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Final Results of Double-Shell Tank 241-AZ-101 Ultrasonic Inspection

C. E. Jensen
Lockheed Martin Hanford Corporation, Richland, WA 99352
U.S. Department of Energy Contract DE-AC06-87RL10930

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Key Words: ultrasonic, tank integrity, examination, 241-AZ-101, 102-AZ, inspection, wall thinning, UT testing, tank wall, UT, integrity assessment

Abstract: This document presents the results and documentation of the nondestructive ultrasonic examination of tank 241-AZ-101. A tank inspection supplier was retained to provide and use an ultrasonic examination system (equipment, procedures, and inspectors) to scan a limited area of double-shell tank 241-AZ-101 primary tank wall and welds. The inspection found one reportable indication of thinning and no reportable pitting, corrosion, or cracking.

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FINAL RESULTS OF DOUBLE-SHELL TANK 241-AZ-101 ULTRASONIC INSPECTION

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Final Results of Double-Shell Tank 241-AZ-101 Ultrasonic Inspection

July 15, 1999

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for

Lockheed Martin Hanford Corporation
Richland, Washington

Final Results of Double-Shell Tank 241-AZ-101 Ultrasonic Inspection

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Double-Shell Tank System Integrity Assessment: FINAL RESULTS OF DOUBLE-SHELL TANK 241-AZ-101 ULTRASONIC INSPECTION

1.0 INTRODUCTION

In May 1996, the Tank Waste Remediation System (TWRS) Decision Board recommended, and the U.S. Department of Energy-Richland Operations Office (DOE-RL) agreed, that the condition of the double-shell tanks (DST) should be determined by ultrasonic (UT) inspection of a limited area in six of the 28 DSTs. The Washington State Department of Ecology (WDOE) has agreed with the strategy of limited UT inspection of six DSTs. Data collected during the UT inspections will be used to assess the condition of the tanks, judge the effects of past corrosion control practices, and satisfy a regulatory requirement to periodically assess the integrity of waste tanks.

In November 1996, the primary and secondary walls of DST 241-AW-103 were remotely examined to determine if Hanford DST walls could be inspected without removing the existing surface rust and scale. The successful completion of this inspection represented the first UT inspection of a Hanford DST (Leshikar 1997).

Based on the results of the initial inspection, a statement of work (SOW)(Pfluger 1999) was prepared for the remaining DST inspections scheduled for Fiscal Year (FY) 1999. The service of COGEMA Engineering Corporation (COGEMA Engineering) was retained to provide an UT examination system (equipment, procedures, and inspectors) and perform the inspection.

Tank 241-AZ-101 was selected as one of the six sample tanks that represent the complete 28-tank population. The tank began receiving waste in 1976 and is currently classified as an Aging Waste Facility (AGING). The current tank level is approximately 307 inches (Hanlon 1999). From 1976 to present, the highest waste temperature recorded was 153°F with the average temperature holding at approximately 148°F. Although the tanks are expected to have similar performance, the selection of tanks is purposely biased towards tanks whose primary walls may be more likely to be degraded by corrosion. The tank selection criteria (Schwenk and Scott 1996) considered variables that may influence corrosion, such as waste physical characteristics, waste chemistry, temperature, and age. Tank 241-AZ-101 was chosen because it has one of the highest waste temperatures, is older, and the material of construction is more conducive to cracking in the knuckle region.

2.0 OBJECTIVE / SCOPE

This report presents the results of the UT examination of DST 241-AZ-101 with attention focused on the primary tank wall base metal and welds. Issuance of this report meets FY 1999 Performance Agreement TWR 6.3.1. The criteria, deliverables, and responsibilities for the UT examination are described in Pfluger 1999.

3.0 EXAMINATION EQUIPMENT DESCRIPTION

P-scan – P-scan is the name of the computerized pulse-echo UT inspection system used by the examination vendor. The P-scan system is manufactured by Force Institute in Denmark. It acquires data from zero and angle beam transducers mounted on the crawler, allows real-time analysis, and records the data in electronic memory for post inspection analysis. Force Institute has designated "P-scan mode" to represent the angle beam (flaw length) view and "T-scan mode" to represent the zero beam (thickness) view. T-scan mode is used for normal operation and, if crack-like indications are detected, the P-scan mode is employed. More information on the procedure for the P-scan system is found in Jensen 1999.

Crawler (UT Scanner) – The crawler is a remotely-controlled device that delivers the ultrasonic sensors to the tank walls (Figure 2). It weighs approximately 30 pounds and has dimensions of approximately 21" wide x 18" long x 6" high. The crawler attaches to the tank wall with two pairs of magnetic wheels. A traveling bridge on the crawler is outfitted with ultrasonic sensors. As the crawler moves slowly forward the sensors glide from side-to-side over the tank wall surface. Water couplant is continuously fed to each transducer at a rate needed to maintain an acceptable signal.

Overview Camera – This camera was deployed to observe the area immediately around the inspection area and to aid crawler deployment in the annulus.

Sideview Camera – This camera and light system were installed in a riser adjacent to the inspection riser to provide an overall view of the inspection process.

Data Acquisition Control Center – A pull-type trailer was used to house the crawler controls, video monitors, and the data collection and evaluation hardware. The trailer was located outside the AZ tank farm boundary fence (Figure 2).

Deployment Tool – This device was specifically designed to insert and retrieve the scanner from the DST annular space. The scanner sits on a platform that is manually lowered to the appropriate elevation. That platform has cables attached that can be controlled to move the scanner platform into contact with the examination surface. The scanner is then driven onto the surface. The deployment tool is retracted until scanner removal is required.

4.0 PERFORMANCE DEMONSTRATION TESTS

Prior to field use, COGEMA Engineering's UT examination system satisfactorily completed a performance demonstration test (PDT). The test was performed prior to examination of tank 241-AN-107 in FY 1998 (Pfluger 1998). The test was conducted to qualify personnel, test procedures, and ensure the equipment's ability to detect and size wall thinning, pits, and cracks in a series of test plates with artificial and natural defects. The PDT was performed on an actual tank mockup located in the 306E facility located in the 300 area. This mockup also demonstrated the successful deployment and retrieval of the equipment (Pfluger 1998).

5.0 ULTRASONIC EXAMINATION DESCRIPTION

5.1 Primary Wall and Weld

The tank inspection was performed under Job Control System (JCS) work package 2E-98-02407/W during early calendar year 1999. All work steps, guidelines, procedures, personnel responsibilities, and protocol for the inspection (Pfluger 1999) were included in the subject work package.

A remotely operated, digital signal controlled, steerable crawler was used to deliver the UT sensors to the tank wall. The crawler was deployed through a 24-inch annulus inspection riser number 18A. The crawler attached to the tank wall with two pairs of magnetic wheels. A traveling bridge on the crawler was outfitted with UT sensors. As the crawler moves slowly forward, the sensors glided from side-to-side over the inspection surface. Water couplant was continuously fed to each transducer at a rate needed to attain an acceptable signal. For examination of the wall, one dual element 0° transducer and two 45° shear wave transducers were used. To detect cracks perpendicular to welds, two opposing 45° shear wave transducers were directed parallel to the weld. To detect cracks parallel to the weld, a 60° shear wave transducer was directed toward the weld and a dual element 0° transducer was also included. Welds were examined from both sides of the weld crown.

Data and images from both systems were returned to a control center located just outside the AZ tank farm fence. The control center housed the crawler controls, video monitors, and data collection and evaluation software/hardware. The UT inspector continuously monitored the signal for reportable indications. The inspection was viewed by a camera and lighting system deployed in an adjacent riser.

6.0 GENERAL REQUIREMENTS AND INSPECTION CRITERIA

The FY 99 Performance Agreement TWR 6.3.1 is stated below:

"The contractor shall perform ultrasonic examination of four double-shell tanks (primary walls straight portion) to the extent described in HNF-2820, *"Engineering Task Plan for the Ultrasonic Inspection of Hanford Double-Shell Tanks"*. Completion is met when ultrasonic examination on four double-shell tanks is performed, a report of examinations observations is reviewed and approved by FDH, and the report is submitted to RL by July 31, 1999. The report shall include the extent of the examination, discussion of observations, findings, and conclusions."

Areas to be examined on the primary tank were identified in the SOW (Pfluger 1999) as:

Primary Tank Wall:

- A vertical strip, approximately 30 inches wide by 35 feet long. The vertical strip may be comprised of one or more strips whose total width is approximately 30 inches. (The distance from the tank upper haunch transition to the lower knuckle is approximately 35 feet).
- 20 feet of the cylinder-to-lower knuckle weld.
- One vertical weld joining the lowest shell course plates (approximately 10 feet).
- One vertical weld joining the next to the lowest shell course plates (approximately 10 feet).

7.0 INDICATION REPORTING CRITERIA

COGEMA Engineering was required to report to the customer the following anomalies (Pfluger 1999):

- Wall thinning that exceeded 10% of the nominal plate thickness
- Pit depths that exceeded 25% of the nominal wall thickness
- Cracks that exceeded 0.18 inches in depth.

8.0 EQUIPMENT SET-UP AT AZ TANK FARM

Prior to performing the actual examination, the riser shield plug was removed and replaced with a sheetmetal cover.

A temporary structure, constructed of scaffolding, was erected around the riser to provide the means for deploying the UT equipment (Figure 2). A central I-Beam was secured to the top of the scaffolding and supported a single-line sheave. A manual cable winch was secured to the base with the cable running up to the sheave in a single-line hoisting method for maneuvering the equipment into position. The weather during the examination was cool to moderate so a second temporary structure was erected near the inspection riser. This "tent" was constructed of round tubing and covered with weather resistant material and housed the inspection overview video equipment, deployment tool and video monitor (Figure 2). The tent provided adverse weather protection for the equipment and crew. The control cables leading from the trailer were run along the ground to the equipment located at the riser. The cable was sleeved with plastic to prevent possible contamination

9.0 EXAMINATION RESULTS

The Inspection Data Sheets and an interpretation of the data by a COGEMA Engineering NDE Level III qualified inspector are included in Attachment 2. Tank 241-AZ-101 (typical of all double-shell tanks) was fabricated from carbon steel plate. The location of plates as identified in the PNNL report is as follows (See Attachment 1):

<u>Primary knuckle (top)</u> – Connects dome of tank to side-wall.
<u>Primary wall</u> – Consists of (from top to bottom):
- Plate #1 – approximately 3 feet 3 inches tall, 3/8" nominal thickness
- Plate #2 – approximately 9 feet 10 inches tall, 1/2" nominal thickness
- Plate #3 – approximately 9 feet 10 inches tall, 1/2" nominal thickness
- Plate #4 – approximately 9 feet tall, 3/4" nominal thickness
- Plate #5 – approximately 2 feet tall, 7/8" nominal thickness

<u>Primary knuckle (bottom)</u> – Connects side-wall of tank to primary tank bottom.

All tank welds are in the "as-welded" condition. The primary tank's exterior surface varies from mill scale to a coating of rust caused by the normal weathering of carbon steel. The tank surface also contains chalk marks from hydrostatic test and miscellaneous material identifier markings from construction. In some places, streaks from concrete pouring can be found. The following pages contain tables that present the data as a percent (%) of nominal wall thickness, which was derived from the "241-AZ-101 Double-Shell Tank Ultrasonic Examination Data Reports With Data Sheets (Attachment 2) and Pacific Northwest National Laboratory report PNNL letter (Attachment 1) "Ultrasonic Examination of Double-Shell Tank 241-AZ-101".

Table 1 Tank 241-AZ-101 Ultrasonic Examination Primary Tank Wall, Scan 1 (Attachment 2)			
Plate	Design Nominal Thickness (inches)	Measured Minimum Thickness (inches)	% Wall Thinning
Plate #1 (upper)	0.375	0.350	6.7% of nominal thickness
Plate #2	0.50	0.458	8.4% of nominal thickness
Plate #3	0.50	0.460	8.0% of nominal thickness
Plate #4	0.75	0.722	3.7% of nominal thickness
Plate #5 (lower)	0.875	0.860	1.7% of nominal thickness

Table 2 Tank 241-AZ-101 Ultrasonic Examination Primary Tank Wall, Scan 2 (Attachment 2)			
Plate	Design Nominal Thickness (inches)	Measured Minimum Thickness (inches)	% Wall Thinning
Plate #1 (upper)	0.375	0.357	4.8% of nominal thickness
Plate #2	0.50	0.443	11.4% of nominal thickness
Plate #3	0.50	0.478	4.4% of nominal thickness
Plate #4	0.75	0.718	4.3% of nominal thickness
Plate #5 (lower)	0.875	0.880	N/A

Table 3 Tank 241-AZ-101 Ultrasonic Examination Vertical Primary Tank Weld Scans (Attachment 2)			
Weld	Design Nominal Thickness (inches)	Measured Minimum Thickness (inches)	% Wall Thinning
Vertical Plate #3	0.50	0.478	4.4% of nominal thickness
Vertical Plate #4	0.75	0.722	3.7% of nominal thickness
Vertical Plate #5	0.875	0.860	1.7% of nominal thickness

Table 4 Tank 241-AZ-101 Ultrasonic Examination Primary Knuckle Weld (Attachment 2)			
Weld	Design Nominal Thickness (inches)	Measured Minimum Thickness (inches)	% Wall Thinning
Plate #5 to Primary Knuckle (lower)	0.875	0.845	3.5% of nominal thickness

Note 1: PNNL stated that COGEMA Engineering evaluated the data and concluded that the wall thinning on plate #2 was a construction defect. No other wall thinning, pitting, corrosion, or cracking was detected (Attachment 1).

Note 2: Although the data is reported to three decimal places, the accuracy of the data, based on the results of the performance demonstration test is ± 0.020 inch for wall thickness.

10.0 EVALUATION OF EXAMINATION RESULTS

The results of the Tank 241-AZ-101 UT examination indicated a localized area of wall thinning that covers approximately 4 sq. in. on plate #2. The thinnest point in this area is 11.4% less than nominal thickness (0.5 inches). The remainder of the examination indicated no reportable wall thinning, pitting, corrosion, or cracks. Attachment 1 contains the final report prepared by PNNL that analyzes the data gathered from Tank 241-AZ-101. Figure 1 shows the history of waste level matched with the "as-found" measurements of the primary tank wall generated from the inspection data sheets. Each wall thickness measurement plotted on the chart is the average of all data collected over a 1 foot long by 15 inch wide scan area.

PNNL UT examination experts independently evaluated (see Attachment 1) the hard copy scans and inspection data sheets and concurred with the COGEMA Engineering interpretation (Attachment 2). The following is a summary of the results associated with the areas examined. The data have been reviewed and approved by W. H. Nelson, COGEMA Engineering NDE Level III qualified inspector (see Attachment 2):

Primary Tank Wall Thinning/Pitting/Corrosion/Cracking:

- One area indicated reportable thinning (11.4%). The remainder of the examination indicated no reportable thinning, pitting, corrosion, or cracking was detected.

Primary Tank Vertical Welds:

- No reportable thinning, pitting, corrosion, or cracking was detected.

Primary Tank Knuckle Weld:

- No reportable thinning, pitting, corrosion, or cracking was detected.

11.0 FINDINGS AND CONCLUSIONS

- The absence of cracks in the plate and weld HAZ indicates that the pre-service material quality control, weld stress relief treatment, and waste chemistry controls have been effective in preventing cracks.

- Wall thinning of 11.4% was identified on plate #2. The shape suggests a construction defect. Since there were no additional changes in the wall thickness and no cracks were detected at any location, corrosion due to suspected mechanisms is probably not occurring to any significant degree. However, uncertainty on conditions that lead to corrosion degradation, particularly stress corrosion cracking, suggest additional data on other tanks is needed to gain confidence that this result can be applied to the general tank population.

12.0 REFERENCES

Hanlon, B.M., 1999, *Waste Tank Summary Report for Month Ending April 30, 1999*, HNF-EP-0182-121, Fluor Daniel Hanford, Inc., Richland, Washington.

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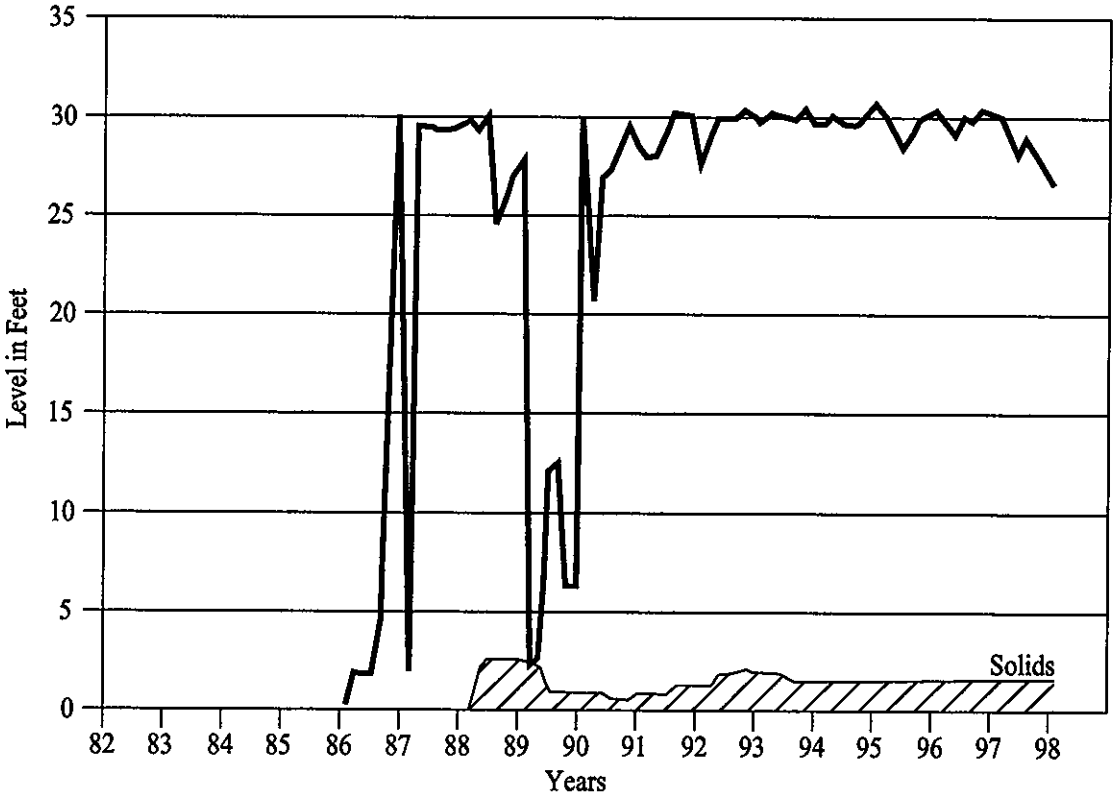
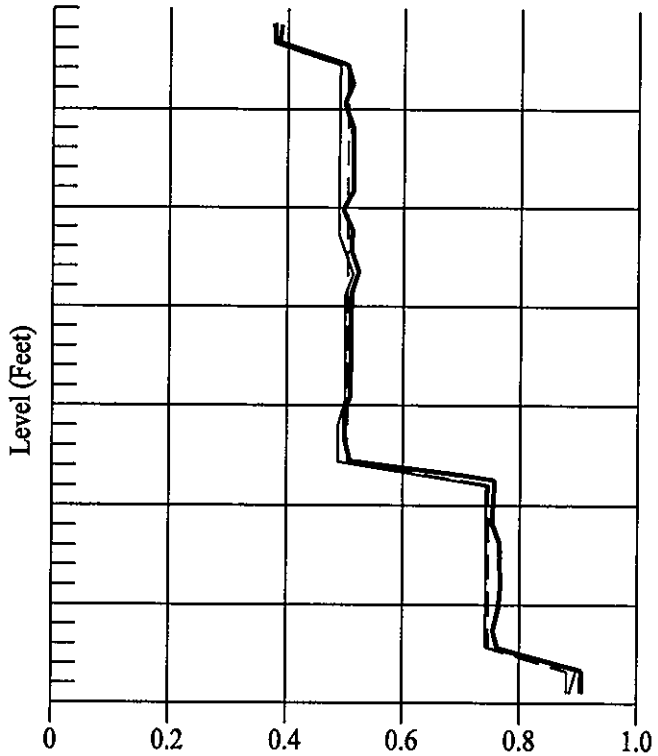
Schwenk, E.B., and Scott, K.V., 1996, *Description of Double-Shell Tank Selection Criteria for Inspection*, WHC-SD-WM-ER-529, Rev. 0, Westinghouse Hanford Company, Richland, Washington.



241-AZ-101



Primary Wall Thickness (Inches)

Avg. Thk - Scan #2
Avg. Thk - Scan #1
Nominal Thickness

Figure 1 - Comparison of As-Measured and ASTM-Specified Plate Thickness with Waste Level, DST 241-AZ-101

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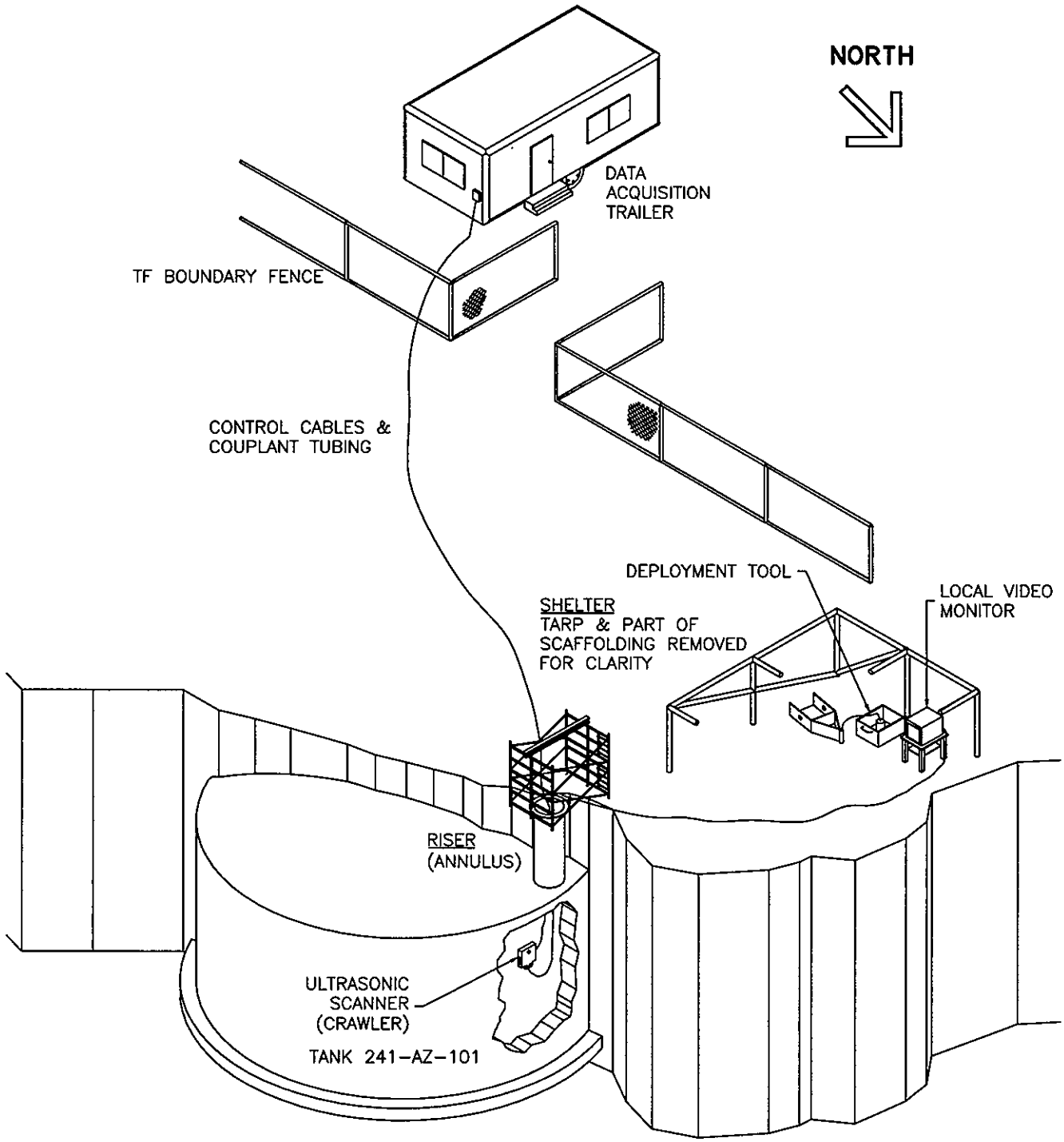

Figure 2 – Schematic of Inspection Set-up 241-AZ-101

ZJJA5020.DWG

ATTACHMENT 1

Ultrasonic Examination of Double Shell Tank 241-AZ-101

PNNL Letter

Pacific Northwest National Laboratory
Operated by Battelle for the
U.S. Department of Energy

July 15, 1999

Mr. Chris E. Jensen
Lockheed Martin Hanford Corporation
PO Box 1500 MS R1-56
Richland, WA 99352-1505

Dear Mr. Jensen,

Attached is a copy of the PNNL report describing the results of its third party evaluation of the data recorded by COGEMA on the ultrasonic examination of double shell Tank 241-AZ-101. Details are given in the report, but the ultrasonic measurements from the tank indicate the wall thickness of the plates is generally below the nominal wall thickness values of the individual plates. This could indicate that some corrosion has occurred. One area in Plate #2 is less than 90 % of the nominal wall thickness of 0.500 in. The COGEMA analyst indicated that, because of the shape of the defect, it might have been caused by using a surface grinder to remove an attachment that was welded to the construction of the tank. The discussion in the report provides more information on this anomaly.

If there are questions or if additional information is needed, please contact me.

Sincerely,

G. J. Posakony

Attachment: "Ultrasonic Examination of Double Shell Tank 241-AZ-101"

cc: A. F. Pardini - PNNL
T.T. Taylor - PNNL

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Pacific Northwest National Laboratory
Operated by Battelle for the
U.S. Department of Energy

July 15, 1999

Mr. Chris E. Jensen
Lockheed Martin Hanford Corporation
PO Box 1500 MS R1-56
Richland, WA 99352-1505

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cc: A. F. Pardini - PNNL
T.T. Taylor - PNNL

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Ultrasonic Examination of Double Shell Tank 241-AZ-101

Gerald J. Posakony and Allan F. Pardini
Pacific Northwest National Laboratory

July 1999

Background

COGEMA Engineering Corporation (COGEMA), under a contract from Lockheed Martin Hanford Corporation (LMHC), has performed an ultrasonic examination of selected portions of Tank 241-AZ-101. The purpose of the examination was to provide information that could be used to evaluate the integrity of the primary tank wall. The requirements for the ultrasonic examination of the wall of Tank 241-AZ-101 were to detect, characterize (identify, size, and locate) and record measurements made of wall thickness and pitting or cracking in the wall or in the heat-affected zone (HAZ) of welds of the primary tank. Any measurements that exceeded the requirements set forth in the contract were to be reported to LMHC for further evaluation. Measurements that are to be specifically recorded include the following:

- Wall thinning that exceeds 10% of the nominal thickness of the plate
- Pits with depths that exceed 25% of the plate thickness
- Stress-corrosion cracks located on the inner wall of the primary tank or in the HAZ of welds that exceed a depth of 0.18 in.

The accuracy requirements for depth measurements for the different types of defects includes:

- Wall thinning—measure thickness within ±0.02 in.
- Pits—size depths within ±0.05 in.
- Cracks—size the depth of cracks on the inner wall surfaces within ±0.100 in.
- Location—locate all reportable indications within ±1.0 in.

Under the contract with LMHC, all data is to be recorded on disk and hard copies of all measurements are to be provided to PNNL for third party evaluation. PNNL is responsible for preparing report(s) that describe the results of the COGEMA ultrasonic examinations.

Information contained in PNNL Reports No. 11971, 12198 and 12233 provide detailed information on requirements for personnel qualification, ultrasonic test procedure and ultrasonic test equipment that are to be used for the inspection of the double shell tanks.

Ultrasonic Examination

The ultrasonic system used for the examination of Tank 241-AZ-101 consisted of a Force Industries, Inc. P-Scan Model PSP-3 and an AWS-5D remotely controlled, magnetic-wheel mechanical crawler designed for remote inspections. The ultrasonic test procedure developed previously for the examination of the double shell tanks was used for the inspection of 241-AZ-101. The personnel involved in the inspection were specifically qualified to perform inspections on the double shell tanks. To perform the ultrasonic examination, the AWS-5D crawler was inserted into the annulus between the primary and secondary tank and positioned to attach to the wall of the primary tank. Two 15-in. wide scan paths

spaced approximately 6-in apart provided wall thickness and crack detection measurements of the full height of the tank. Figure 1 shows the location of the two scan paths. To inspect welds in Plates #3, #4, #5 and the knuckle weld, the crawler was maneuvered over the weld to be inspected and the mechanical scanner was positioned to inspect welds in either the vertical and horizontal directions depending on the direction of the weld.

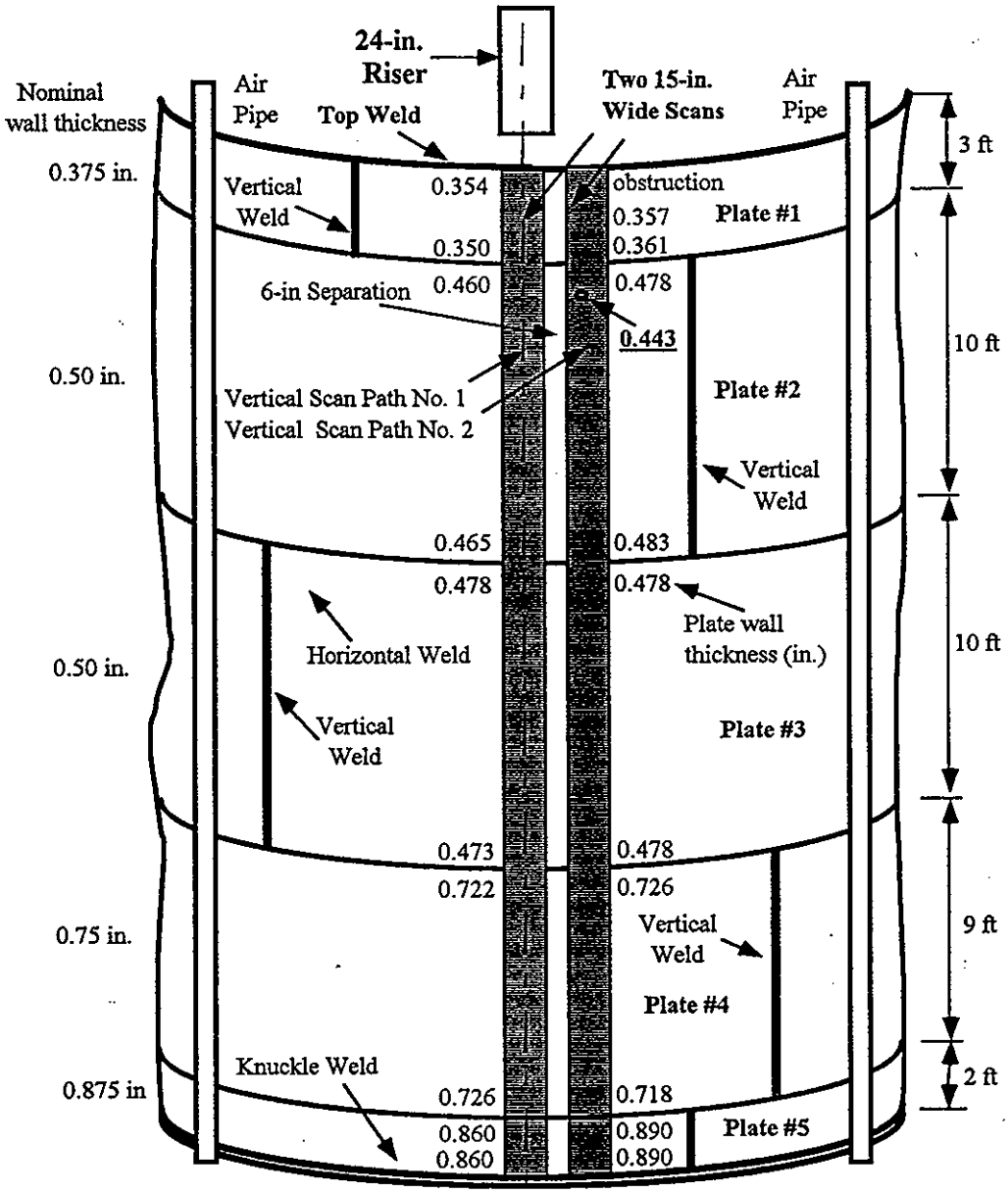

Figure 1. Sketch of Vertical Scan Paths No. 1 and 2 Used for the Ultrasonic Examination of the Primary Wall of Tank 241-AZ-101[1]

[1] *All historical dimensioning for the design, development and construction of this tank are in English units; consequently, English units are the primary units used in this report. Use 1.0 in. equals 25.4 mm to convert to metric.*

The cylindrical section of 241-AZ-101 is 34-ft high and consists of:

- one 3-ft wide transition plate with a nominal thickness of 0.375 at the top of the tank
- two 10-ft wide plates with a nominal thickness of 0.500 in.
- one 9-ft wide plate with a nominal thickness of 0.750 in. and
- one 2-ft wide transition plate with a nominal thickness of 0.875 in. at the bottom of the tank.

The sketch also contains information on the wall thickness measurements at the top and bottom of each plate showing the range of wall thicknesses measured for each plate. A review of the reports provided show only one area in Plate #2 Scan Path No 2, where the wall thickness is less than 0.450 in. (90 % of the nominal thickness of the plate) (See Table 2. discussion). No cracks were detected in either the wall or welds of the primary tank.

Results from the Ultrasonic Examination of the Primary Tank Wall in 241-AZ-101

The ultrasonic procedure, established for the examination of the primary tank wall, required the use of a zero-degree transducer for detecting and sizing wall thinning/corrosion and pitting and the use of two 45-degree angle beam transducers for detecting and sizing of any cracks that might be present in the plates. For inspecting the HAZ of welds, the procedure called for the use of one zero-degree transducer for detecting wall thinning/corrosion and pitting, two 45-degree angle beam transducers for detecting cracks that lie in a plane perpendicular to the weld and one 60-degree angle beam transducer for detecting cracks that lie in a plane parallel to the weld.

For wall thickness measurements, the scanning bridge, which is incorporated into the AWS-5 magnetic-wheel crawler, translates the transducers over a 15-in. wide scan path. Upon completion of a full scan path, the crawler is indexed downward a distance of 0.100 in. and the scan is repeated. P-Scan-PSP-3 ultrasonic system acquires data every 0.125 in. as the scanner traverses the bridge. Data from the traverse and index directions are recorded digitally on disks for post analysis. The thickness value recorded in any 0.125-in. by 0.100-in. pixel is the minimum wall thickness in that pixel.

The data in Tables 1 through 5 were taken from the "Automated Ultrasonic Thickness Data Report" prepared by the COGEMA analyst describing the results of the examination of the primary tank wall. The data that appears on P data report is the minimum value recorded for a 15-in. by 12-in area. The first column in the tables describes the distance from the top weld of the primary tank (tank to dome). Wall thickness and results from the 45-degree angle beam tests are shown the columns for Scan Paths No. 1 and 2.

In addition to these reports, hard copy C-scan (area) and B-scan (cross section) color printouts were provided for each vertical foot of the tank wall that was inspected. These printouts provide detailed information of location and size of any anomalies that exceed the inspection criteria. The wall thickness values in the tables are taken from the analyst's report. To obtain more information the procedure is to analyze the B-scan and C-scan plots that are stored on disks and provided on the hard copy records for each foot to the area inspected. Interpreting the data requires analysis of both the analyst's record and the B-scan and C-scan plots.

Table 1. Data from the Vertical UT Scan Paths on the Primary Tank Wall, Plate #1

Distance from the Top Weld (ft)	Results from the Ultrasonic Examination of Plate #1. Vertical Scan Path No. 1		Results from the Ultrasonic Examination of Plate #1. Vertical Scan Path No. 2	
	Minimum Thickness Recorded in Area Scanned (in.)	45-Degree Angle Beam Examination	Minimum Thickness Recorded in Area Scanned (in.)	45-Degree Angle Beam Examination
0 to 1	0.354	*	Obstruction	*
1 to 2	0.350	*	0.357	*
2 to 3	0.350	*	0.361	*

* No crack-like indications were detected during the examination of this plate. The nominal thickness of this transition plate was 0.375 in.

Table 2. Data from the Vertical UT Scan Paths on the Primary Tank Wall, Plate #2

Distance from the Top Weld (ft)	Results from the Ultrasonic Examination of Plate #2. Vertical Scan Path No. 1		Results from the Ultrasonic Examination of Plate #2. Vertical Scan Path No. 2	
	Minimum Thickness Recorded in Area Scanned (in.)	45-Degree Angle Beam Examination	Minimum Thickness Recorded in Area Scanned (in.)	45-Degree Angle Beam Examination
3 to 4	0.460	No crack-like indications were detected during the examination of this plate	0.478	No crack-like indications were detected during the examination of this plate
4 to 5	0.458		0.443 ** < 90%	
5 to 6	0.465		0.473	
6 to 7	0.465		0.475	
7 to 8	0.465		0.473	
8 to 9	0.468		0.478	
9 to 10	0.465		0.483	
10 to 11	0.465		0.475	
11 to 12	0.460		0.458	
12 to 13	0.465		0.483	

** Reportable Indication.
The nominal wall thickness of this plate was 0.500 in.

The C-Scan printout showed the 0.443 indication between 4 and 5 ft from the top weld to be a gouge-like groove that covers an area that is approximately 1.2-in wide by 3.3-in. long with the deepest point being 0.443 in. This area was prominent in the C-scan plot. On the written report, the COGEMA analyst noted that groove could be from the removal of an attachment with a surface grinder. This groove is the only area in this plate that recorded a wall thickness less than 90 % of the nominal thickness (0.500 in.) of the plate, but in Scan No. 1 measurements were recorded at 0.458 and 0.460 in. There was no evidence of cracks in the primary tank wall.

Table 3. Data from the Vertical UT Scan Paths on the Primary Tank Wall, Plate #3

Distance from the Top Weld (ft)	Results from the Ultrasonic Examination of Plate #3. Vertical Scan Path No. 1		Results from the Ultrasonic Examination of Plate #3. Vertical Scan Path No. 2	
	Minimum Thickness Recorded in Area Scanned (in.)	45-Degree Angle Beam Examination	Minimum Thickness Recorded in Area Scanned (in.)	45-Degree Angle Beam Examination
13 to 14	0.478	No crack-like indications were detected during the examination of this plate	0.478	No crack-like indications were detected during the examination of this plate
14 to 15	0.483		0.478	
15 to 16	0.478		0.485	
16 to 17	0.473		0.485	
17 to 18	0.478		0.483	
18 to 19	0.460		0.483	
19 to 20	0.475		0.478	
20 to 21	0.473		0.478	
21 to 22	0.473		0.478	
22 to 23	0.473		0.478	

The nominal thickness of Plate # 3 was 0.500 in. The minimum ultrasonic reading recorded in this plate was 0.460 in. indicating some corrosion. There was no evidence of cracks in the primary tank wall.

Table 4. Data from the Vertical UT Scan Paths on the Primary Tank Wall, Plate #4

Distance from the Top Weld (ft)	Results from the Ultrasonic Examination of Plate #4. Vertical Scan Path No. 1		Results from the Ultrasonic Examination of Plate #4. Vertical Scan Path No. 2	
	Minimum Thickness Recorded in Area Scanned (in.)	45-Degree Angle Beam Examination	Minimum Thickness Recorded in Area Scanned (in.)	45-Degree Angle Beam Examination
23 to 24	0.722	No crack-like indications were detected during the examination of this plate	0.726	No crack-like indications were detected during the examination of this plate
24 to 25	0.726		0.733	
25 to 26	0.730		0.733	
26 to 27	0.730		0.737	
27 to 28	0.726		0.737	
28 to 29	0.726		0.741	
29 to 30	0.726		0.737	
30 to 31	0.722		0.737	
31 to 32	0.726		0.718	

The nominal wall thickness of Plate #4 was 0.750 in. All ultrasonic measurements were less than the nominal wall, but there was no evidence of any cracks in the primary tank wall.

Table 5. Data from the Vertical UT Scan Paths on the Primary Tank Wall, Plate #5

Distance from the Top Weld (ft)	Results from the Ultrasonic Examination of Plate #5. Vertical Scan Path No. 1		Results from the Ultrasonic Examination of Plate #5. Vertical Scan Path No. 2	
	Minimum Thickness Recorded in Area Scanned (in.)	45-Degree Angle Beam Examination	Minimum Thickness Recorded in Area Scanned (in.)	45-Degree Angle Beam Examination
32 to 33	0.860	*	0.890	*
33 to 34	0.860	*	0.880	*

* No crack-like indications were detected during the examination of this plate. The nominal thickness of this plate was 0.875 in.

Results from the Ultrasonic Examination of Welds in 241-AZ-101 Primary Tank Wall

The HAZ of welds in the tank wall was defined in the procedure as an area 1-in. wide and 3/4T (thickness) on both sides of the weld as measured from edge of the weld crown. Cracks to be detected (if present) initiate on the inner surface of the tank wall (see PNNL 11971). Three separate ultrasonic transducer configurations were used for examination. A zero degree transducer was used to detect wall thinning and corrosion in the HAZ. Two opposing 45-degree angle-beam transducers were used to detect and size cracks that lie perpendicular to the weld. One 60-degree transducer was used to detect and size cracks that lie parallel to the weld.

Weld examinations were performed on vertical welds in Plates #3, 4 and 5 as was a portion of the knuckle weld. Summarizing the results of these examinations:

- Plate #3 - - 10 ft of vertical weld. The zero degree beam measurements showed values ranging from 0.478 to 0.490 in. No evidence of cracking was detected with either the 45-degree or 60-degree transducers.
- Plate #4 - - 9 ft of vertical weld. The zero degree beam measurements showed values ranging from 0.722 to 0.733 in. No evidence of cracking was detected with either the 45-degree or 60 degree transducers.
- Plate #5 - - 2 ft of vertical weld. The zero degree beam measurements showed values ranging from 0.860 to 0.875 in. No evidence of cracking was detected with either the 45-degree or 60 degree transducers
- Knuckle Weld - - 20 ft of weld. The zero degree beam measurements showed values ranging from 0.845 to 0.885 in. No evidence of cracking was detected with either the 45-degree or 60-degree transducers.

Summary

All plates in the tank wall showed measurements that were less than the nominal wall thickness of the particular plate. Some measurements in Plate #2 were less than 90 % of the nominal thickness, but only one area in Scan No. 2 of this plate exceeded this criterion. In evaluating this area, the COGEMA analyst indicated that this could be from a surface grinder removal of an attachment on the inner wall of the tank. No evidence of cracks was detected in the wall or welds in the primary tank wall.

ATTACHMENT 2

241-AZ-101 Double-Shell Tank Ultrasonic Examination Data Reports With Data sheets

COGEMA-99-1020

COGEMA
ENGINEERING CORP.

June 30, 1999

COGEMA-99-1020

Mr. Chris E. Jensen
Lockheed Martin Hanford Corporation
Post Office Box 1500, MSIN R1-56
Richland, Washington 99352-1505

Dear Mr. Jensen:

AZ-101 DOUBLE SHELL TANK ULTRASONIC EXAMINATION DATA REPORTS

Ultrasonic examination of double shell tank AZ-101 was completed on May 28, 1999. Primary tank wall data showed one area below the reportable level on plate two. Primary tank areas ultrasonically inspected were two vertical wall scans approximately 15 inches wide by 34 feet long, and 20 feet of the vertical weld, and 20 feet of horizontal welds.

COGEMA Engineering is pleased to provide the enclosed AZ-101 DST Ultrasonic Examination Calibration Sheets and Ultrasonic Data Reports. This completes our nondestructive examination of DST AZ-101. The original ultrasonic report was transferred to Mr. Jerry Posakony at PNNL for final evaluation.

If you have any questions, please feel free to contact me at (509) 376-5403.

Sincerely,

W. H. Nelson
COGEMA NDE Ultrasonic Level III

cjl

Enclosure

P.O. Box 840
Richland, Washington 99352-0840
Phone (509) 372-3572 • Fax (509) 372-3169

COGEMA
ENGINEERING CORP.

June 30, 1999

COGEMA-99-1020

Mr. Chris E. Jensen
Lockheed Martin Hanford Corporation
Post Office Box 1500, MSIN R1-56
Richland, Washington 99352-1505

Dear Mr. Jensen:

AZ-101 DOUBLE SHELL TANK ULTRASONIC EXAMINATION DATA REPORTS

Ultrasonic examination of double shell tank AZ-101 was completed on May 28, 1999. Primary tank wall data showed one area below the reportable level on plate two. Primary tank areas ultrasonically inspected were two vertical wall scans approximately 15 inches wide by 34 feet long, and 20 feet of the vertical weld, and 20 feet of horizontal welds.

COGEMA Engineering is pleased to provide the enclosed AZ-101 DST Ultrasonic Examination Calibration Sheets and Ultrasonic Data Reports: This completes our nondestructive examination of DST AZ-101. The original ultrasonic report was transferred to Mr. Jerry Posakony at PNNL for final evaluation.

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Sincerely,

W. H. Nelson
COGEMA NDE Ultrasonic Level III

cjl

Enclosure

P.O. Box 840
Richland, Washington 99352-0840
Phone (509) 372-3572 • Fax (509) 372-3169

AUTOMATED ULTRASONIC THICKNESS CALIBRATION SHEET

CALIBRATION REPORT# N/A

LOCATION: HANFORD	SYSTEM: DST	CALIBRATION BLOCK: STEP BLOCK	
PROCEDURE: SDI 2.1 REV. 3		THICKNESS: 0.100" - 1.000"	MATERIAL: CS
UT SYSTEM: PSP-3	SERIAL #: 305	REFERENCE BLOCK: JIW	
SOFTWARE VERSION: P-SCAN / T-SCAN	REV.: 6.05	THICKNESS: 1.000"	MATERIAL: CS
LINEARITY DUE DATE: 6-15-99		REFERENCE BLOCK TEMP: 140 °F	PYRO SN.: N/A
SCANNER TYPE: AWS-5D	SERIAL #: 105	COUPLANT: WATER	BATCH#: N/A
SCANNER CABLE: AWS-5D		CABLE LENGTH: 400'	CABLE #: N/A
SIGNAL CABLE: RG-59		CABLE LENGTH: 400'	CABLE #: N/A

CHANNEL	TRANSDUCER MAKE	MODEL	FREQ.	SIZE	SERIAL #	GATE EVAL METHOD	ANGLE	WEDGE TYPE	IMAGE
1	KBA	MSEB-5E	5 Mhz	2(8x2)mm	1637	EDGE CONT	0°		1
2	KBA	MSEB-5E	5 Mhz	2(8x2)mm	1637	PK-E CONT	0°	N/A	2
3	N/A	N/A	N/A	N/A	N/A	N/A	N/A		N/A
4									

		INITIAL CALIBRATION	CALIBRATION CHECKS						
DATE		5-23-99	5-23-99	5-24-99	5-24-99	5-24-99			
TIME		10:22	19:07	0938	11:37	17:20			
REFLECTOR		BACKWALL	BACKWALL	BACKWALL	BACKWALL	BACKWALL			
CH. 1	THK.1 0.3"	0.295"	0.290"	0.295"	0.295"	0.295"			
	THK. 2 1.0"	0.995"	0.999"	0.999"	0.999"	0.995"			
CH. 2	THK.1 0.3"	0.295"	0.295"	0.295"	0.295"	0.290			
	THK. 2 1.0"	1.000"	0.999"	0.999"	0.999"	0.990"			
CH. 3	THK.1	N/A	N/A 5-23-99	N/A	N/A	N/A			
	THK. 2								
CH. 4	THK.1								
	THK. 2								
FILE #		AZI-CL01	AZI-CL02	AZI-CL03	AZI-CL04	AZI-CL05			
DISK #		AZI-1	AZI-3	AZI-4	AZI-4	AZI-6			
EXAMINER		R. SWAIN	R. SWAIN	R. SWAIN	R. SWAIN	R. SWAIN			

REMARKS

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Ronald V. Swain	N/A	W H Nelson	1 of 37
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AUTOMATED ULTRASONIC P-SCAN CALIBRATION SHEET

CALIBRATION REPORT# N/A

LOCATION: HANFORD	SYSTEM: DST	CALIBRATION BLOCK: SDI PT-1	
PROCEDURE: SDI 2.1 REV. 3		THICKNESS: 0.75"	MATERIAL: CS
UT SYSTEM: PSP-3	SERIAL #: 305	REFERENCE BLOCK: IIW	
SOFTWARE VERSION: P-SCAN / T-SCAN	REV.: 6.05	THICKNESS: 1" 4" S.P.	MATERIAL: CS
LINEARITY DUE DATE: 6-15-99		REFERENCE BLOCK TEMP: WWM Ambient/140 °F	PYRO SN.: N/A
SCANNER TYPE: AWS-5D	SERIAL #: 105	COUPLANT: WATER	BATCH #: N/A
SCANNER CABLE: AWS-5D		CABLE LENGTH: 400'	CABLE #: N/A
SIGNAL CABLE: RG-59		CABLE LENGTH: 400'	CABLE #: N/A

CHANNEL	TRANSDUCER MAKE	MODEL	FREQ.	SIZE	SERIAL #	GATE EVAL METHOD	ANGLE NOM./ACT.	WEDGE TYPE	IMAGE
1	KBA	MWB 45-4E	4 Mhz	8 X 9 mm		N	45°	INT.	1 & 2
2	KBA	MWB 45-4E	4 Mhz	8 X 9 mm		A	45°	INT.	3 & 4
3				N					
4					A				

INITIAL CALIBRATION			CALIBRATION CHECKS					
DATE		5-25-99	5-25-99	5-26-99	5-26-99			
TIME		09:24	15:55	0833	18:00			
REFLECTOR / ORRIENTATION		0.050" ID NOTCH	0.050" ID NOTCH	0.050" ID NOTCH	0.050" ID NOTCH			
CH. 1	AMPLITUDE	77	77	76	77			
	LOCATION	ID	ID	ID	ID			
CH. 2	AMPLITUDE	73	72	72	72			
	LOCATION	ID	ID	ID	ID			
CH. 3	AMPLITUDE	N/A	N/A	N/A	N/A			
	LOCATION							
CH. 4	AMPLITUDE							
	LOCATION							
FILE #		AZICL4A1	AZICL4A2	AZICL4A3	AZICL4A4			
DISK #		AZI-7	AZI-10	AZI-10	AZI-16			
EXAMINER		R. SWAIN	R. SWAIN	R. SWAIN	R. SWAIN			

N A

REMARKS

N/A

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Ronald V. Swain	N/A	W H Nelson	2 of 37
Level II Date 5-26-99	Level ___ Date ___	Level III Date 6-24-99 COGEMA	

AUTOMATED ULTRASONIC THICKNESS CALIBRATION SHEET

CALIBRATION REPORT# N/A

LOCATION HANFORD	SYSTEM DST	CALIBRATION BLOCK STEP BLK	
PROCEDURE SDI 2.1 REV. 3		THICKNESS 0.100" – 1.000"	MATERIAL CS
UT SYSTEM PSP-3	SERIAL # 305	REFERENCE BLOCK IIW	
SOFTWARE VERSION P-SCAN / T-SCAN	REV. 6.05	THICKNESS 1"	MATERIAL CS
LINEARITY DUE DATE 6-15-99		REFERENCE BLOCK TEMP AMBIENT/140 °F WDN	PYRO SN. N/A
SCANNER TYPE AWS-5D	SERIAL # 105	COUPLANT WATER	BATCH # N/A
SCANNER CABLE AWS-5D		CABLE LENGTH 400'	CABLE # N/A
SIGNAL CABLE RG-59		CABLE LENGTH 400'	CABLE # N/A

CHANNEL	TRANSDUCER MAKE	MODEL	FREQ.	SIZE	SERIAL #	GATE EVAL METHOD	ANGLE	WEDGE TYPE	IMAGE
1	KBA	MSEB-5E	5 Mhz	2(8X2mm)	1709	Edge Cont	0°	N/A	1
2	KBA	MSEB-5E	5 Mhz	2(8X2mm)	1709	PK-E Cont	0°		2
3	KBA	MSEB-5E	5 Mhz	2(8X2mm)	1718	Edge Cont	0°		3
4	KBA	MSEB-5E	5 Mhz	2(8X2mm)	1718	PK-E Cont	0°		4

INITIAL CALIBRATION			CALIBRATION CHECKS					
DATE		5-27-99	5-27-99					
TIME		09:33	15:54					
REFLECTOR		BACKWALL	BACKWALL					
CH. 1	THK.1 0.300"	0.295"	0.295"					
	THK. 2 1.000"	0.995"	0.999"					
CH. 2	THK.1 0.300"	0.300"	0.299"					
	THK. 2 1.000"	1.000"	1.009"			N/A		
CH. 3	THK.1 0.300"	0.295"	0.295"					
	THK. 2 1.000"	1.000"	0.990"					
CH. 4	THK.1 0.300"	0.304"	0.304"					
	THK. 2 1.000"	1.004"	0.995"					
FILE #		AZ1CL201	AZ1CL202					
DISK #		AZ1-16	AZ1-20					
EXAMINER		R.SWAIN	R.SWAIN					

REMARKS

N/A

Examiner Ronald V. Swain Level II Date 5-27-99	Examiner N/A Level ___ Date ___	Reviewer W H Nelson Level III Date 6-24-99 COGEMA	Page 3 of 37

AUTOMATED ULTRASONIC P-SCAN CALIBRATION SHEET

CALIBRATION REPORT# N/A

LOCATION HANFORD	SYSTEM DST	CALIBRATION BLOCK SDI PT-1	
PROCEDURE SDI 2.1 REV. 3		THICKNESS 0.75"	MATERIAL CS
UT SYSTEM PSP-3	SERIAL # 305	REFERENCE BLOCK IIW	
SOFTWARE VERSION P-SCAN / T-SCAN	REV. 6.05	THICKNESS 1" 4" SP	MATERIAL CS
LINEARITY DUE DATE 6-15-99		REFERENCE BLOCK TEMP AMBIENT/140°F WBN	PYRO SN. N/A
SCANNER TYPE AWS-5D	SERIAL # 105	COUPLANT WATER	BATCH # N/A
SCANNER CABLE AWS-5D		CABLE LENGTH 400'	CABLE # N/A
SIGNAL CABLE RG-59		CABLE LENGTH 400'	CABLE # N/A

CHANNEL	TRANSDUCER MAKE	MODEL	FREQ.	SIZE	SERIAL #	GATE EVAL METHOD	ANGLE NOM./ACT.	WEDGE TYPE	IMAGE
1	KBA	MWB 60-4E	4 mhz	8x9 mm	1855	N/A	60°/59°	INT.	1 & 2
2	KBA	MWB 60-4E	4 mhz	8x9 mm	1854		60°/58°	INT.	3 & 4
3				N/A					
4									

INITIAL CALIBRATION			CALIBRATION CHECKS						
DATE		5-27-99	5-27-99	5-28-99	5-28-99				
TIME		16:11	19:55	0859	12:14				
REFLECTOR / ORRIENTATION		0.050" ID NOTCH	0.050" ID NOTCH	0.050" ID NOTCH	0.050" ID NOTCH				
CH. 1	AMPLITUDE	61 dB	62	65	64				
	LOCATION	ID	ID	ID	ID				
CH. 2	AMPLITUDE	57 dB	58	60	60		N/A		
	LOCATION	ID	ID	ID	ID				
CH. 3	AMPLITUDE	N/A	N/A	N/A	N/A				
	LOCATION								
CH. 4	AMPLITUDE								
	LOCATION								
FILE #		AZICL6A1	AZICL6A2	AZICL6A3	AZICL6A4				
DISK #		AZI-21	AZI-24	AZI-24	AZI-18				
EXAMINER		R. SWAIN	R. SWAIN	R. SWAIN	R. SWAIN				

REMARKS

N/A

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Ronald V. Swain	N/A	WH Nelson	4 of 37
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AUTOMATED ULTRASONIC P-SCAN CALIBRATION SHEET

CALIBRATION REPORT# N/A

LOCATION HANFORD	SYSTEM DST	CALIBRATION BLOCK SDI PT-1	
PROCEDURE SDI 2.1 REV. 3		THICKNESS 0.75"	MATERIAL CS
UT SYSTEM RSP-3	SERIAL # 305	REFERENCE BLOCK TIW	
SOFTWARE VERSION P-SCAN / T-SCAN	REV. 6.05	THICKNESS 1", 4" SP	MATERIAL CS
LINEARITY DUE DATE 6-15-99		REFERENCE BLOCK TEMP AMBIENT, 140°F	PYRO SN N/A
SCANNER TYPE AWS-5D	SERIAL # 105	COUPLANT WATER	BATCH # N/A
SCANNER CABLE AWS-5D		CABLE LENGTH 400'	CABLE # N/A
SIGNAL CABLE RG-59		CABLE LENGTH 400'	CABLE # N/A

CHANNEL	TRANSDUCER MAKE	MODEL	FREQ.	SIZE	SERIAL #	GATE EVAL METHOD	ANGLE NOM./ACT.	WEDGE TYPE	IMAGE
1	KBA	MWB45-4E	4 mhz	8X9mm	30042		45°/44°	INT.	1
2	KBA	MWB45-4E	4 mhz	8X9mm	2415	N	45°/47°	INT.	2
3	KBA	MWB45-4E	4 mhz	8X9mm	2423	A	45°/44°	INT.	3
4	KBA	MWB45-4E	4 mhz	8X9mm	2412		45°/46°	INT.	4

		INITIAL CALIBRATION	CALIBRATION CHECKS						
DATE		5-28-99	5-28-99						
TIME		12:35	17:22						
REFLECTOR / ORRIENTATION		0.050" ID NOTCH	0.050" ID NOTCH						
CH. 1	AMPLITUDE	78	76						
	LOCATION	ID	ID						
CH. 2	AMPLITUDE	75	76						
	LOCATION	ID	ID			N	A		
CH. 3	AMPLITUDE	78	78						
	LOCATION	ID	ID						
CH. 4	AMPLITUDE	79	78						
	LOCATION	ID	ID						
FILE #		AZ1CL4C1	AZ1CL4C2						
DISK #		AZ1-28	AZ1-28						
EXAMINER		R.SWAIN	R.SWAIN						

REMARKS

N/A

Examiner	Examiner	Reviewer	Page
Ronald V. Swain	N/A	W H Nelson	5 of 37
Level II Date 5-28-99	Level ___ Date ___	Level III Date 6-24-99 COGEMA	

2/99

AUTOMATED ULTRASONIC THICKNESS DATA REPORT

REPORT# N/A
REF. CAL. # N/A

LOCATION HANFORD	SYSTEM DST TANK A2101	EXAM START 1215	EXAM END 1300	JOB # N/A
COMPONENT ID PRIMARY WALL (TOP TRANS.) PLATE 1		EXAMINATION SURFACE ☒ OD ☐ ID ☐ PAINTED		NOM. THICKNESS .375
CONFIGURATION TOP TRANS. PLATE 1, SCAN 1, 0°		CALIBRATED RANGE .300" TO 1.000"		TEMP 140 °F
CIRCUMFERENCE/TOTAL LENGTH EXAMINED 35.6"	SCAN LENGTH/PART 12"	REF. LEVEL CORRECTION (TRANS. CORR) 0 DB		
PROCEDURE SDI 2.1	REV 3	MATERIAL TYPE ☐ SS ☒ CS OTHER		CONDITION
FILE NAME/ITEM# A21PW T10	DATA DISK#	TRANSDUCER ☒ DUAL ☐ SGL ☒ 0DEG ☐ ANGLE		
X_0 REF. POINT (L_0)	Y_0 REF. POINT (W_0) BELOW RISER	SCAN WIDTH 15"		

PART # / INDICATION	L START	L STOP	W START	W STOP	AVE. THK.	MIN. THK, R. LIG.	AREA REPORTABLE	COMMENTS
.1					.382	.354	NO	
.2					.376	.350	NO	
.3					.376	.350	NO	
SUMMARY MERGED RESULTS								

N/A

REMARKS

Examiner	Analyst	Reviewer	Page
Ronald V. Swain Level II Date 5/23/99	James B. Eller Level III Date 6/9/99	W H Nelson Level III Date 6-24-99 COGEMA	6 of 37

2/99

AUTOMATED ULTRASONIC THICKNESS DATA REPORT

REPORT# N/A
REF. CAL. # N/A

LOCATION HANFORD	SYSTEM DST TANK A2101	EXAM START 1305	EXAM END 1640	JOB # N/A
COMPONENT ID PRIMARY TANK WALL PLATE 2 SCAN 1 0°		EXAMINATION SURFACE ☒ OD ☐ ID ☐ PAINTED		NOM. THICKNESS .5
CONFIGURATION TO WALL SCAN, PLATE 2, SCAN 1 0°		CALIBRATED RANGE .300" TO 1.000"		TEMP 140 °F
CIRCUMFERENCE/TOTAL LENGTH EXAMINED 115.2"	SCAN LENGTH/PART 12"	REF. LEVEL CORRECTION (TRANS. CORR) 0 DB		
PROCEDURE SDI 2.1	REV 3	MATERIAL TYPE ☐ SS ☒ CS OTHER		CONDITION
FILE NAME/ITEM# A21 PW110	DATA DISK#	TRANSDUCER ☒ DUAL ☐ SGL ☒ 0DEG ☐ ANGLE		
X_0 REF. POINT (L_0) ~1" below Top weld	Y_0 REF. POINT (W_0) BELOW RISER	SCAN WIDTH		

PART # / INDICATION	L START	L STOP	W START	W STOP	AVE. THK.	MIN. THK, R. LIG.	AREA REPORTABLE	COMMENTS
.1					.488	.460	NO	
.2					.487	.458	NO	
.3					.488	.465	NO	
.4					.489	.465	NO	
.5					.490	.465	NO	
.6					.490	.468	NO	
.7					.489	.465	NO	
.8					.491	.465	NO	
.9					.492	.460	NO	
.10					.496	.465	NO	
SUMMARY MERGED RESULTS								

N/A

N/A

N/A

REMARKS

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AUTOMATED ULTRASONIC THICKNESS DATA REPORT

REPORT# N/A
REF. CAL. # N/A

LOCATION HANFORD	SYSTEM DST TANK A2101	EXAM START 1645	EXAM END 1810	JOB # N/A
COMPONENT ID PRIMARY WALL, PLATE 3, SCAN 1 0°		EXAMINATION SURFACE ☒ OD ☐ ID ☐ PAINTED		NOM. THICKNESS 0.5"
CONFIGURATION PRIMARY WALL	TO PLATE 3 -	CALIBRATED RANGE .300" TO 1.000"		TEMP 140 °F
CIRCUMFERENCE/TOTAL LENGTH EXAMINED 115	SCAN LENGTH/PART 12"	REF. LEVEL CORRECTION (TRANS. CORR) 0 DB		
PROCEDURE SDI 2.1	REV 3	MATERIAL TYPE ☐ SS ☒ CS OTHER		CONDITION
FILE NAME/ITEM# A21W210	DATA DISK#	TRANSDUCER ☒ DUAL ☐ SGL ☒ 0DEG ☐ ANGLE		
X_0 REF. POINT (L_0) ~1" below top weld	Y_0 REF. POINT (W_0) Below riser	SCAN WIDTH 15"		

PART # / INDICATION	L START	L STOP	W START	W STOP	AVE. THK.	MIN. THK, R. LIG.	AREA REPORTABLE	COMMENTS
.1					.508	.478	NO	
.2					.503	.483	NO	
.3					.499	.478	NO	
.4					.501	.473	NO	
.5					.500	.478	NO	
.6					.498	.460	NO	
.7					.496	.475	NO	
.8					.493	.473	NO	
.9					.489	.473	NO	
.10					.493	.473	NO	
SUMMARY MERGED RESULTS								

N/A

REMARKS

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AUTOMATED ULTRASONIC THICKNESS DATA REPORT

REPORT# N/A
REF. CAL. # N/A

LOCATION: HANFORD	SYSTEM: DST TANK 42101	EXAM START: 1620	EXAM END: 1809	JOB #: N/A
COMPONENT ID: PRIMARY WALL PLATE 4 Scan 1 0°		EXAMINATION SURFACE: ☒ OD ☐ ID ☐ PAINTED		NOM. THICKNESS: 0.75
CONFIGURATION: PRIMARY WALL SCAN 1	TO	CALIBRATED RANGE: .300" TO 1.000"		TEMP: 140 °F
CIRCUMFERENCE/TOTAL LENGTH EXAMINED: 104.6	SCAN LENGTH/PART: 12"	REF. LEVEL CORRECTION (TRANS. CORR): 0 DB		
PROCEDURE: SDI 2.1	REV: 3	MATERIAL TYPE: ☐ SS ☒ CS OTHER		CONDITION
FILE NAME/ITEM#: A2 1PW310	DATA DISK#	TRANSDUCER: ☒ DUAL ☐ SGL ☒ 0DEG ☐ ANGLE		
X_0 REF. POINT (L_0): 21" FROM TOP WELD TOE	Y_0 REF. POINT (W_0): BELOW RISER	SCAN WIDTH: 15"		

PART # / INDICATION	L START	L STOP	W START	W STOP	AVE. THK.	MIN. THK, R. LIG.	AREA REPORTABLE	COMMENTS
1					0.742	.722	NO	
2					.747	.726	NO	
3					.749	.730	NO	
4					.748	.730	NO	
5					.748	.726	NO	
6					.747	.726	NO	
7					.747	.726	NO	
8					.743	.722	NO	
9					.748	.726	NO	
SUMMARY MERGED RESULTS								

N/A

REMARKS

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AUTOMATED ULTRASONIC THICKNESS DATA REPORT

REPORT# N/A
REF. CAL. # N/A

LOCATION HANFORD	SYSTEM DST TANK A2101	EXAM START 1815	EXAM END 1837	JOB # N/A
COMPONENT ID PRIMARY WALL, PLATE 5, SCAN 1 0°		EXAMINATION SURFACE ☒ OD ☐ ID ☐ PAINTED		NOM. THICKNESS 0.875
CONFIGURATION TO BOTTOM TRANS. PLATE, WALL SCAN 1		CALIBRATED RANGE .300" TO 1.000"		TEMP 140 °F
CIRCUMFERENCE/TOTAL LENGTH EXAMINED 21.9	SCAN LENGTH/PART 12	REF. LEVEL CORRECTION (TRANS. CORR) 0 DB		
PROCEDURE SDI 2.1	REV 3	MATERIAL TYPE ☐ SS ☒ CS OTHER		CONDITION
FILE NAME/ITEM# A21PW410	DATA DISK#	TRANSDUCER ☒ DUAL ☐ SGL ☒ 0DEG ☐ ANGLE		
X_0 REF. POINT (L_0)	Y_0 REF. POINT (W_0)	SCAN WIDTH 15"		

PART # / INDICATION	L START	L STOP	W START	W STOP	AVE. THK.	MIN. THK, R. LIG.	AREA REPORTABLE	COMMENTS
.1		N/A			0.896	0.860	NO	N/A
.2					0.892	0.860	NO	
SUMMARY MERGED RESULTS								

REMARKS

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AUTOMATED ULTRASONIC THICKNESS DATA REPORT

REPORT# N/A

REF. CAL. # N/A

LOCATION HANFORD	SYSTEM DST TANK A2101	EXAM START 1010	EXAM END 1037	JOB # N/A
COMPONENT ID PRIMARY WALL, (TOP TRANS) PLATE 1, SCAN 2		EXAMINATION SURFACE ☒ OD ☐ ID ☐ PAINTED		NOM. THICKNESS 0.375
CONFIGURATION TOP TRANS, PLATE 1, SCAN 2, 0°		CALIBRATED RANGE .300" TO 1.000"		TEMP 140 °F
CIRCUMFERENCE/TOTAL LENGTH EXAMINED	SCAN LENGTH/PART 12"	REF. LEVEL CORRECTION (TRANS. CORR) 0 DB		
PROCEDURE SDI 2.1	REV 3	MATERIAL TYPE ☐ SS ☒ CS OTHER		CONDITION
FILE NAME/ITEM# A21PW120	DATA DISK#	TRANSDUCER ☒ DUAL ☐ SGL ☒ 0DEG ☐ ANGLE		
X_0 REF. POINT (L_0) 24" above P1-P2 weld.	Y_0 REF. POINT (W_0)	SCAN WIDTH 15"		

PART # / INDICATION	L START	L STOP	W START	W STOP	AVE. THK.	MIN. THK, R. LIG.	AREA REPORTABLE	COMMENTS
.1		N			.388	.357	NO	N
.2			A		.386	.361	NO	A
SUMMARY MERGED RESULTS								

N

A

REMARKS

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AUTOMATED ULTRASONIC THICKNESS DATA REPORT

REPORT# N/A

REF. CAL. # N/A

LOCATION Hanford	SYSTEM DST TANK A2101	EXAM START 1040	EXAM END 1319	JOB # N/A
COMPONENT ID PRIMARY WALL, PLATE 2 SCAN 2, 0°		EXAMINATION SURFACE ☒ OD ☐ ID ☐ PAINTED		NOM. THICKNESS 0.5"
CONFIGURATION PRIMARY WALL SCAN, TO PLATE 2 SCAN 2		CALIBRATED RANGE .300" TO 1.000"		TEMP 140 °F
CIRCUMFERENCE/TOTAL LENGTH EXAMINED 114.2"	SCAN LENGTH/PART 12"	REF. LEVEL CORRECTION (TRANS. CORR) 0 DB		
PROCEDURE SD1 2.1	REV 3	MATERIAL TYPE ☐ SS ☒ CS OTHER		CONDITION
FILE NAME/ITEM# A21 PW220	DATA DISK#	TRANSDUCER ☒ DUAL ☐ SGL ☒ 0DEG ☐ ANGLE		
X_0 REF. POINT (L_0)	Y_0 REF. POINT (W_0)	SCAN WIDTH 15"		

PART # / INDICATION	L START	L STOP	W START	W STOP	AVE. THK.	MIN. THK, R. LIG.	AREA REPORTABLE	COMMENTS
1	N/A	–	–	–	.503	.478	NO	N/A
2/(#1)	12.973	13.069	-2.975	-3.105	.506	.443	YES <0.1%	*1
3					.504	.473	NO	
4					.508	.475	NO	
5					.507	.473	NO	
6		N			.506	.478	NO	N/A
7					.506	.483	NO	
8			A		.505	.475	NO	
9					.506	.458	NO	
10					.509	.483	NO	
SUMMARY MERGED RESULTS								

N/A

REMARKS

*1 INDICATION #1, Only 1 pixel at 0.450". (at 0.495" the indication is from 12.397" to 13.646" x -2.199" to -5.433".) Possible attachment weld removal area, surface grinding.

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REPORT# N/A
REF. CAL. # N/A

LOCATION HANFORD	SYSTEM DST TANK A2101	EXAM START 1320	EXAM END 1500	JOB # N/A
COMPONENT ID PRIMARY WALL, PLATE 3, SCAN 2 0°		EXAMINATION SURFACE ☒ OD ☐ ID ☐ PAINTED		NOM. THICKNESS 0.5"
CONFIGURATION PRIMARY WALL TO SCAN PLATE 3, SCAN 2		CALIBRATED RANGE .300" TO 1.000"		TEMP 140 °F
CIRCUMFERENCE/TOTAL LENGTH EXAMINED 114.16"	SCAN LENGTH/PART 12"	REF. LEVEL CORRECTION (TRANS. CORR) 0 DB		
PROCEDURE SDI 2.1	REV 3	MATERIAL TYPE ☐ SS ☒ CS OTHER		CONDITION
FILE NAME/ITEM# A21PW320	DATA DISK#	TRANSDUCER ☒ DUAL ☐ SGL ☒ 0DEG ☐ ANGLE		
X_0 REF. POINT (L_0)	Y_0 REF. POINT (W_0)	SCAN WIDTH 15"		

PART # / INDICATION	L START	L STOP	W START	W STOP	AVE. THK.	MIN. THK, R. LIG.	AREA REPORTABLE	COMMENTS
1					.519	.478	NO	
2					.514	.478	NO	
3					.510	.485	NO	
4					.510	.485	NO	
5					.509	.483	NO	
6					.507	.483	NO	
7					.506	.478	NO	
8					.503	.478	NO	
9					.502	.478	NO	
10					.506	.478	NO	
SUMMARY MERGED RESULTS								

N/A

N/A

REMARKS

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REPORT# N/A
REF. CAL. # N/A

LOCATION HANFORD	SYSTEM DST TANK A2101	EXAM START 1500	EXAM END 1635	JOB # N/A
COMPONENT ID PRIMARY WALL, PLATE 4, SCAN 2 0°		EXAMINATION SURFACE ☒ OD ☐ ID ☐ PAINTED		NOM. THICKNESS 0.25"
CONFIGURATION PRIMARY WALL SCAN	TO PLATE 4 SCAN 2	CALIBRATED RANGE .300" TO 1.000"		TEMP 140 °F
CIRCUMFERENCE/TOTAL LENGTH EXAMINED 104.5"	SCAN LENGTH/PART 12"	REF. LEVEL CORRECTION (TRANS. CORR) 0 DB		
PROCEDURE SDI 2.1	REV 3	MATERIAL TYPE ☐ SS ☒ CS OTHER		CONDITION
FILE NAME/ITEM# A21PW420	DATA DISK#	TRANSDUCER ☒ DUAL ☐ SGL ☒ 0DEG ☐ ANGLE		
X_o REF. POINT (L_o)	Y_o REF. POINT (W_o)	SCAN WIDTH 15"		

PART # / INDICATION	L START	L STOP	W START	W STOP	AVE. THK.	MIN. THK, R. LIG.	AREA REPORTABLE	COMMENTS
1					.752	.726	NO	
2					.755	.733	NO	
3					.759	.733	NO	
4					.762	.737	NO	
5					.763	.737	NO	
6					.763	.741	NO	
7					.763	.737	NO	
8					.760	.737	NO	
9					.762	.718	NO	
SUMMARY MERGED RESULTS								

N/A

REMARKS

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AUTOMATED ULTRASONIC THICKNESS DATA REPORT

REPORT# N/A
REF. CAL. # N/A

LOCATION HANFORD	SYSTEM PST TANK A2101	EXAM START 1635	EXAM END 1655	JOB # N/A
COMPONENT ID PRIMARY WALL PLATE 5, SCAN 2 0°		EXAMINATION SURFACE ☒ OD ☐ ID ☐ PAINTED		NOM. THICKNESS 0.875"
CONFIGURATION PRIMARY WALL TO BOTTOM TRANS. PLATE		CALIBRATED RANGE .300" TO 1.000"		TEMP 140 °F
CIRCUMFERENCE/TOTAL LENGTH EXAMINED 21.5"	SCAN LENGTH/PART 12"	REF. LEVEL CORRECTION (TRANS. CORR) 0 DB		
PROCEDURE SDI 2.1	REV 3	MATERIAL TYPE ☐ SS ☒ CS OTHER		CONDITION
FILE NAME/ITEM# A21PW520	DATA DISK#	TRANSDUCER ☒ DUAL ☐ SGL ☒ 0DEG ☐ ANGLE		
X_0 REF. POINT (L_0)	Y_0 REF. POINT (W_0)	SCAN WIDTH 15"		

PART # / INDICATION	L START	L STOP	W START	W STOP	AVE. THK.	MIN. THK, R. LIG.	AREA REPORTABLE	COMMENTS
1		N			.909	.890	NO	N
2		A			.904	.880	NO	A
SUMMARY MERGED RESULTS								

N/A

REMARKS

Lamination /noise present

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ULTRASONIC P-SCAN DATA REPORT

REPORT # N/A

LOCATION HANFORD	SYSTEM DST TANK A2101	EXAM START 1000	EXAM END 1102	JOB # N/A
COMPONENT ID PRIMARY WALL, TOP TRANS. (PLATE 1) 45° SCAN 1		EXAMINATION SURFACE ☒ OD ☐ ID ☐ PAINTED		NOM. THICKNESS 0.375
CONFIGURATION TO TOP TRANS. PLATE, (PLATE 1)		CALIBRATED RANGE 0 - 2.56"		TEMP 140 °F
CIRCUMFERENCE/TOTAL LENGTH EXAMINED 35.4"	SCAN LENGTH/PART 12"	REF. LEVEL CORRECTION (TRANS. CORR) 0 DB		
PROCEDURE SDI 2.1	REV 3	MATERIAL TYPE ☐ SS ☒ CS OTHER		CONDITION
FILE NAME/ITEM# A21PW114	DATA DISK#	TRANSDUCER ☐ DUAL ☒ SGL ☐ 0DEG ☒ ANGLE 45		
X_0 REF. POINT (L_0)	Y_0 REF. POINT (W_0)	SCAN WIDTH 15"		

SIZING METHOD	ANGLE	REFERENCE CAL. SHEET	SET-UP
1 45 DEGREE SHEAR	45°		N/A
2 60 DEGREE SHEAR			
3 AATT			
4 DUAL 0 DEGREE			

INDICATION INFORMATION

IND	METHOD	WELD SIDE	DEPTH R. LIG.	MAX AMP	L1	LENGTH	L2	W1	WIDTH	W2	INDICATION TYPE
	NO CRACKLIKE INDICATIONS.										

REMARKS

NO CRACKLIKE INDICATIONS.
Intermittent noise indications.

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ULTRASONIC P-SCAN DATA REPORT

REPORT # N/A

LOCATION HANFORD	SYSTEM DST TANK A2101	EXAM START 1100	EXAM END 1350	JOB # N/A
COMPONENT ID PRIMARY WALL PLATE 2, SCAN 1, 45°		EXAMINATION SURFACE ☒ OD ☐ ID ☐ PAINTED		NOM. THICKNESS 0.5"
CONFIGURATION PRIMARY TO WALL, PLATE 2		CALIBRATED RANGE 0-2.56"		TEMP 140 °F
CIRCUMFERENCE/TOTAL LENGTH EXAMINED 115.7	SCAN LENGTH/PART 12"	REF. LEVEL CORRECTION (TRANS. CORR) 0 DB		
PROCEDURE SDI 2.1	REV 3	MATERIAL TYPE ☐ SS ☒ CS OTHER		CONDITION
FILE NAME/ITEM# A21PW214	DATA DISK#	TRANSDUCER ☐ DUAL ☒ SGL ☐ 0DEG ☒ ANGLE 45		
X_0 REF. POINT (L_0)	Y_0 REF. POINT (W_0)	SCAN WIDTH 15"		

SIZING METHOD	ANGLE	REFERENCE CAL. SHEET	SET-UP
1 45 DEGREE SHEAR	45°		N/A
2 60 DEGREE SHEAR			
3 AATT			
4 DUAL 0 DEGREE			

INDICATION INFORMATION

IND	METHOD	WELD SIDE	DEPTH R. LIG.	MAX AMP	L1	LENGTH	L2	W1	WIDTH	W2	INDICATION TYPE
	NO CRACK LIKE INDICATIONS										

REMARKS

NO CRACKLIKE INDICATIONS.

INTERMITTENT NOISE INDICATIONS.

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ULTRASONIC P-SCAN DATA REPORT

REPORT # N/A

LOCATION HANFORD	SYSTEM DST TANK A2 101	EXAM START 1355	EXAM END 1537	JOB # N/A
COMPONENT ID PRIMARY WALL SCAN 1, PLATE 3, 45°		EXAMINATION SURFACE ☒ OD ☐ ID ☐ PAINTED		NOM. THICKNESS 0.5"
CONFIGURATION PRIMARY WALL TO PLATE 3		CALIBRATED RANGE 0-2.58"		TEMP 146 °F
CIRCUMFERENCE/TOTAL LENGTH EXAMINED 115.4"	SCAN LENGTH/PART 12	REF. LEVEL CORRECTION (TRANS. CORR) 0 DB		
PROCEDURE SDI 2.1	REV 3	MATERIAL TYPE ☐ SS ☒ CS OTHER		CONDITION
FILE NAME/ITEM# A21PW314	DATA DISK#	TRANSDUCER ☐ DUAL ☒ SGL ☐ 0DEG ☒ ANGLE 45		
X_0 REF. POINT (L_0)	Y_0 REF. POINT (W_0)	SCAN WIDTH 15"		

SIZING METHOD	ANGLE	REFERENCE CAL. SHEET	SET-UP
1 45 DEGREE SHEAR	45°		
2 60 DEGREE SHEAR			
3 AATT			
4 DUAL 0 DEGREE			

INDICATION INFORMATION

IND	METHOD	WELD SIDE	DEPTH R. LIG.	MAX AMP	L1	LENGTH	L2	W1	WIDTH	W2	INDICATION TYPE
	NO CRACKLIKE INDICATIONS										

REMARKS
NO CRACKLIKE INDICATIONS

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ULTRASONIC P-SCAN DATA REPORT

REPORT # N/A

LOCATION HANFORD	SYSTEM DST TANK AZ 101	EXAM START 0855	EXAM END 1045	JOB # N/A
COMPONENT ID PRIMARY WALL, SCAN 1, PLATE 4, 45°		EXAMINATION SURFACE ☒ OD ☐ ID ☐ PAINTED		NOM. THICKNESS 0.75
CONFIGURATION TO PRIMARY WALL PLATE 4		CALIBRATED RANGE 0 - 2.56"		TEMP 140 °F
CIRCUMFERENCE/TOTAL LENGTH EXAMINED 106.	SCAN LENGTH/PART 12"	REF. LEVEL CORRECTION (TRANS. CORR) 0 DB		
PROCEDURE SDI 2.1	REV 3	MATERIAL TYPE ☐ SS ☒ CS OTHER		CONDITION
FILE NAME/ITEM# AZ1PW414	DATA DISK#	TRANSDUCER ☐ DUAL ☒ SGL ☐ 0DEG ☒ ANGLE 45		
X_0 REF. POINT (L_0)	Y_0 REF. POINT (W_0)	SCAN WIDTH		

SIZING METHOD	ANGLE	REFERENCE CAL. SHEET	SET-UP
1 45 DEGREE SHEAR	45		
2 60 DEGREE SHEAR		N	
3 AATT			A
4 DUAL 0 DEGREE			

INDICATION INFORMATION

IND	METHOD	WELD SIDE	DEPTH R. LIG.	MAX AMP	L1	LENGTH	L2	W1	WIDTH	W2	INDICATION TYPE
	NO CRACK LIKE INDICATIONS										

REMARKS

NO CRACK LIKE INDICATIONS

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ULTRASONIC P-SCAN DATA REPORT

REPORT # N/A

LOCATION HANFORD	SYSTEM DST TANK A2101	EXAM START 1050	EXAM END 1115	JOB # N/A
COMPONENT ID PRIMARY WALL, SCAN 1, PLATE 5, 45°		EXAMINATION SURFACE ☒ OD ☐ ID ☐ PAINTED		NOM. THICKNESS 0.9
CONFIGURATION PRIMARY WALL TO PLATE 5		CALIBRATED RANGE 0 - 2.58"		TEMP 140 °F
CIRCUMFERENCE/TOTAL LENGTH EXAMINED 21.5"	SCAN LENGTH/PART 12"	REF. LEVEL CORRECTION (TRANS. CORR) 0 DB		
PROCEDURE SDI 2.1	REV 3	MATERIAL TYPE ☐ SS ☒ CS OTHER		CONDITION
FILE NAME/ITEM# A2 IPW 514	DATA DISK#	TRANSDUCER ☐ DUAL ☒ SGL ☐ 0DEG ☒ ANGLE 45		
X_0 REF. POINT (L_0)	Y_0 REF. POINT (W_0)	SCAN WIDTH 15"		

SIZING METHOD	ANGLE	REFERENCE CAL. SHEET	SET-UP
1 45 DEGREE SHEAR	45		
2 60 DEGREE SHEAR			
3 AATT			
4 DUAL 0 DEGREE			

INDICATION INFORMATION

IND	METHOD	WELD SIDE	DEPTH R. LIG.	MAX AMP	L1	LENGTH	L2	W1	WIDTH	W2	INDICATION TYPE
	NO CRACKLIKE INDICATIONS										

REMARKS

NO CRACKLIKE INDICATIONS.

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ULTRASONIC P-SCAN DATA REPORT

REPORT # N/A

LOCATION HANFORD	SYSTEM DST TANK AZ101	EXAM START 1145	EXAM END 1215	JOB # N/A
COMPONENT ID PRIMARY WALL, SCAN 2, PLATE 1, 45°		EXAMINATION SURFACE ☒ OD ☐ ID ☐ PAINTED		NOM. THICKNESS 0.375"
CONFIGURATION PRIMARY WALL, TOP TRAN (PLATE 1) SCAN 2	TO	CALIBRATED RANGE 0. 2.56"		TEMP 140 °F
CIRCUMFERENCE/TOTAL LENGTH EXAMINED 35.3"	SCAN LENGTH/PART 12	REF. LEVEL CORRECTION (TRANS. CORR) 0 DB		
PROCEDURE SDI 2.1	REV 3	MATERIAL TYPE ☐ SS ☒ CS OTHER		CONDITION
FILE NAME/ITEM# AZ1PW124	DATA DISK#	TRANSDUCER ☐ DUAL ☒ SGL ☐ 0DEG ☒ ANGLE 45°		
X_0 REF. POINT (L_0)	Y_0 REF. POINT (W_0)	SCAN WIDTH 15"		

SIZING METHOD	ANGLE	REFERENCE CAL. SHEET	SET-UP
1 45 DEGREE SHEAR	45	N/A	
2 60 DEGREE SHEAR			
3 AATT			
4 DUAL 0 DEGREE			

INDICATION INFORMATION

IND.	METHOD	WELD SIDE	DEPTH R. LIG.	MAX AMP	L1	LENGTH	L2	W1	WIDTH	W2	INDICATION TYPE
	NO CRACKLIKE INDICATIONS										

REMARKS

NO CRACKLIKE INDICATIONS

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ULTRASONIC P-SCAN DATA REPORT

REPORT # N/A

LOCATION: HANFORD	SYSTEM: DST TANK A2101	EXAM START: 1215	EXAM END: 1357	JOB #: N/A
COMPONENT ID: PRIMARY WALL, PLATE 2, 45°, SCAN 2		EXAMINATION SURFACE: ☒ OD ☐ ID ☐ PAINTED		NOM. THICKNESS: 0.50"
CONFIGURATION: PRIMARY WALL, SCAN 2 45°	TO	CALIBRATED RANGE: 0-2.56"		TEMP: 140 °F
CIRCUMFERENCE/TOTAL LENGTH EXAMINED: 114.6"	SCAN LENGTH/PART: 12"	REF. LEVEL CORRECTION (TRANS. CORR): 0 DB		
PROCEDURE: SDI 2.1	REV: 3	MATERIAL TYPE: ☐ SS ☒ CS OTHER		CONDITION
FILE NAME/ITEM#: A21PW224	DATA DISK#	TRANSDUCER: ☐ DUAL ☒ SGL ☐ 0DEG ☒ ANGLE 45		
X_0 REF. POINT (L_0)	Y_0 REF. POINT (W_0)	SCAN WIDTH: 15"		

SIZING METHOD	ANGLE	REFERENCE CAL. SHEET	SET-UP
1 45 DEGREE SHEAR	45°		
2 60 DEGREE SHEAR		N/A	
3 AATT			N/A
4 DUAL 0 DEGREE			

INDICATION INFORMATION

IND	METHOD	WELD SIDE	DEPTH R. LIG.	MAX AMP	L1	LENGTH	L2	W1	WIDTH	W2	INDICATION TYPE
	NO CRACKLIKE INDICATIONS.										

REMARKS
NO CRACKLIKE INDICATIONS.

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ULTRASONIC P-SCAN DATA REPORT

REPORT # N/A

LOCATION HANFORD	SYSTEM DST TANK A2101	EXAM START 1400	EXAM END 1550	JOB # N/A
COMPONENT ID PRIMARY WALL, PLATE 3, SCAN 2		EXAMINATION SURFACE ☒ OD ☐ ID ☐ PAINTED		NOM. THICKNESS 0.5
CONFIGURATION PRIMARY WALL TO SCAN 2 45°		CALIBRATED RANGE 0-2.56"		TEMP 140 °F
CIRCUMFERENCE/TOTAL LENGTH EXAMINED 115"	SCAN LENGTH/PART 12"	REF. LEVEL CORRECTION (TRANS. CORR) 0 DB		
PROCEDURE SDI 2.1	REV 3	MATERIAL TYPE ☐ SS ☒ CS OTHER		CONDITION
FILE NAME/ITEM# A21PW324	DATA DISK#	TRANSDUCER ☐ DUAL ☒ SGL ☐ 0DEG ☒ ANGLE 45		
X_0 REF. POINT (L_0)	Y_0 REF. POINT (W_0)	SCAN WIDTH 15"		

SIZING METHOD	ANGLE	REFERENCE CAL. SHEET	SET-UP
1 45 DEGREE SHEAR	45	N/A	
2 60 DEGREE SHEAR			
3 AATT			
4 DUAL 0 DEGREE			

INDICATION INFORMATION

IND	METHOD	WELD SIDE	DEPTH R. LIG.	MAX AMP	L1	LENGTH	L2	W1	WIDTH	W2	INDICATION TYPE
	NO CRACKLIKE INDICATIONS										

REMARKS

NO CRACKLIKE INDICATIONS

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ULTRASONIC P-SCAN DATA REPORT

REPORT # N/A

LOCATION HANFORD	SYSTEM DST TANK A2101	EXAM START 1550	EXAM END 1713	JOB # N/A
COMPONENT ID PRIMARY WALL PLATE 4, SCAN 2, 45°		EXAMINATION SURFACE ☒ OD ☐ ID ☐ PAINTED		NOM. THICKNESS 0.75
CONFIGURATION PRIMARY WALL TO SCAN 2, 45°		CALIBRATED RANGE 0-2.56"		TEMP 140 °F
CIRCUMFERENCE/TOTAL LENGTH EXAMINED 105	SCAN LENGTH/PART 12"	REF. LEVEL CORRECTION (TRANS. CORR) 0 DB		
PROCEDURE SDI 2.1	REV 3	MATERIAL TYPE ☐ SS ☒ CS OTHER		CONDITION
FILE NAME/ITEM# A2IPW424	DATA DISK#	TRANSDUCER ☐ DUAL ☒ SGL ☐ 0DEG ☒ ANGLE 45		
X_0 REF. POINT (L_0)	Y_0 REF. POINT (W_0)	SCAN WIDTH 15"		

SIZING METHOD	ANGLE	REFERENCE CAL. SHEET	SET-UP
1 45 DEGREE SHEAR	45		
2 60 DEGREE SHEAR			
3 AATT			
4 DUAL 0 DEGREE			

INDICATION INFORMATION

IND	METHOD	WELD SIDE	DEPTH R. LIG.	MAX AMP	L1	LENGTH	L2	W1	WIDTH	W2	INDICATION TYPE
	NO CRACKLIKE INDICATIONS										

REMARKS
NO CRACKLIKE INDICATIONS

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ULTRASONIC P-SCAN DATA REPORT

REPORT # N/A

LOCATION HANFORD	SYSTEM DST TANK AZ101	EXAM START 1710	EXAM END 1732	JOB # N/A
COMPONENT ID PRIMARY WALL SCAN 2 PLATE 5, 45°		EXAMINATION SURFACE ☒ OD ☐ ID ☐ PAINTED		NOM. THICKNESS 0.9
CONFIGURATION PRIMARY WALL, BOTTOM TRANS. SCAN 2, 45	TO	CALIBRATED RANGE 0 - 2.56"		TEMP 140 °F
CIRCUMFERENCE/TOTAL LENGTH EXAMINED 21.9"	SCAN LENGTH/PART 12"	REF. LEVEL CORRECTION (TRANS. CORR) 0 DB		
PROCEDURE SDI 2.1	REV 3	MATERIAL TYPE ☐ SS ☒ CS OTHER		CONDITION
FILE NAME/ITEM# AZ1PW 524	DATA DISK#	TRANSDUCER ☐ DUAL ☒ SGL ☐ 0DEG ☒ ANGLE 45		
X_0 REF. POINT (L_0)	Y_0 REF. POINT (W_0)	SCAN WIDTH 15"		

	SIZING METHOD	ANGLE	REFERENCE CAL. SHEET	SET-UP
1	45 DEGREE SHEAR	45		
2	60 DEGREE SHEAR		N	
3	AATT			
4	DUAL 0 DEGREE			N

INDICATION INFORMATION

IND	METHOD	WELD SIDE	DEPTH R. LIG.	MAX AMP	L1	LENGTH	L2	W1	WIDTH	W2	INDICATION TYPE
	NO CRACKLIKE INDICATIONS										

REMARKS
NO CRACKLIKE INDICATIONS

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AUTOMATED ULTRASONIC THICKNESS DATA REPORT

REPORT# N/A
REF. CAL. # N/A

LOCATION HANFORD	SYSTEM DST TANK A2101	EXAM START 1000	EXAM END 1050	JOB # N/A
COMPONENT ID PRIMARY WALL, VERT. WELD 3. 0°		EXAMINATION SURFACE ☒ OD ☐ ID ☐ PAINTED		NOM. THICKNESS 0.5"
CONFIGURATION PLATE 3 TO PLATE 3		CALIBRATED RANGE .300" TO 1.000"		TEMP 140 °F
CIRCUMFERENCE/TOTAL LENGTH EXAMINED 114.2"	SCAN LENGTH/PART 12"	REF. LEVEL CORRECTION (TRANS. CORR) 0 DB		
PROCEDURE SDI 2.1	REV 3	MATERIAL TYPE ☐ SS ☒ CS OTHER		CONDITION
FILE NAME/ITEM# A21 PLW30	DATA DISK#	TRANSDUCER ☒ DUAL ~~☒ SCL~~ ☒ 0DEG ☐ ANGLE		
X_0 REF. POINT (L_0) ~1" From Top weld, Plate 3	Y_0 REF. POINT (W_0) WELD ℄	SCAN WIDTH 6"		

PART # / INDICATION	L START	L STOP	W START	W STOP	AVE. THK.	MIN. THK, R. LIG.	AREA REPORTABLE	COMMENTS
1					.523	.490	NO	
2					.520	.490	NO	
3					.520	.490	NO	
4					.512	.485	NO	
5					.512	.478	NO	
6					.511	.483	NO	
7					.514	.483	NO	
8					.510	.478	NO	
9					.507	.478	NO	
10					.503	.478	NO	
SUMMARY MERGED RESULTS								

N/A

N/A

REMARKS

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ULTRASONIC P-SCAN DATA REPORT

REPORT # N/A

LOCATION: HANFORD	SYSTEM: DST TANK AZ101	EXAM START: 1645	EXAM END: 1730	JOB #: N/A
COMPONENT ID: PRIMARY WALL, PLATE3 VENT WELD 60°		EXAMINATION SURFACE: ☒ OD ☐ ID ☐ PAINTED		NOM. THICKNESS: 0.5"
CONFIGURATION: PLATE 3 TO PLATE 3		CALIBRATED RANGE: 0 - 3.5"		TEMP: 140 °F
CIRCUMFERENCE/TOTAL LENGTH EXAMINED: 114.6"	SCAN LENGTH/PART: 12"	REF. LEVEL CORRECTION (TRANS. CORR): 0 DB		
PROCEDURE: SDI 2.1	REV: 3	MATERIAL TYPE: ☐ SS ☒ CS OTHER		CONDITION
FILE NAME/ITEM#: AZ1VW36A	DATA DISK#	TRANSDUCER: ☐ DUAL ☒ SGL ☐ 0DEG ☒ ANGLE 60°		
X_0 REF. POINT (L_0)	Y_0 REF. POINT (W_0): WELD ℄	SCAN WIDTH		

	SIZING METHOD	ANGLE	REFERENCE CAL. SHEET	SET-UP
1	45 DEGREE SHEAR			
2	60 DEGREE SHEAR	60°		
3	AATT			
4	DUAL 0 DEGREE			

INDICATION INFORMATION

IND	METHOD	WELD SIDE	DEPTH R. LIG.	MAX AMP	L1	LENGTH	L2	W1	WIDTH	W2	INDICATION TYPE
1	2	—	N/A	-9dB	21.8	0.2"	22.0"	-1.75"	N/A	N/A	ID Roughness

REMARKS
NO CRACKLIKE INDICATIONS
ENTRY SURFACE NOISE THROUGHOUT SCAN.

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ULTRASONIC P-SCAN DATA REPORT

REPORT # N/A

LOCATION HANFORD	SYSTEM DST TANK A2101	EXAM START 1310	EXAM END 1345	JOB # N/A
COMPONENT ID PRIMARY WALL PLATE 3 VERT WELD 45°		EXAMINATION SURFACE ☒ OD ☐ ID ☐ PAINTED		NOM. THICKNESS 0.5"
CONFIGURATION PLATE 3 TO PLATE 3		CALIBRATED RANGE 0-2.56"		TEMP 140 °F
CIRCUMFERENCE/TOTAL LENGTH EXAMINED 114"	SCAN LENGTH/PART 12"	REF. LEVEL CORRECTION (TRANS. CORR) 0 DB		
PROCEDURE SDI 2.1	REV 3	MATERIAL TYPE ☐ SS ☒ CS OTHER		CONDITION
FILE NAME/ITEM# A21VW34C	DATA DISK#	TRANSDUCER ☐ DUAL ☒ SGL ☐ 0DEG ☒ ANGLE 45		
X_0 REF. POINT (L_0) ~1" from toe toe.	Y_0 REF. POINT (W_0) ℄ of weld	SCAN WIDTH 4"		

SIZING METHOD	ANGLE	REFERENCE CAL. SHEET	SET-UP
1 45 DEGREE SHEAR	45		
2 60 DEGREE SHEAR			
3 AATT			
4 DUAL 0 DEGREE			

INDICATION INFORMATION

IND	METHOD	WELD SIDE	DEPTH R. LIG.	MAX AMP	L1	LENGTH	L2	W1	WIDTH	W2	INDICATION TYPE
	NO CRACKLIKE INDICATIONS.										

REMARKS
NO CRACKLIKE INDICATIONS

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AUTOMATED ULTRASONIC THICKNESS DATA REPORT

REPORT# N/A
REF. CAL. # N/A

LOCATION: HANFORD	SYSTEM: DST TANK A2101	EXAM START: 1120	EXAM END: 1211	JOB #: N/A
COMPONENT ID: PRIMARY WALL VERT. WELD 4, 0°		EXAMINATION SURFACE: ☒ OD ☐ ID ☐ PAINTED		NOM. THICKNESS: 0.750"
CONFIGURATION: PLATE 4 TO PLATE 4		CALIBRATED RANGE: .300" TO 1.000"		TEMP: 140 °F
CIRCUMFERENCE/TOTAL LENGTH EXAMINED: 105"	SCAN LENGTH/PART: 12"	REF. LEVEL CORRECTION (TRANS. CORR): ____ DB		
PROCEDURE: SD1 2.1	REV: 3	MATERIAL TYPE: ☐ SS ☒ CS OTHER ____		CONDITION:
FILE NAME/ITEM#: A21PVW40	DATA DISK#	TRANSDUCER: ☒ DUAL ☐ SGL ☒ 0DEG ☐ ANGLE ____		
X_0 REF. POINT (L_0)	Y_0 REF. POINT (W_0): WELD ℄	SCAN WIDTH: 6"		

PART # / INDICATION	L START	L STOP	W START	W STOP	AVE. THK.	MIN. THK, R. LIG.	AREA REPORTABLE	COMMENTS
1					.768	.730	NO	
2					.758	.722	NO	
3					.760	.733	NO	
4					.759	.733	NO	
5					.758	.733	NO	
6					.756	.730	NO	
7					.754	.726	NO	
8					.751	.722	NO	
9					.753	.730	NO	
SUMMARY MERGED RESULTS								

REMARKS

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ULTRASONIC P-SCAN DATA REPORT

REPORT # N/A

LOCATION HANFORD	SYSTEM DST TANK A2101	EXAM START 1400	EXAM END 1440	JOB # N/A
COMPONENT ID PRIMARY WALL PLATE 4 VERT WELD 45°		EXAMINATION SURFACE ☒ OD ☐ ID ☐ PAINTED		NOM. THICKNESS 0.75"
CONFIGURATION PLATE 4	TO TO PLATE 4	CALIBRATED RANGE 0-2.56		TEMP 140 °F
CIRCUMFERENCE/TOTAL LENGTH EXAMINED 105.2"	SCAN LENGTH/PART 12"	REF. LEVEL CORRECTION (TRANS. CORR) 0 DB		
PROCEDURE SDI 2.1	REV 3	MATERIAL TYPE ☐ SS ☒ CS OTHER		CONDITION
FILE NAME/ITEM# A21 VW44C	DATA DISK#	TRANSDUCER ☐ DUAL ☒ SGL ☐ 0DEG ☒ ANGLE 45		
X_0 REF. POINT (L_0) ~1" from top toe of weld	Y_0 REF. POINT (W_0) weld ℄	SCAN WIDTH 4"		

SIZING METHOD	ANGLE	REFERENCE CAL. SHEET	SET-UP
1 45 DEGREE SHEAR	45°		
2 60 DEGREE SHEAR			
3 AATT			
4 DUAL 0 DEGREE			

INDICATION INFORMATION

IND	METHOD	WELD SIDE	DEPTH R. LIG.	MAX AMP	L1	LENGTH	L2	W1	WIDTH	W2	INDICATION TYPE
	No CRACKLIKE INDICATIONS.										

REMARKS
No CRACKLIKE INDICATIONS.

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ULTRASONIC P-SCAN DATA REPORT

REPORT # N/A

LOCATION HANFORD	SYSTEM DST TANK AZ101	EXAM START 1840	EXAM END 1911	JOB # N/A
COMPONENT ID PRIMARY WALL PLATE 4 VERT WELD 60°		EXAMINATION SURFACE ☒ OD ☐ ID ☐ PAINTED		NOM. THICKNESS 0.75
CONFIGURATION PLATE 4 TO PLATE 4		CALIBRATED RANGE 0-351"		TEMP 140 °F
CIRCUMFERENCE/TOTAL LENGTH EXAMINED 105.3"	SCAN LENGTH/PART 12"	REF. LEVEL CORRECTION (TRANS. CORR) 0 DB		
PROCEDURE SDI 2.1	REV 3	MATERIAL TYPE ☐ SS ☒ CS OTHER		CONDITION
FILE NAME/ITEM# AZ1VW 46A	DATA DISK#	TRANSDUCER ☐ DUAL ☒ SGL ☐ 0DEG ☒ ANGLE 60°		
X_0 REF. POINT (L_0) ~1" from toe of top weld	Y_0 REF. POINT (W_0) WELD ℄	SCAN WIDTH 4"		

SIZING METHOD	ANGLE	REFERENCE CAL. SHEET	SET-UP
1 45 DEGREE SHEAR			
2 60 DEGREE SHEAR	60°	N/A	
3 AATT			
4 DUAL 0 DEGREE			

INDICATION INFORMATION

IND	METHOD	WELD SIDE	DEPTH R. LIG.	MAX AMP	L1	LENGTH	L2	W1	WIDTH	W2	INDICATION TYPE
	NO CRACKLIKE INDICATIONS										

REMARKS

NO CRACKLIKE INDICATIONS, INTERMITTENT NOISE FROM PROBE ROCKING ON ROUGH SURFACE.

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AUTOMATED ULTRASONIC THICKNESS DATA REPORT

REPORT# N/A
REF. CAL. # N/A

LOCATION HANFORD	SYSTEM DST TANK A2101	EXAM START 1510	EXAM END 1528	JOB # N/A
COMPONENT ID PRIMARY WALL VERT WELD 5, 0°		EXAMINATION SURFACE ☒ OD ☐ ID ☐ PAINTED		NOM. THICKNESS .750"
CONFIGURATION (Bottom TRANS) PLATE 5 TO PLATE 5		CALIBRATED RANGE .300" TO 1.000"		TEMP 140 °F
CIRCUMFERENCE/TOTAL LENGTH EXAMINED 21.7	SCAN LENGTH/PART 12"	REF. LEVEL CORRECTION (TRANS. CORR) 0 DB		
PROCEDURE 501 2.1	REV 3	MATERIAL TYPE ☐ SS ☒ CS OTHER		CONDITION
FILE NAME/ITEM# A21PVW50	DATA DISK#	TRANSDUCER ☒ DUAL ☐ SGL ☒ 0DEG ☐ ANGLE		
X_0 REF. POINT (L_0)	Y_0 REF. POINT (W_0) WELD ℄	SCAN WIDTH 6"		

PART # / INDICATION	L START	L STOP	W START	W STOP	AVE. THK.	MIN. THK, R. LIG.	AREA REPORTABLE	COMMENTS
1		N			.914	.875	NO	N
2		A			.910	.860	NO	A
			N					
				A				
SUMMARY MERGED RESULTS								

REMARKS

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ULTRASONIC P-SCAN DATA REPORT

REPORT # N/A

LOCATION HANFORD	SYSTEM ~~DST~~ TANK A2101	EXAM START 1920	EXAM END 1933	JOB # N/A
COMPONENT ID PRIMARY WALL PLATE 5, VERT WELD 60°		EXAMINATION SURFACE ☐ OD ☐ ID ☐ PAINTED		NOM. THICKNESS 0.815
CONFIGURATION PLATE 5	TO PLATE 5	CALIBRATED RANGE 0 - 3.51"		TEMP 140 °F
CIRCUMFERENCE/TOTAL LENGTH EXAMINED 21.6"	SCAN LENGTH/PART 12"	REF. LEVEL CORRECTION (TRANS. CORR) 0 DB		
PROCEDURE SD12.1	REV 3	MATERIAL TYPE ☐ SS ☒ CS OTHER		CONDITION
FILE NAME/ITEM# A2IVW56A	DATA DISK#	TRANSDUCER ☐ DUAL ☒ SGL ☐ 0DEG ☒ ANGLE 60°		
X_0 REF. POINT (L_0)	Y_0 REF. POINT (W_0) WELD ℄	SCAN WIDTH 4"		

SIZING METHOD	ANGLE	REFERENCE CAL. SHEET	SET-UP
1 45 DEGREE SHEAR			
2 60 DEGREE SHEAR	60°		
3 AATT			
4 DUAL 0 DEGREE			

INDICATION INFORMATION

IND	METHOD	WELD SIDE	DEPTH R. LIG.	MAX AMP	L1	LENGTH	L2	W1	WIDTH	W2	INDICATION TYPE
	NO CRACKLIKE INDICATIONS										

REMARKS

NO CRACKLIKE INDICATIONS.
INTERMITTENT NOISE FROM PROBE ROCKING ON ROUGH SPOTS.

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ULTRASONIC P-SCAN DATA REPORT

REPORT # N/A

LOCATION HANFORD	SYSTEM DST TANK A2101	EXAM START 1640	EXAM END 1658	JOB # N/A
COMPONENT ID PRIMARY WALL PLATE 5 VERT WELD. 45°		EXAMINATION SURFACE ☒ OD ☐ ID ☐ PAINTED	NOM. THICKNESS 0.875"
CONFIGURATION PLATE 5 TO PLATE 5		CALIBRATED RANGE 0 - 2.56"	TEMP 140 °F
CIRCUMFERENCE/TOTAL LENGTH EXAMINED 20.5"	SCAN LENGTH/PART 12"	REF. LEVEL CORRECTION (TRANS. CORR) 0 DB	
PROCEDURE SDI 2.1	REV 3	MATERIAL TYPE ☐ SS ☒ CS OTHER	CONDITION
FILE NAME/ITEM# A21VW54C	DATA DISK#	TRANSDUCER ☐ DUAL ☒ SGL ☐ 0DEG ☒ ANGLE 45	
X_0 REF. POINT (L_0) 1" from toe of toe weld	Y_0 REF. POINT (W_0) Weld ℄	SCAN WIDTH 5"	

	SIZING METHOD	ANGLE	REFERENCE CAL. SHEET	SET-UP
1	45 DEGREE SHEAR	45		
2	60 DEGREE SHEAR			
3	AATT			
4	DUAL 0 DEGREE			

INDICATION INFORMATION

IND	METHOD	WELD SIDE	DEPTH R. LIG.	MAX AMP	L1	LENGTH	L2	W1	WIDTH	W2	INDICATION TYPE
		NO CRACKLIKE INDICATIONS.									

REMARKS
NO CRACKLIKE INDICATIONS.

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AUTOMATED ULTRASONIC THICKNESS DATA REPORT

REPORT# N/A
REF. CAL. # N/A

LOCATION HANFORD	SYSTEM DST TANK A2101	EXAM START 1230	EXAM END 1450	JOB # N/A
COMPONENT ID PRIMARY KNUCKLE, HORZ. WELD, 0°		EXAMINATION SURFACE ☒ OD ☐ ID ☐ PAINTED		NOM. THICKNESS 0.9
CONFIGURATION PRIMARY KNUCKLE TO HORZ. WELD		CALIBRATED RANGE .300" TO 1.000"		TEMP 140 °F
CIRCUMFERENCE/TOTAL LENGTH EXAMINED 20'	SCAN LENGTH/PART 12"	REF. LEVEL CORRECTION (TRANS. CORR) 0 DB		
PROCEDURE SDI 2.1	REV 3	MATERIAL TYPE ☐ SS ☒ CS OTHER		CONDITION
FILE NAME/ITEM# A21PHWK0 & A21HWK02	DATA DISK#	TRANSDUCER ☒ DUAL ☐ SGL ☒ 0DEG ☐ ANGLE		
X_0 REF. POINT (L_0)	Y_0 REF. POINT (W_0) WELD ℄	SCAN WIDTH 6"		

PART # / INDICATION	L START	L STOP	W START	W STOP	AVE. THK.	MIN. THK, R. LIG.	AREA REPORTABLE	COMMENTS
A21PHWK0.1					.900	.860	NO	
" .2					.904	.860	NO	N/A
" .3					.899	.845	NO	
" .4					.896	.860	NO	
" .5		N			.895	.845	NO	
" .6					.898	.850	NO	SHELL VERT
" .7		A			.900	.860	NO	
" .8					.884	.850	NO	
" .9					.896	.860	NO	
" .10					.889	.860	NO	N/A
" .11					.899	.870	NO	
NEW FILE NAME	SCANNER TURNED AROUND, SCAN CONTINUED.							
A21HWK02.1					.907	.875	NO	A
" .2					.903	.880	NO	
" .3					.902	.885	NO	
" .4		N			.893	.880	NO	
" .5					.901	.850	NO	SHELL VERT
" .6		A			.904	.875	NO	KNUCKLE VERT
" .7					.901	.860	NO	
" .8					.899	.865	NO	N/A
" .9					.904	.875	NO	
SUMMARY MERGED RESULTS								

REMARKS

* NEW FILE NAME, SCANNER TURNED AROUND AND SCAN CONTINUED,

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ULTRASONIC P-SCAN DATA REPORT

REPORT # N/A

LOCATION HANFORD	SYSTEM DST TANK AZ101	EXAM START 1012	EXAM END 1150	JOB # N/A
COMPONENT ID PRIMARY KNUCKLE WELD, 60° SCAN		EXAMINATION SURFACE ☒ OD ☐ ID ☐ PAINTED		NOM. THICKNESS ~0.9"
CONFIGURATION Bottom TRANS. PLATE TO KNUCKLE		CALIBRATED RANGE 0-3.51"		TEMP 140 °F
CIRCUMFERENCE/TOTAL LENGTH EXAMINED 240" (20')	SCAN LENGTH/PART 12"	REF. LEVEL CORRECTION (TRANS. CORR) 0 DB		
PROCEDURE SDI 2.1	REV 3	MATERIAL TYPE ☐ SS ☒ CS OTHER		CONDITION
FILE NAME/ITEM# AZ1HW6A1	DATA DISK#	TRANSDUCER ☐ DUAL ☒ SGL ☐ 0DEG ☒ ANGLE 60		
X_0 REF. POINT (L_0)	Y_0 REF. POINT (W_0) Weld ℄	SCAN WIDTH 4"		

SIZING METHOD	ANGLE	REFERENCE CAL. SHEET	SET-UP
1 45 DEGREE SHEAR		N/A	
2 60 DEGREE SHEAR	60°		
3 AATT			
4 DUAL 0 DEGREE			

INDICATION INFORMATION

IND	METHOD	WELD SIDE	DEPTH R. LIG.	MAX AMP	L1	LENGTH	L2	W1	WIDTH	W2	INDICATION TYPE
1	6	−	N/A	+3dB	53.8	Intermittent	64	-1.707	N/A	-2.0	*1
2	6	+	N/A	-1dB	93.9	Intermittent	110.6	+1.6	N/A	+1.96	*1
3	6	−	N/A	+3dB	194.6	Intermittent	154.0	-1.707	N/A	-2.0	*1
4	6	+	N/A	-3dB	168	Intermittent	184.4	+1.858	N/A	+1.958	*1

N/A

REMARKS
No Cracklike Indications.
*1 Intermittent, nonrelevant indication(s) from geometry/probe rocking on surface.
Other, intermittent, high amplitude noise from rough surface throughout scan.

Examiner	Analyst	Reviewer	Page
Ronald V. Swain	James B. Ellen	W H Nelson	36 of 37
Level II Date 5/28/99	Level III Date 6/12/99	Level III Date 6-28-99 COG/SMA	

2/99

ULTRASONIC P-SCAN DATA REPORT

REPORT # N/A

LOCATION Hanford	SYSTEM DST TANK A2101	EXAM START 1500	EXAM END 1633	JOB # N/A
COMPONENT ID Primary Knuckle Weld 45° Scan		EXAMINATION SURFACE ☒ OD ☐ ID ☐ PAINTED		NOM. THICKNESS 0.9"
CONFIGURATION Bottom Trans Plate to Knuckle	TO	CALIBRATED RANGE 0 - 256"		TEMP 140 °F
CIRCUMFERENCE/TOTAL LENGTH EXAMINED 240" (20')	SCAN LENGTH/PART 12"	REF. LEVEL CORRECTION (TRANS. CORR) 0 DB		
PROCEDURE SDI 2.1	REV 3	MATERIAL TYPE ☐ SS ☒ CS OTHER		CONDITION
FILE NAME/ITEM# A21HWK4C	DATA DISK#	TRANSDUCER ☐ DUAL ☒ SGL ☐ 0DEG ☒ ANGLE 45°		
X_0 REF. POINT (L_0)	Y_0 REF. POINT (W_0) Weld ℄	SCAN WIDTH 5"		

SIZING METHOD	ANGLE	REFERENCE CAL. SHEET	SET-UP
1 45 DEGREE SHEAR	45	N/A	
2 60 DEGREE SHEAR			
3 AATT			
4 DUAL 0 DEGREE			

INDICATION INFORMATION

IND	METHOD	WELD SIDE	DEPTH R. LIG.	MAX AMP	L1	LENGTH	L2	W1	WIDTH	W2	INDICATION TYPE
	No Cracklike Indications										

REMARKS
NO CRACKLIKE INDICATIONS.

Examiner	Analyst	Reviewer	Page
Ronald V. Swain	James B. Ellen	W.H. Nelson	37 of 37
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DISTRIBUTION SHEET

To	From	Page 1 of 1
Distribution	Tank Systems Integrity Engr'g	Date 7/21/99
Project Title/Work Order		EDT No. 623399
Final Results of Double-Shell Tank 241-AZ-101 Ultrasonic Inspection		ECN No.

Name	MSIN	Text With All Attach.	Text Only	Attach./ Appendix Only	EDT/ECN Only
R. P. Anantatmula	R1-30	x			
D. L. Becker	R3-73	x			
B. G. Erlandson	R1-51				x
E. A. Fredenburg	R1-56	x			
H. R. Hopkins, III	R2-58	x			
C. E. Jensen	R1-56	x			
L. J. Julyk	R1-56	x			
P. C. Miller	R1-51	x			
E. A. Nelson	L6-38	x			
M. A. Payne	R2-58				x
D. C. Pfluger	R1-56	x			
R. S. Popielarczyk	R2-58				x
R. W. Powell	R3-75	x			
W. J. Powell	G1-54	x			
D. S. Rewinkel	S7-40	x			
S. H. Rifaey	R1-56	x			
W. E. Ross	R2-50	x			
D. B. Smet	R1-56	x			
T. B. Veneziano	S7-40	x			
K. A. White	S5-13	x			
D. G. Baide	S5-05	x			
M. L. Dexter	R1-51	x			
E. E. Mayer	R2-50				x
A. F. Pardini	K5-26	x			
G. J. Posakony	K5-26	x			