream sides of the weld. Inside surface geometry, embedded reflectors and non-relevant indications were seen but at below recordable amplitudes. 100% of the code required exam volume was ensonified in both directions.

Surface conditioning was performed prior to examination to meet procedural , ground flush requirements allowing for continuous scanning and access to the nozzle ID without loss of contact

First UT exam, no previous data available for review.

These examinations were performed under Work Order: 284096

CRV Coverage (≥ 90%): ☒ Yes __% ☐ No _____% See results summary

Examination Results: Acceptable ☒ Rejectable ☐ See results summary

This Summary and the following data sheets have been reviewed and accepted by the following personnel:

Prepared By / Level / Date: Jordon Briley Level II 11-17-12

Robert E. Briley LTI 11/17/12

Utility Review / Date: M Briley 11/17/12

ANII Review / Date: 11-17-12

RWP: 20120613

Dose (mr):

Page 1 of 21

URS

ULTRASONIC PHASED ARRAY CALIBRATION / EXAMINATION RECORD

Sample:	Charging Noz. 08-007	**Calibration Data Sheet:**	URS-PADM-08-007
Plant/Unit:	WF/3	**Procedure No:**	URS-UT-PA-DMW-1 REV. 2

Wedge	
Manufacturer:	GEIT
Model:	360-152-321
Contour Diameter:	7.0"
Scan Direction:	Axial
Exit Point Location:	0.90"
Zero Reference:	Front of Probe

Comments:
See attached .jpeg Report Print-Out For Instrument Settings
See Table 1 for wedge and transducer essential parameters

CRV Coverage (≥90%): (Yes) 100 % No N/A %
Examination Results: (Acceptable) Rejectable

Instrument	
Manufacturer:	Olympus
Model:	OmniScan-MX
Serial Number:	OMNI-102251
Software Revision:	OmniScan 2.0R18
Instrument Settings:	See HTM Report
Instrument Settings not found on .jpg report form:	

Transducer	
Manufacturer:	GEIT
Model:	115-000-545
Serial Number:	01W17P
See Table 1 for transducer essential parameters	
Transducer Integral Cable	
Type:	See cable diagram
Length:	See cable diagram
Connector Type:	See cable diagram
Number of Inactive Elements:	Transmit: Receive:

Calibration Data Files						
Focal Law File:	545 321 LONG.law					
Angles Generated (Circle):	[25 – 80° (Longitudinal)] Or 25– 65 ° (Shear)					
Wave Mode (Circle):	[Longitudinal] Or Shear					
Focal Sound Path (Circle):	0.75"	1.00"	[1.25"]	2.00"	3.00"	5.25"
Set-up File:	ANO 545 321 LONG.ops					

Calibration Reflector Data

Calibration Block ID: 6" OD-AX-03 — **Couplant:** Ultragel II Batch # 09225

Calibration Reflector Notch (SDH) 1" Radius	**Angle**	**% FSH**	**Ref. Sensitivity**	**UT Response Location**	**(Circle)**
	50	83	38.4	1.009	(Metal Path) Depth

Reflector Depth: 1 " (Angle Verification-Circ or Ax Scans)	**True MP**	**Measured MP**	**% Error**
	1.555	1.559	0.004
	Displayed Angle	**Measured Angle**	**% Error**
	50	50	0

Simulator Reflector Notch SDH (Radius) 1"	**Angle**	**% FSH**	**Ref. Sensitivity**	**UT Response Location**	**(Circle)**
	50	82.6	38.4	1 "	(Metal Path) Depth

Calibration Performed	**Examiner**	**Level**	**Date - Time**
Initial:	Robert E. Briley Jr.	II	11/9/12 @ 0910
Intermediate:	Jordon M. Briley	II	11/9/12 @ 1539
Final:	Robert E. Briley Jr.	II	11/9/12 @ 1922
			Date
Entergy Review:		III	11/17/12
ANII Review:		N/A	11-17-12

URS

ULTRASONIC PHASED ARRAY CALIBRATION / EXAMINATION RECORD

Sample:	Charging Noz. 08-007	**Calibration Data Sheet:**	URS-PADM-08-007
Plant/Unit:	WF/3	**Procedure No:**	URS-UT-PA-DMW-1 REV. 2

Wedge	
Manufacturer:	GEIT
Model:	360-152-321
Contour Diameter:	7.0"
Scan Direction:	Axial
Exit Point Location:	0.90"
Zero Reference:	Front of Probe

Comments:
See attached .jpeg Report Print-Out For Instrument Settings
See Table 1 for wedge and transducer essential parameters

CRV Coverage (≥ 90%): (Yes) 100 % No N/A %
Examination Results: (Acceptable) Rejectable

Instrument	
Manufacturer:	Olympus
Model:	OmniScan-MX
Serial Number:	OMNI-102251
Software Revision:	OmniScan 2.0R18
Instrument Settings:	See HTM Report
Instrument Settings not found on .jpg report form:	

Transducer	
Manufacturer:	GEIT
Model:	115-000-545
Serial Number:	01W17P
See Table 1 for transducer essential parameters	
Transducer Integral Cable	
Type:	See cable diagram
Length:	See cable diagram
Connector Type:	See cable diagram
Number of Inactive Elements:	Transmit: Receive:

Calibration Data Files						
Focal Law File:	545 321 SHEAR.law					
Angles Generated (Circle):	25 – 80° (Longitudinal) Or [25– 65 ° (Shear)]					
Wave Mode (Circle):	Longitudinal Or [Shear]					
Focal Sound Path (Circle):	0.75"	1.00"	[1.25"]	2.00"	3.00"	5.25"
Set-up File:	ANO 545 321 SHEAR.ops					

Calibration Reflector Data

Calibration Block ID: 6" OD-AX-03 — **Couplant:** Ultragel II Batch: 09225

Calibration Reflector Notch (SDH) 1" Radius	**Angle**	**% FSH**	**Ref. Sensitivity**	**UT Response Location**	**(Circle)**
	50	79.5	39.3	1.002	(Metal Path) Depth

Reflector Depth:____" (Angle Verification-Circ or Ax Scans)	**True MP** 1.555	**Measured MP** 1.570	**% Error** 0.014
	Displayed Angle 50	**Measured Angle** 50	**% Error** 0

Simulator Reflector Notch SDH (Radius) 1"	**Angle**	**% FSH**	**Ref. Sensitivity**	**UT Response Location**	**(Circle)**
	50	90	26	1	(Metal Path) Depth

Calibration Performed	**Examiner**	**Level**	**Date - Time**
Initial:	Robert E. Briley Jr.	II	11/9/12 @ 0914
Intermediate:	Jordon M. Briley	II	11/9/12 @ 1534
Final:	Robert E. Briley Jr.	II	11/9/12 @ 1926
			Date
Entergy Review:		III	11/17/12
ANII Review:		N/A	11-17-12

URS

ULTRASONIC PHASED ARRAY CALIBRATION / EXAMINATION RECORD

Sample:	Charging Noz. 08-007	**Calibration Data Sheet:**	URS-PADM-08-007
Plant/Unit:	WF/3	**Procedure No:**	URS-UT-PA-DMW-1 REV.2

Wedge	
Manufacturer:	GEIT
Model:	360-152-325
Contour Diameter:	5.5"
Scan Direction:	Axial
Exit Point Location:	0.90"
Zero Reference:	Front of Probe

Comments:
See attached .jpeg Report Print-Out For Instrument Settings
See Table 1 for wedge and transducer essential parameters

CRV Coverage (≥ 90%): (Yes) 100 % No N/A %
Examination Results: (Acceptable) Rejectable

Instrument	
Manufacturer:	Olympus
Model:	OmniScan-MX
Serial Number:	OMNI-102251
Software Revision:	OmniScan 2.0R18
Instrument Settings:	See HTM Report
Instrument Settings not found on .jpg report form:	

Transducer	
Manufacturer:	GEIT
Model:	115-000-545
Serial Number:	01W17P
See Table 1 for transducer essential parameters	
Transducer Integral Cable	
Type:	See cable diagram
Length:	See cable diagram
Connector Type:	See cable diagram
Number of Inactive Elements:	Transmit: Receive:

Calibration Data Files						
Focal Law File:	545 325 LONG.law					
Angles Generated (Circle):	[25 – 80° (Longitudinal)] Or 25– 65 ° (Shear)					
Wave Mode (Circle):	[Longitudinal] Or Shear					
Focal Sound Path (Circle):	0.75"	1.00"	[1.25"]	2.00"	3.00"	5.25"
Set-up File:	ANO 545 325 LONG.ops					

Calibration Reflector Data

Calibration Block ID: 2.8-5.4-14DG-304SS-1 — **Couplant:** Ultrage II Batch: 09225

	Angle	**% FSH**	**Ref. Sensitivity**	**UT Response Location**		**(Circle)**
Calibration Reflector (Notch) 8 SDH Radius	50	82.6	41	1.212		(Metal Path) Depth
Reflector Depth: .16" (Angle Verification-Circ or Ax Scans)				**True MP** 1.881	**Measured MP** 1.882	**% Error** 0.001
				Displayed Angle 50	**Measured Angle** 50	**% Error** 0
	Angle	**% FSH**	**Ref. Sensitivity**	**UT Response Location**		**(Circle)**
Simulator Reflector Notch (SDH) 1" Radius	50	80.6	35.2	/		(Metal Path) Depth

Calibration Performed	**Examiner**	**Level**	**Date - Time**
Initial:	Robert E. Briley Jr.	II	11/9/12 @ 0801
Intermediate:	Jordon M. Briley	II	11/9/12 @ 1545
Final:	Robert E. Briley Jr.	II	11/9/12 @ 1832
			Date
Entergy Review:		III	11/17/12
ANII Review:		N/A	11-17-12

URS

ULTRASONIC PHASED ARRAY CALIBRATION / EXAMINATION RECORD

Sample:	Charging Noz. 08-007	**Calibration Data Sheet:**	URS-PADM-08-007
Plant/Unit:	WF/3	**Procedure No:**	URS-UT-PA-DMW-1 REV. 2

Wedge	
Manufacturer:	GEIT
Model:	360-152-325
Contour Diameter:	5.5"
Scan Direction:	Axial
Exit Point Location:	0.90"
Zero Reference:	Front of Probe

Comments:
See attached .jpeg Report Print-Out For Instrument Settings
See Table 1 for wedge and transducer essential parameters

CRV Coverage (≥ 90%): (Yes) 100 % No N/A %
Examination Results: (Acceptable) Rejectable

Instrument	
Manufacturer:	Olympus
Model:	OmniScan-MX
Serial Number:	OMNI-102251
Software Revision:	OmniScan 2.0R18
Instrument Settings:	See HTM Report
Instrument Settings not found on .jpg report form:	

Transducer	
Manufacturer:	GEIT
Model:	115-000-545
Serial Number:	01W17P
See Table 1 for transducer essential parameters	
Transducer Integral Cable	
Type:	See cable diagram
Length:	See cable diagram
Connector Type:	See cable diagram
Number of Inactive Elements:	Transmit: Receive:

Calibration Data Files						
Focal Law File:	545 325 SHEAR.law					
Angles Generated (Circle):	0 – 70° (Longitudinal) Or [25– 65 ° (Shear)]					
Wave Mode (Circle):	Longitudinal Or [Shear]					
Focal Sound Path (Circle):	0.75"	1.00"	[1.25"]	2.00"	3.00"	5.25"
Set-up File:	ANO 545 325 SHEAR.ops					

Calibration Reflector Data

Calibration Block ID: 2.8-5.4-14DG-304SS-1 **Couplant:** Ultragel II Batch: 09225

Calibration Reflector	**Angle**	**% FSH**	**Ref. Sensitivity**	**UT Response Location**	**(Circle)**
(Notch) 8 SDH Radius	50	81.4	25	1.208	(Metal Path) Depth

Reflector Depth: .16" (Angle Verification-Circ or Ax Scans)	**True MP**	**Measured MP**	**% Error**
	1.881	1.880	0.001
	Displayed Angle	**Measured Angle**	**% Error**
	50	50	0

Simulator Reflector	**Angle**	**% FSH**	**Ref. Sensitivity**	**UT Response Location**	**(Circle)**
Notch (SDH) 1" Radius	50	84	26	/	(Metal Path) Depth

Calibration Performed	**Examiner**	**Level**	**Date - Time**
Initial:	Robert E. Briley Jr.	II	11/9/12 @ 0805
Intermediate:	Jordon M. Briley	II	11/9/12 @ 1552
Final:	Robert E. Briley Jr.	II	11/9/12 @ 1834
			Date
Entergy Review:		III	11/17/12
ANII Review:		N/A	11-17-12

URS

ULTRASONIC PHASED ARRAY CALIBRATION / EXAMINATION RECORD

Sample:	Charging Noz. 08-007	**Calibration Data Sheet:**	URS-PADM-08-007
Plant/Unit:	WF/3	**Procedure No:**	URS-UT-PA-DMW-1 REV. 2

Wedge	
Manufacturer:	GEIT
Model:	360-152-331
Contour Diameter:	4.0"
Scan Direction:	Axial
Exit Point Location:	0.90"
Zero Reference:	Front of Probe

Comments:
See attached .jpeg Report Print-Out For Instrument Settings
See Table 1 for wedge and transducer essential parameters

CRV Coverage (≥ 90%): (Yes) 100 % No N/A %
Examination Results: (Acceptable) Rejectable

Instrument	
Manufacturer:	Olympus
Model:	OmniScan-MX
Serial Number:	OMNI-102251
Software Revision:	OmniScan 2.0R18
Instrument Settings:	See HTM Report
Instrument Settings not found on .jpg report form:	

Transducer	
Manufacturer:	GEIT
Model:	115-000-485
Serial Number:	023JYV
See Table 1 for transducer essential parameters	
Transducer Integral Cable	
Type:	See cable diagram
Length:	See cable diagram
Connector Type:	See cable diagram
Number of Inactive Elements:	Transmit: Receive:

Calibration Data Files						
Focal Law File:	485 331 LONG.law					
Angles Generated (Circle):	(25 – 80° (Longitudinal))	Or 25– 65 ° (Shear)				
Wave Mode (Circle):	(Longitudinal)	Or Shear				
Focal Sound Path (Circle):	0.75"	1.00"	(1.25")	2.00"	3.00"	5.25"
Set-up File:	ANO 485 331 LONG.ops					

Calibration Reflector Data

Calibration Block ID: 2.8-5.4-14DG-304SS-1 — **Couplant:** Ultragel II Batch: 09225

	Angle	% FSH	Ref. Sensitivity	UT Response Location	(Circle)
Calibration Reflector (Notch) 6 SDH Radius	50	80	41	1.020	(Metal Path) Depth
Reflector Depth: .137" (Angle Verification-Circ or Ax Scans)				True MP 1.589 / Measured MP 1.589 / % Error 0.00	
				Displayed Angle 50 / Measured Angle 50 / % Error 0	
	Angle	% FSH	Ref. Sensitivity	UT Response Location	(Circle)
Simulator Reflector Notch (SDH) 1" Radius	50	88.1	41	/	(Metal Path) Depth

Calibration Performed	**Examiner**	**Level**	**Date - Time**
Initial:	Robert E. Briley Jr.	II	11/9/12 @ 0810
Intermediate:	Jordon M. Briley	II	11/9/12 @ 1602
Final:	Robert E. Briley Jr.	II	11/9/12 @ 1837
			Date
Entergy Review:		III	11/17/12
ANII Review:		N/A	11-19-12

URS

ULTRASONIC PHASED ARRAY CALIBRATION / EXAMINATION RECORD

Sample:	Charging Noz. 08-007	**Calibration Data Sheet:**	URS-PADM-08-007
Plant/Unit:	WF/3	**Procedure No:**	URS-UT-PA-DMW-1 REV. 2

Wedge	
Manufacturer:	GEIT
Model:	360-152-331
Contour Diameter:	4.0"
Scan Direction:	Axial
Exit Point Location:	0.90"
Zero Reference:	Front of Probe

Comments:
See attached .jpeg Report Print-Out For Instrument Settings
See Table 1 for wedge and transducer essential parameters

CRV Coverage (≥ 90%): (Yes) 100 % No N/A %
Examination Results: (Acceptable) Rejectable

Instrument	
Manufacturer:	Olympus
Model:	OmniScan-MX
Serial Number:	OMNI-102251
Software Revision:	OmniScan 2.0R18
Instrument Settings:	See HTM Report
Instrument Settings not found on .jpg report form:	

Transducer	
Manufacturer:	GEIT
Model:	115-000-485
Serial Number:	023JYV
See Table 1 for transducer essential parameters	
Transducer Integral Cable	
Type:	See cable diagram
Length:	See cable diagram
Connector Type:	See cable diagram
Number of Inactive Elements:	Transmit: Receive:

Calibration Data Files						
Focal Law File:	485 331 LONG.law					
Angles Generated (Circle):	[25 – 80° (Longitudinal)] Or 25– 65 ° (Shear)					
Wave Mode (Circle):	[Longitudinal] Or Shear					
Focal Sound Path (Circle):	0.75"	1.00"	[1.25"]	2.00"	3.00"	5.25"
Set-up File:	ANO 485 331 LONG.ops					

Calibration Reflector Data						
Calibration Block ID: 2.8-5.4-14DG-304SS-1				**Couplant:** Ultragel II Batch: 09275		
Calibration Reflector (Notch) 6 SDH Radius	**Angle** 30	**% FSH** 87.8	**Ref. Sensitivity** 41	**UT Response Location** 1.023		**(Circle)** (Metal Path) Depth
Reflector Depth: .137 " (Angle Verification-Circ or Ax Scans)				**True MP** 1.179	**Measured MP** 1.180	**% Error** 0.001
				Displayed Angle 30	**Measured Angle** 30	**% Error** 0
Simulator Reflector Notch (SDH) 1" Radius	**Angle** 30	**% FSH** 82.1	**Ref. Sensitivity** 41	**UT Response Location** /		**(Circle)** (Metal Path) Depth

Calibration Performed	**Examiner**	**Level**	**Date - Time**
Initial:	Robert E. Briley Jr.	II	11/9/12 @ 0810
Intermediate:	Jordon M. Briley	II	11/9/12 @ 1602
Final:	Robert E. Briley Jr.	II	11/9/12 @ 1837
			Date
Entergy Review:		III	11/17/12
ANII Review:		N/A	11-17-12

URS

ULTRASONIC PHASED ARRAY CALIBRATION / EXAMINATION RECORD

Sample:	Charging Noz. 08-007	**Calibration Data Sheet:**	URS-PADM-08-007
Plant/Unit:	WF/3	**Procedure No:**	URS-UT-PA-DMW-1 REV. 2

Wedge	
Manufacturer:	GEIT
Model:	360-152-331
Contour Diameter:	4.0"
Scan Direction:	Axial
Exit Point Location:	0.90"
Zero Reference:	Front of Probe

Comments:
See attached .jpeg Report Print-Out For Instrument Settings
See Table 1 for wedge and transducer essential parameters

CRV Coverage (≥ 90%): (Yes) 100 % No N/A %
Examination Results: (Acceptable) Rejectable

Instrument	
Manufacturer:	Olympus
Model:	OmniScan-MX
Serial Number:	OMNI-102251
Software Revision:	OmniScan 2.0R18
Instrument Settings:	See HTM Report
Instrument Settings not found on .jpg report form:	

Transducer	
Manufacturer:	GEIT
Model:	115-000-485
Serial Number:	023JYV
See Table 1 for transducer essential parameters	
Transducer Integral Cable	
Type:	See cable diagram
Length:	See cable diagram
Connector Type:	See cable diagram
Number of Inactive Elements:	Transmit: Receive:

Calibration Data Files						
Focal Law File:	485 331 SHEAR.law					
Angles Generated (Circle):	0 – 70° (Longitudinal) Or (25– 65 ° (Shear))					
Wave Mode (Circle):	Longitudinal Or (Shear)					
Focal Sound Path (Circle):	0.75"	1.00"	(1.25")	2.00"	3.00"	5.25"
Set-up File:	ANO 485 331 SHEAR.ops					

Calibration Reflector Data

Calibration Block ID: 2.8-5.4-14DG-304SS-1 — **Couplant:** Ultragel II Batch :09225

Calibration Reflector	**Angle**	**% FSH**	**Ref. Sensitivity**	**UT Response Location**	**(Circle)**
(Notch) 6 SDH Radius	30	87.8	41	1.020	(Metal Path) Depth

Reflector Depth: .137" (Angle Verification-Circ or Ax Scans)	**True MP** 1.179	**Measured MP** 1.180	**% Error** 0.001
	Displayed Angle 30	**Measured Angle** 30	**% Error** 0

Simulator Reflector	**Angle**	**% FSH**	**Ref. Sensitivity**	**UT Response Location**	**(Circle)**
Notch (SDH) 1" Radius	45	72.4	29	1	(Metal Path) Depth

Calibration Performed	**Examiner**	**Level**	**Date - Time**
Initial:	Robert E. Briley Jr.	II	11/9/12 @ 0819
Intermediate:	Jordon M. Briley	II	11/9/12 @ 1615
Final:	Robert E. Briley Jr.	II	11/9/12 @ 1844
			Date
Entergy Review:		III	11/17/12
ANII Review:		N/A	11-19-12

URS

ULTRASONIC PHASED ARRAY CALIBRATION / EXAMINATION RECORD

Sample:	Charging Noz. 08-007	**Calibration Data Sheet:**	URS-PADM-08-007
Plant/Unit:	WF/3	**Procedure No:**	URS-UT-PA-DMW-1 REV. 2

Wedge	
Manufacturer:	GEIT
Model:	360-152-430
Contour Diameter:	4.0"
Scan Direction:	Circumferential
Exit Point Location:	0.90"
Zero Reference:	Front of Probe

Comments:
See attached .jpeg Report Print-Out For Instrument Settings
See Table 1 for wedge and transducer essential parameters

CRV Coverage (≥ 90%): (Yes) 100 % No N/A %
Examination Results: (Acceptable) Rejectable

Instrument	
Manufacturer:	Olympus
Model:	OmniScan-MX
Serial Number:	OMNI-102251
Software Revision:	OmniScan 2.0R18
Instrument Settings:	See HTM Report
Instrument Settings not found on .jpg report form:	

Transducer	
Manufacturer:	GEIT
Model:	115-000-485
Serial Number:	023JYV
See Table 1 for transducer essential parameters	
Transducer Integral Cable	
Type:	See cable diagram
Length:	See cable diagram
Connector Type:	See cable diagram
Number of Inactive Elements:	Transmit: Receive:

Calibration Data Files						
Focal Law File:	485 430 LONG.law					
Angles Generated (Circle):	[0 – 70° (Longitudinal)]	Or 25– 65 ° (Shear)				
Wave Mode (Circle):	[Longitudinal]	Or Shear				
Focal Sound Path (Circle):	0.75"	1.00"	[1.25"]	2.00"	3.00"	5.25"
Set-up File:	ANO 485 430 LONG.ops					

Calibration Reflector Data						
Calibration Block ID: 2.8-5.4-14DG-304SS-1				**Couplant:** Ultragel II Batch: 09225		
Calibration Reflector (Notch) 5 SDH Radius	**Angle**	**% FSH**	**Ref. Sensitivity**	**UT Response Location**		**(Circle)** (Metal Path) Depth
	25	80.2	37.2	1.158		
Reflector Depth: .15" (Angle Verification-Circ or Ax Scans)				**True MP** 1.278	**Measured MP** 1.276	**% Error** 0.002
				Displayed Angle 25	25	0
Simulator Reflector (Notch) 5 SDH Radius	**Angle**	**% FSH**	**Ref. Sensitivity**	**UT Response Location**		**(Circle)** (Metal Path) Depth
	25	80	37	1.158		

Calibration Performed	**Examiner**	**Level**	**Date - Time**
Initial:	Robert E. Briley Jr.	II	11/9/12 @ 0823
Intermediate:	Jordon M. Briley	II	11/9/12 @ 1620
Final:	Robert E. Briley Jr.	II	11/9/12 @ 1847
			Date
Entergy Review:		III	11/12/12
ANII Review:		N/A	11-19-12

URS

ULTRASONIC PHASED ARRAY CALIBRATION / EXAMINATION RECORD

Sample:	Charging Noz. 08-007	**Calibration Data Sheet:**	URS-PADM-08-007
Plant/Unit:	WF/3	**Procedure No:**	URS-UT-PA-DMW-1 REV. 2

Wedge	
Manufacturer:	GEIT
Model:	360-152-430
Contour Diameter:	4.0"
Scan Direction:	Circumferential
Exit Point Location:	0.90"
Zero Reference:	Front of Probe

Comments:
See attached .jpeg Report Print-Out For Instrument Settings
See Table 1 for wedge and transducer essential parameters

CRV Coverage (≥ 90%): (Yes) 100 % No N/A %
Examination Results: (Acceptable) Rejectable

Instrument	
Manufacturer:	Olympus
Model:	OmniScan-MX
Serial Number:	OMNI-102251
Software Revision:	OmniScan 2.0R18
Instrument Settings:	See HTM Report
Instrument Settings not found on .jpg report form:	

Transducer	
Manufacturer:	GEIT
Model:	115-000-485
Serial Number:	023JYV
See Table 1 for transducer essential parameters	
Transducer Integral Cable	
Type:	See cable diagram
Length:	See cable diagram
Connector Type:	See cable diagram
Number of Inactive Elements:	Transmit: Receive:

Calibration Data Files						
Focal Law File:	485 430 SHEAR.law					
Angles Generated (Circle):	0 – 70° (Longitudinal) Or [25– 65 ° (Shear)]					
Wave Mode (Circle):	Longitudinal Or [Shear]					
Focal Sound Path (Circle):	0.75"	1.00"	[1.25"]	2.00"	3.00"	5.25"
Set-up File:	ANO 485 430 SHEAR.ops					

Calibration Reflector Data

Calibration Block ID: 2.8-5.4-14DG-304SS-1 — **Couplant:** Ultragel II Batch : 09225

	Angle	**% FSH**	**Ref. Sensitivity**	**UT Response Location**	**(Circle)**
Calibration Reflector (Notch) 5 SDH Radius	25	86.2	45.3	1.160	(Metal Path) Depth
Reflector Depth: .15" (Angle Verification-Circ or Ax Scans)				**True MP** 1.278 / **Measured MP** 1.276 / **% Error** 0.002	
				Displayed Angle 25 / **Measured Angle** 25 / **% Error** 0	
	Angle	**% FSH**	**Ref. Sensitivity**	**UT Response Location**	**(Circle)**
Simulator Reflector Notch (SDH) / " Radius	25	86.2	45.3	1.160	(Metal Path) Depth

Calibration Performed	**Examiner**	**Level**	**Date - Time**
Initial:	Robert E. Briley Jr.	II	11/9/12 @ 0856
Intermediate:	Jordon M. Briley	II	11/9/12 @ 1702
Final:	Robert E. Briley Jr.	II	11/9/12 @ 1913
			Date
Entergy Review:		III	11/17/12
ANII Review:		N/A	11-17-12

URS

ULTRASONIC PHASED ARRAY CALIBRATION / EXAMINATION RECORD

Sample:	Charging Noz. 08-007	**Calibration Data Sheet:**	URS-PADM-08-007
Plant/Unit:	WF/3	**Procedure No:**	URS-UT-PA-DMW-1 REV. 2

Wedge	
Manufacturer:	GEIT
Model:	360-152-432
Contour Diameter:	4.0"
Scan Direction:	Circumferential
Exit Point Location:	0.90"
Zero Reference:	Front of Probe

Comments:
See attached .jpeg Report Print-Out For Instrument Settings
See Table 1 for wedge and transducer essential parameters

CRV Coverage (≥ 90%): (Yes) 100 % No N/A %
Examination Results: (Acceptable) Rejectable

Instrument	
Manufacturer:	Olympus
Model:	OmniScan-MX
Serial Number:	OMNI-102251
Software Revision:	OmniScan 2.0R18
Instrument Settings:	See HTM Report
Instrument Settings not found on .jpg report form:	

Transducer	
Manufacturer:	GEIT
Model:	115-000-485
Serial Number:	023JYV
See Table 1 for transducer essential parameters	
Transducer Integral Cable	
Type:	See cable diagram
Length:	See cable diagram
Connector Type:	See cable diagram
Number of Inactive Elements:	Transmit: Receive:

Calibration Data Files						
Focal Law File:	485 432 LONG.law					
Angles Generated (Circle):	[0 – 70° (Longitudinal)]	Or 25– 65 ° (Shear)				
Wave Mode (Circle):	[Longitudinal]	Or Shear				
Focal Sound Path (Circle):	0.75"	1.00"	[1.25"]	2.00"	3.00"	5.25"
Set-up File:	ANO 485 432 LONG.ops					

Calibration Reflector Data

Calibration Block ID: 2.8-5.4-14DG-304SS-1 — **Couplant:** Ultragel II Batch: 09225

Calibration Reflector	**Angle**	**% FSH**	**Ref. Sensitivity**	**UT Response Location**	**(Circle)**
(Notch) 5 SDH Radius	25	85	46	1.157	(Metal Path) Depth

Reflector Depth: .15" (Angle Verification-Circ or Ax Scans)				**True MP** 1.278	**Measured MP** 1.279	**% Error** 0.001
				Displayed Angle 25	**Measured Angle** 25	**% Error** 0

Simulator Reflector	**Angle**	**% FSH**	**Ref. Sensitivity**	**UT Response Location**	**(Circle)**
Notch (SDH 0.6" Radius	37	81	32.1	0.6	(Metal Path) Depth

Calibration Performed	**Examiner**	**Level**	**Date - Time**
Initial:	Robert E. Briley Jr.	II	11/9/12 @ 0833
Intermediate:	Jordon M. Briley	II	11/9/12 @ 1631
Final:	Robert E. Briley Jr.	II	11/9/12 @ 1854
			Date
Entergy Review:		III	11/17/12
ANII Review:		N/A	11-17-12

URS

ULTRASONIC PHASED ARRAY CALIBRATION / EXAMINATION RECORD

Sample:	Charging Noz. 08-007	**Calibration Data Sheet:**	URS-PADM-08-007
Plant/Unit:	WF/3	**Procedure No:**	URS-UT-PA-DMW-1 REV. 2

Wedge	
Manufacturer:	GEIT
Model:	360-152-432
Contour Diameter:	4.0"
Scan Direction:	Circumferential
Exit Point Location:	0.90"
Zero Reference:	Front of Probe

Comments:
See attached .jpeg Report Print-Out For Instrument Settings
See Table 1 for wedge and transducer essential parameters

CRV Coverage (≥ 90%): (Yes) 100 % No N/A %
Examination Results: (Acceptable) Rejectable

Instrument	
Manufacturer:	Olympus
Model:	OmniScan-MX
Serial Number:	OMNI-102251
Software Revision:	OmniScan 2.0R18
Instrument Settings:	See HTM Report
Instrument Settings not found on .jpg report form:	

Transducer	
Manufacturer:	GEIT
Model:	115-000-485
Serial Number:	023JYV
See Table 1 for transducer essential parameters	
Transducer Integral Cable	
Type:	See cable diagram
Length:	See cable diagram
Connector Type:	See cable diagram
Number of Inactive Elements:	Transmit: Receive:

Calibration Data Files						
Focal Law File:	485 432 SHEAR.law					
Angles Generated (Circle):	0 – 70° (Longitudinal) Or [25– 65 ° (Shear)]					
Wave Mode (Circle):	Longitudinal Or [Shear]					
Focal Sound Path (Circle):	0.75"	1.00"	[1.25"]	2.00"	3.00"	5.25"
Set-up File:	ANO 485 432 SHEAR.ops					

Calibration Reflector Data

Calibration Block ID: 2.8-5.4-14DG-304SS-1 — **Couplant:** Ultragel II Batch: 09225

	Angle	% FSH	Ref. Sensitivity	UT Response Location	(Circle)
Calibration Reflector (Notch) 5 SDH Radius	25	83	46	1.160	(Metal Path) Depth
Reflector Depth: .15" (Angle Verification-Circ or Ax Scans)				**True MP** 1.278 / **Measured MP** 1.279	**% Error** 0.001
				Displayed Angle 25 / **Measured Angle** 25	**% Error** 0
	Angle	**% FSH**	**Ref. Sensitivity**	**UT Response Location**	**(Circle)**
Simulator Reflector Notch (SDH) 0.6 Radius	38	94.3	37.3	0.6	(Metal Path) Depth

Calibration Performed	**Examiner**	**Level**	**Date - Time**
Initial:	Robert E. Briley Jr.	II	11/9/12 @ 0838
Intermediate:	Jordon M. Briley	II	11/9/12 @ 1638
Final:	Robert E. Briley Jr.	II	11/9/12 @ 1857
			Date
Entergy Review:		III	11/17/12
ANII Review:		N/A	11-17-12

URS

ULTRASONIC PHASED ARRAY CALIBRATION / EXAMINATION RECORD

Sample:	Charging Noz. 08-007	**Calibration Data Sheet:**	URS-PADM-08-007
Plant/Unit:	WF/3	**Procedure No:**	URS-UT-PA-DMW-1 REV. 2

Wedge	
Manufacturer:	GEIT
Model:	360-152-410
Contour Diameter:	6.25"
Scan Direction:	Circumferential
Exit Point Location:	0.90"
Zero Reference:	Front of Probe

Comments:
See attached .jpeg Report Print-Out For Instrument Settings
See Table 1 for wedge and transducer essential parameters

CRV Coverage (≥ 90%): (Yes) 100 % No N/A %
Examination Results: (Acceptable) Rejectable

Instrument	
Manufacturer:	Olympus
Model:	OmniScan-MX
Serial Number:	OMNI-102251
Software Revision:	OmniScan 2.0R18
Instrument Settings:	See HTM Report
Instrument Settings not found on .jpg report form:	

Transducer	
Manufacturer:	GEIT
Model:	115-000-485
Serial Number:	023JYV
(See Table 1 for transducer essential parameters)	
Transducer Integral Cable	
Type:	See cable diagram
Length:	See cable diagram
Connector Type:	See cable diagram
Number of Inactive Elements:	Transmit: Receive:

Calibration Data Files						
Focal Law File:	485 410 LONG.law					
Angles Generated (Circle):	[0 – 70° (Longitudinal)]	Or 25– 65 ° (Shear)				
Wave Mode (Circle):	[Longitudinal]	Or Shear				
Focal Sound Path (Circle):	0.75"	1.00"	[1.25"]	2.00"	3.00"	5.25"
Set-up File:	ANO 485 410 LONG. ops					

Calibration Reflector Data

Calibration Block ID: 2.8-5.4-14DG=304SS-1 — **Couplant:** Ultrage II Batch: 09225

	Angle	**% FSH**	**Ref. Sensitivity**	**UT Response Location**	**(Circle)**
Calibration Reflector (Notch) 7 SDH Radius	25	83	26.1	1.343	(Metal Path) Depth
Reflector Depth: .18" (Angle Verification-Circ or Ax Scans)				**True MP** 1.571 / **Measured MP** 1.590 / **% Error** 0.019	
				Displayed Angle 25 / **Measured Angle** 25 / **% Error** 0	
	Angle	**% FSH**	**Ref. Sensitivity**	**UT Response Location**	**(Circle)**
Simulator Reflector Notch (SDH) 1" Radius	25	81.4	26.1	1	(Metal Path) Depth

Calibration Performed	**Examiner**	**Level**	**Date - Time**
Initial:	Robert E. Briley Jr.	II	11/9/12 @ 0842
Intermediate:	Jordon M. Briley	II	11/9/12 @ 1642
Final:	Robert E. Briley Jr.	II	11/9/12 @ 1900
			Date
Entergy Review:		III	11/12/12
ANII Review:		N/A	11-17-12

URS

ULTRASONIC PHASED ARRAY CALIBRATION / EXAMINATION RECORD

Sample:	Charging Noz. 08-007	**Calibration Data Sheet:**	URS-PADM-08-007
Plant/Unit:	WF/3	**Procedure No:**	URS-UT-PA-DMW-1 REV. 2

Wedge		Comments:
Manufacturer:	GEIT	See attached .jpeg Report Print-Out For Instrument Settings
Model:	360-152-410	See Table 1 for wedge and transducer essential parameters
Contour Diameter:	6.25"	
Scan Direction:	Circumferential	
Exit Point Location:	0.90"	**CRV Coverage (≥ 90%):** (Yes) 100 % No N/A %
Zero Reference:	Front of Probe	**Examination Results:** (Acceptable) Rejectable

Instrument		Transducer	
Manufacturer:	Olympus	**Manufacturer:**	GEIT
Model:	OmniScan-MX	**Model:**	115-000-485
Serial Number:	OMNI-102251	**Serial Number:**	023JYV
Software Revision:	OmniScan 2.0R18	See Table 1 for transducer essential parameters	
Instrument Settings:	See HTM Report		
		Transducer Integral Cable	
Instrument Settings not found on .jpg report form:		**Type:**	See cable diagram
		Length:	See cable diagram
		Connector Type:	See cable diagram
		Number of Inactive Elements:	Transmit: Receive:

Calibration Data Files						
Focal Law File:	485 410 SHEAR.law					
Angles Generated (Circle):	0 – 70° (Longitudinal) Or [25– 65 ° (Shear)]					
Wave Mode (Circle):	Longitudinal Or [Shear]					
Focal Sound Path (Circle):	0.75"	1.00"	[1.25"]	2.00"	3.00"	5.25"
Set-up File:	ANO 485 410 SHEAR.ops					

Calibration Reflector Data						
Calibration Block ID: 2.8-5.4-14DG=304SS-1				**Couplant:** Ultragel II Batch: 09225		
Calibration Reflector	**Angle**	**% FSH**	**Ref. Sensitivity**	**UT Response Location**		**(Circle)**
(Notch) 7 SDH Radius	25	84.5	42.7	1.347		(Metal Path) Depth
Reflector Depth: .18" (Angle Verification-Circ or Ax Scans)				**True MP** 1.571	**Measured MP** 1.587	**% Error** 0.016
				Displayed Angle 25	**Measured Angle** 25	**% Error** 0
Simulator Reflector	**Angle**	**% FSH**	**Ref. Sensitivity**	**UT Response Location**		**(Circle)**
Notch (SDH) 1" Radius	25	82	42.7	1		(Metal Path) Depth

Calibration Performed	Examiner	Level	Date – Time
Initial:	Robert E. Briley Jr. [illegible]	II	11/9/12 @ 0846
Intermediate:	Jordon M. Briley [illegible]	II	11/9/12 @ 1647
Final:	Robert E. Briley Jr. [illegible]	II	11/9/12 @ 1904
			Date
Entergy Review:	[illegible]	III	11/17/12
ANII Review:	[illegible]	N/A	11-17-12

URS

ULTRASONIC PHASED ARRAY CALIBRATION / EXAMINATION RECORD

Sample:	Charging Noz. 08-007	**Calibration Data Sheet:**	URS-PADM-08-007
Plant/Unit:	WF/3	**Procedure No:**	URS-UT-PA-DMW-1 REV. 2

Wedge	
Manufacturer:	GEIT
Model:	360-152-412
Contour Diameter:	6.25"
Scan Direction:	Circumferential
Exit Point Location:	0.90"
Zero Reference:	Front of Probe

Comments:
See attached .jpeg Report Print-Out For Instrument Settings
See Table 1 for wedge and transducer essential parameters

CRV Coverage (≥ 90%): (Yes) 100 % No N/A %
Examination Results: (Acceptable) Rejectable

Instrument	
Manufacturer:	Olympus
Model:	OmniScan-MX
Serial Number:	OMNI-102251
Software Revision:	OmniScan 2.0R18
Instrument Settings:	See HTM Report
Instrument Settings not found on .jpg report form:	
00	

Transducer	
Manufacturer:	GEIT
Model:	115-000-485
Serial Number:	023JYV
See Table 1 for transducer essential parameters	
Transducer Integral Cable	
Type:	See cable diagram
Length:	See cable diagram
Connector Type:	See cable diagram
Number of Inactive Elements:	Transmit: Receive:

Calibration Data Files						
Focal Law File:	485 412 SHEAR.law					
Angles Generated (Circle):	0 – 70° (Longitudinal) Or [25– 65 ° (Shear)]					
Wave Mode (Circle):	Longitudinal Or [Shear]					
Focal Sound Path (Circle):	0.75"	1.00"	[1.25"]	2.00"	3.00"	5.25"
Set-up File:	ANO 485 412 SHEAR. ops					

Calibration Reflector Data

Calibration Block ID: 2.8-5.4-14DG=304SS-1 — **Couplant:** Ultragel II Batch : 09225

	Angle	% FSH	Ref. Sensitivity	UT Response Location	(Circle)
Calibration Reflector (Notch) 7 SDH Radius	25	79.1	40.5	1.34	(Metal Path) Depth

	True MP	Measured MP	% Error
Reflector Depth: .18" (Angle Verification-Circ or Ax Scans)	1.571	1.566	0.005
	Displayed Angle 25	**Measured Angle** 25	**% Error** 0

	Angle	% FSH	Ref. Sensitivity	UT Response Location	(Circle)
Simulator Reflector Notch (SDH) 1" Radius	25	79.4	40.5	/	(Metal Path) Depth

Calibration Performed	**Examiner**	**Level**	**Date - Time**
Initial:	Robert E. Briley Jr.	II	11/9/12 @ 0856
Intermediate:	Jordon M. Briley	II	11/9/12 @ 1702
Final:	Robert E. Briley Jr.	II	11/9/12 @ 1917
			Date
Entergy Review:		III	11/17/12
ANII Review:		N/A	11-17-12

URS

ULTRASONIC PHASED ARRAY CALIBRATION / EXAMINATION RECORD

Sample:	Charging Noz. 08-007	**Calibration Data Sheet:**	URS-PADM-08-007
Plant/Unit:	WF/3	**Procedure No:**	URS-UT-PA-DMW-1 REV. 2

Wedge	
Manufacturer:	GEIT
Model:	360-152-412
Contour Diameter:	6.25"
Scan Direction:	Circumferential
Exit Point Location:	0.90"
Zero Reference:	Front of Probe

Comments:
See attached .jpeg Report Print-Out For Instrument Settings
See Table 1 for wedge and transducer essential parameters

CRV Coverage (≥ 90%): (Yes) 100 % No N/A %
Examination Results: (Acceptable) Rejectable

Instrument	
Manufacturer:	Olympus
Model:	OmniScan-MX
Serial Number:	OMNI-102251
Software Revision:	OmniScan 2.0R18
Instrument Settings:	See HTM Report
Instrument Settings not found on .jpg report form:	

Transducer	
Manufacturer:	GEIT
Model:	115-000-485
Serial Number:	023JYV
See Table 1 for transducer essential parameters	
Transducer Integral Cable	
Type:	See cable diagram
Length:	See cable diagram
Connector Type:	See cable diagram
Number of Inactive Elements:	Transmit: Receive:

Calibration Data Files						
Focal Law File:	485 412 LONG. law					
Angles Generated (Circle):	[0 – 70° (Longitudinal)]	Or 25– 65 ° (Shear)				
Wave Mode (Circle):	[Longitudinal]	Or Shear				
Focal Sound Path (Circle):	0.75"	1.00"	[1.25"]	2.00"	3.00"	5.25"
Set-up File:	ANO 485 412 LONG. ops					

Calibration Reflector Data

Calibration Block ID: 2.8-5.4-14DG=304SS-1 — **Couplant:** ultrasonic Batch: 09225

Calibration Reflector	**Angle**	**% FSH**	**Ref. Sensitivity**	**UT Response Location**	**(Circle)**
(Notch) 7 SDH Radius	25	80.6	29.9	1.412	(Metal Path) Depth

Reflector Depth: .18" (Angle Verification-Circ or Ax Scans)	**True MP**	**Measured MP**	**% Error**
	1.571	1.592	0.021
	Displayed Angle	**Measured Angle**	**% Error**
	25	25	0

Simulator Reflector	**Angle**	**% FSH**	**Ref. Sensitivity**	**UT Response Location**	**(Circle)**
Notch (SDH) 1" Radius	25	80	29.9	/	(Metal Path) Depth

Calibration Performed	**Examiner**	**Level**	**Date - Time**
Initial:	Robert E. Briley Jr.	II	11/9/12 @ 0852
Intermediate:	Jordon M. Briley	II	11/9/12 @ 1656
Final:	Robert E. Briley Jr.	II	11/9/12 @ 1908
			Date
Entergy Review:		III	11/17/12
ANII Review:		N/A	11-17-12

Entergy

Ultrasonic Indication Report

Site/Unit: WF / 3 | Procedure: URS-UT-PA-DMW-1 | Outage No.: RF18

Summary No.: | Procedure Rev.: 2 | Report No.:

Workscope: | Work Order No.: 284096-01 | Page: 17 of 21

Search Unit Angle: 62° °

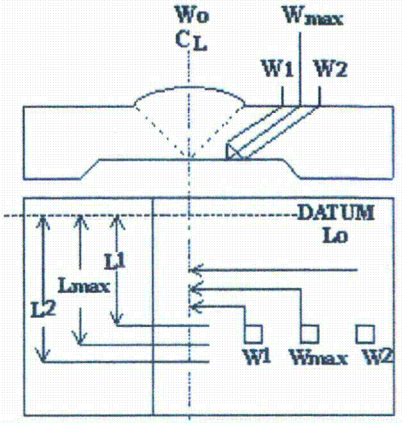
Wo Location: *

Lo Location: SPOT

☐ Piping Welds

☐ Ferritic Vessels ≥ 2"T

☐ Other



MP	Metal Path	Wmax	Distance From Wo To S.U. At Maximum Response
RBR	Remaining Back Reflection	W1	Distance From Wo At ____ Of Max (Forward)
L	Distance From Datum	W2	Distance From Wo At ____ Of Max (Backward)

Comments: * W-max Was 2.4" DOWN TAPER FROM CARBON TO BUTTER INTERFACE @ 2½" CCW FROM TOP DEAD CENTER

Angle	Indication No.	% Of DAC	W Max W	W Max MP	Forward ____ Of Max W1	Forward ____ Of Max MP	Backward ____ Of Max W2	Backward ____ Of Max MP	L1 / Of Max	L Max	L2 / Of Max	RBR Amp.	Remarks Indication Type: S=Spot; L=Linear; M=Multiple; G=Geometry
62°	1	32%	*	1.15"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	SPOT INDICATION *

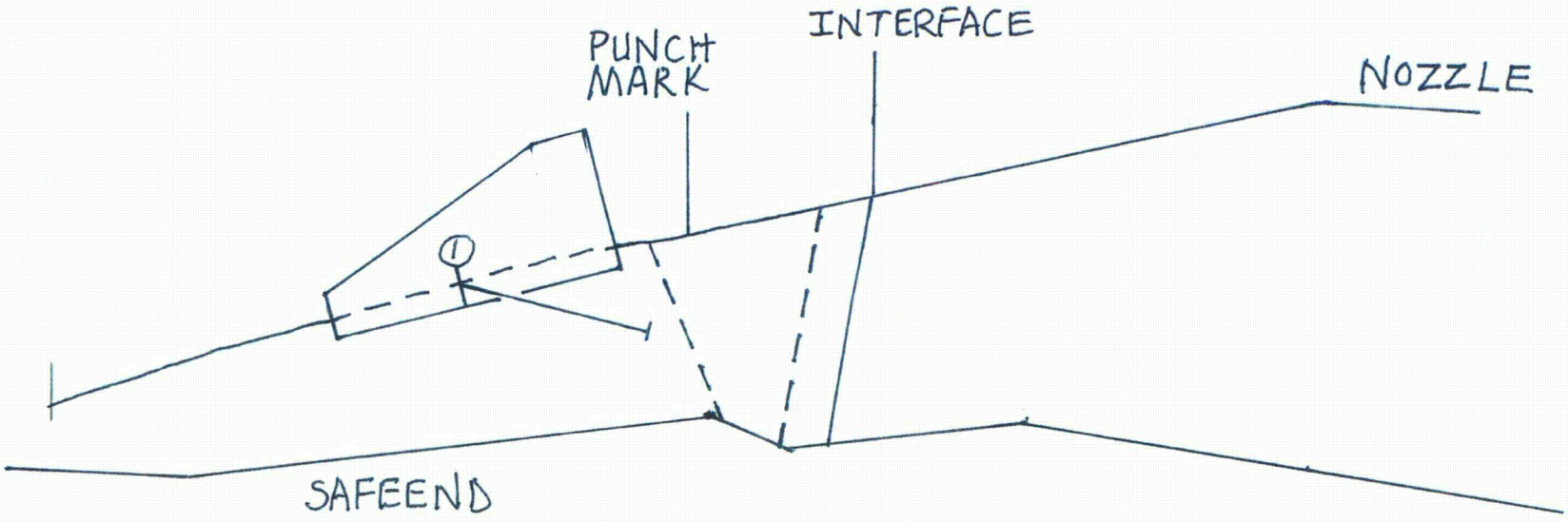
Examiner	Level	Signature	Date	Reviewer		Signature	Date
ROBERT BRILEY	LII	Robert E. Briley Jr.	11/09/12	N/A			
Examiner	Level	Signature	Date	Site Review		Signature	Date
N/A				M Bailey			11/17/12
Other	Level	Signature	Date	ANII Review		Signature	Date
N/A				Allen Molder			11-17-12

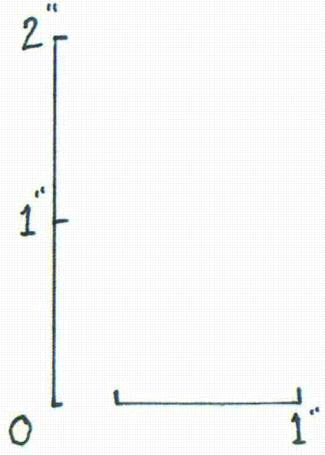
Additional - UT Indication Data <edit from Setup>

DMW 08-007

WF-3

11/09/12





NOTE:
EXAMINATION PERFORMED "INFO ONLY"

INDICATION #1 (SPOT) @ 2.4" DS. of INTERFACE LOOKING UP TAPER @ 2 1/2" CCW

NOTE: INDICATION #1 SEEN IN THE REMAINING (3) DIRECTIONS BUT AT BELOW RECORDABLE AMPLITUDES

DRAWING TO SCALE

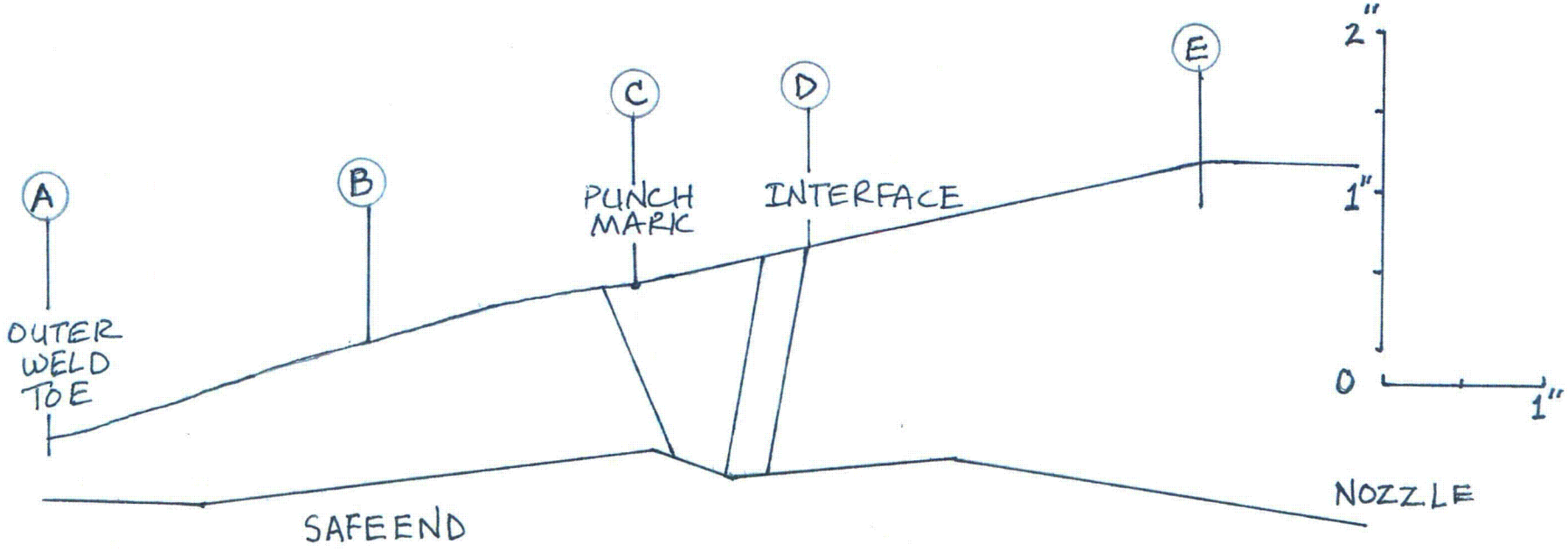
MWB 11/12/12

Robert E. Bradley

DMW 08-007

WF-3

11/09/12



CIRCUMFERENCES:
A - 7 3/4"
B - 12"
C - 15 3/4"
D - 19 1/2"
E - 21"

LOCATION:
NOZZLE SIDE OF PIPE TO NOZZLE WELD
2" UP TAPER FROM LOCATION (A)
3 1/2" UP TAPER FROM LOCATION (A)
4.6" UP TAPER FROM LOCATION (A)
7.4" UP TAPER FROM LOCATION (A)

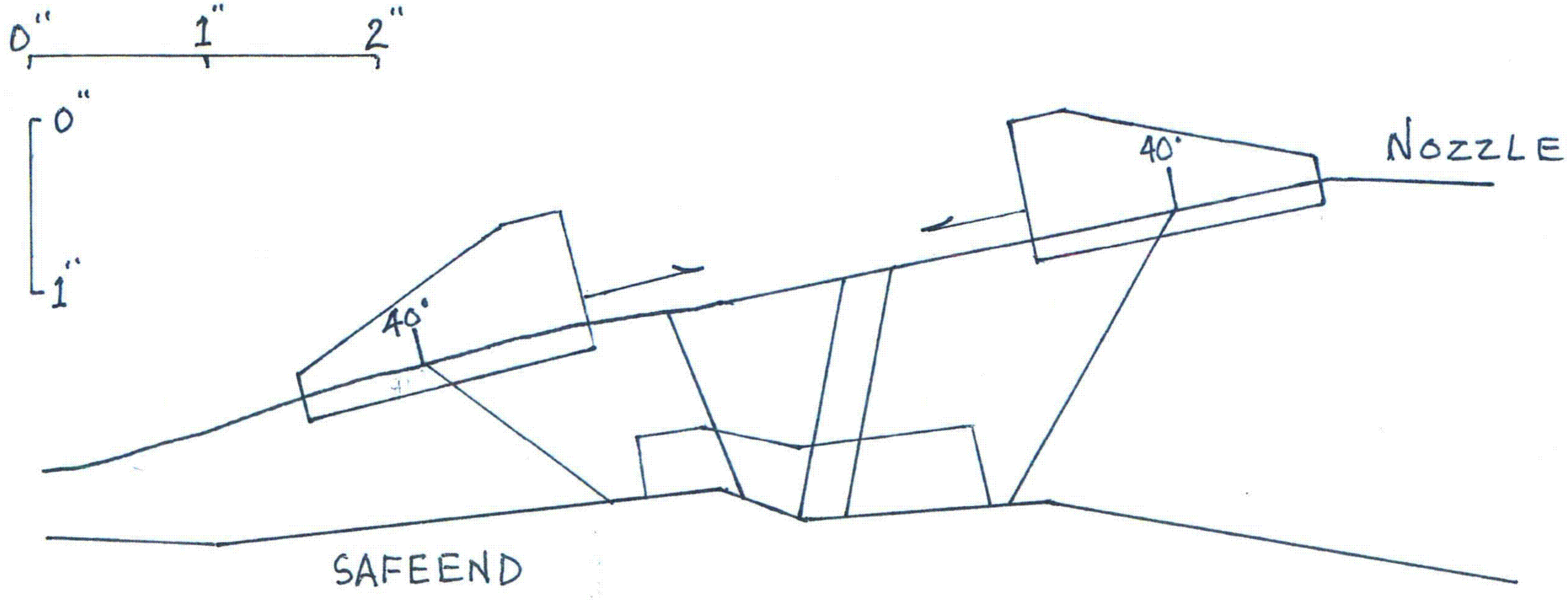
* MINIMUM WALL THICKNESS of 0.403" TAKEN AT LOCATION (A).

MWB 11/17/12

DRAWING TO SCALE

Robert E. Bradley Jr.

DMW 08-007 WF-3 11/09/12



CRV
AXIAL SCANS

DOWN TAPER LOOKING UP TAPER 100% of 0.773 sq.in.

UP TAPER LOOKING DOWN TAPER 100% of 0.773 sq.in.

MCB 11/17/12

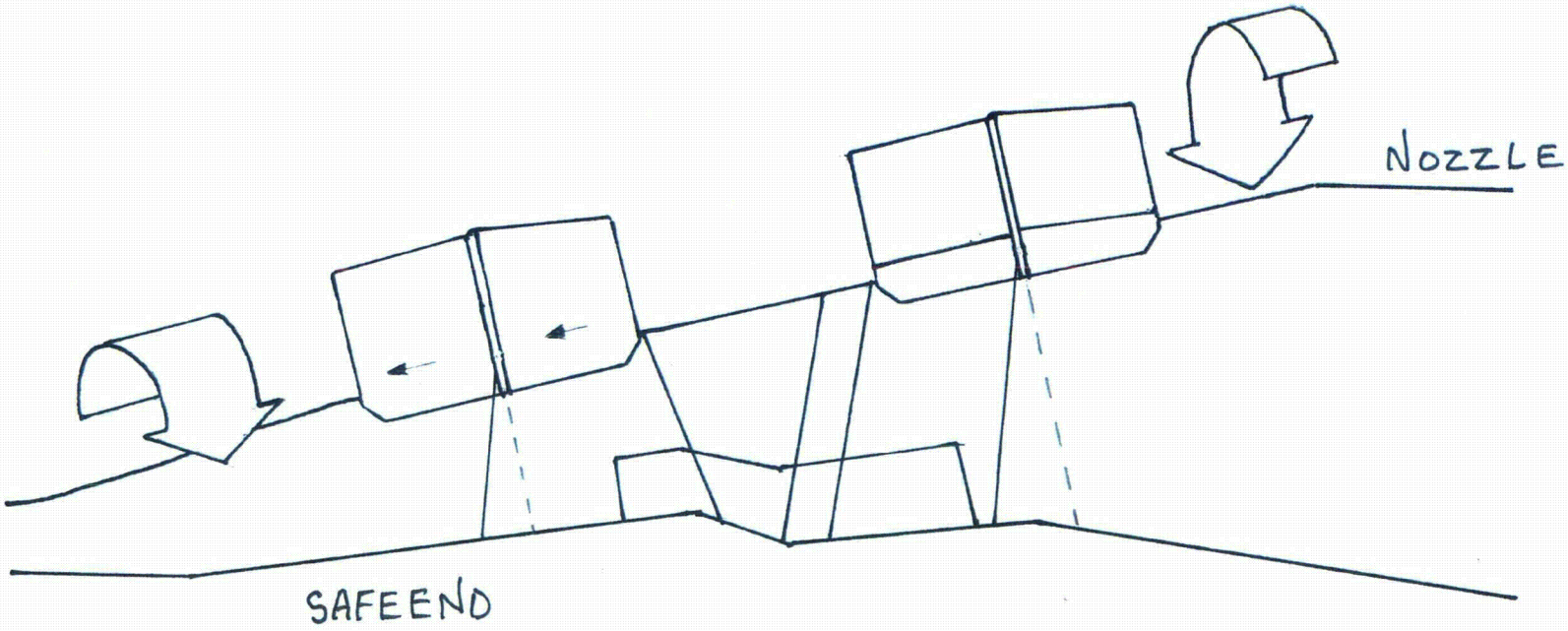
DRAWING TO SCALE

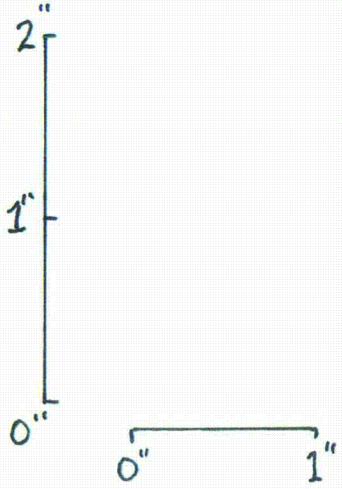
Robert E. Brown Jr.

DMW 08-007

WF-3

11/09/12





CRV
CIRCUMFERENTIAL SCANS
CLOCKWISE 100 % of 0.773 sq. in.
COUNTERCLOCKWISE 100% of 0.773 sq. in.

11/12/12 DRAWING TO SCALE

Robert E Bradley Jr

Attachment 3 to W3F1-2012-0099

List of Regulatory Commitments

List of Regulatory Commitments

The following table identifies those actions committed to by Entergy in this document. Any other statements in this submittal are provided for information purposes and are not considered to be regulatory commitments.

COMMITMENT	TYPE (Check One)		SCHEDULED COMPLETION DATE (If Required)
	ONE-TIME ACTION	CONTINUING COMPLIANCE	
Waterford 3 will perform appropriate actions to comply with ASME Section XI Code Case N-770-1 baseline examinations for dissimilar metal weld 08-007 prior to startup from the planned Spring 2014 refueling outage. Actions to accomplish compliance with ASME Section XI Code Case N-770-1 consist of the following: 1. Entergy will work with EPRI to design a mock up that incorporates the configuration of the Waterford 3 08-007 DMW. 2. This mock-up will be used to demonstrate/qualify the UT technique utilized during the Fall refueling outage (RF18). This UT technique will be performed in accordance with the PDI Site Specific Configuration Mockup Requirements for DM Welds or through procedure expansion in accordance with the PDI Program. If the demonstration should determine that additional scanning is required, Entergy will reexamine weld 08-007 during the scheduled Spring 2014 refueling outage using the newly qualified PDI technique for this configuration.	X		Prior to start-up following the Spring 2014 Refueling Outage (RF19).