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Ultrasonic Inspection Report

UT_SN-K637_sep2025

Client: **Fuelled**	Facility: **n/a**	Date: **Sep 8, 2025**
LSD: **n/a**	Item(s) Inspected: **75 bbl Flare Knockout Drum**	Job #: **14130**
Material: Carbon Steel / Stainless Steel	Thickness Range: 0 to 75mm	WO #: **n/a**
Procedure: UT-01 Rev. 10	Ref. Code: ASME VIII & ASME B31.3	Surf. Temp: -20° to 20° C — Surf. Prep: Painted
UT Equipment:	Asset# FD-15 Olympus Epoch XT Serial Number: 070057201 Cal. Due: Dec. 16, 2025	
Transducer 1:	Asset# T-295 Technisonic Research 0° Dual 5MHz Diam. 6.35mm Serial #40324	
Transducer 2:	Asset# T-54 Olympus D-790-SM Hot Probe 0° 5MHz Diam. 6.35mm Serial # 858220	
Transducer 3:	Asset# T-255 Olympus P/E 0° 5MHz Diameter 12.7mm Serial Number: 1412290	
Cal. Block 1:	Asset# CB-80 (1018) Carbon Steel 6-step wedge Serial Number: 62196	
Cal. Block 2:	Asset# CB-75 Stainless Steel Step Wedge 2.5 -12.5mm Serial Number: 52747	
Couplant: Magnaflux UTX	Cable 1: 2m Dual BNC to Microdot	Cable 2: 2m Single BNC to Microdot

Job Scope: To perform a baseline ultrasonic thickness survey on the requested vessel serial# K637 located at 07-19-65-07 w6m in the Bilbo Field.

Results: See attached UTS drawing and data sheets for all point locations and recorded thickness measurements.

Client Representative: Will Van Weelden
Technician(s): Dave Ellis (CGSB UT-2, MT-2, PT-2 #21762) (SNT-TC-1A MT-II, UT-II, PT-II)
Assistant(s):
Reviewed and Approved By: Lance Smith (CGSB MT-2, UT-2, PT-2, RT-1 #8052) (SNT-TC-1A MT-II, UT-II, PT-II)

Ultrasonic Thickness Survey (UTS) Procedure

Date: Aug. 8, 2025

This document is a short excerpt from the Lance Inspections NDT Procedures and Techniques Manual, revision 10, sections 2 and 3. A copy of the Lance Inspections NDT manual is available by request to sutz@lanceinspections.com.

Lance Inspections completes two typical types of a UTS: a baseline and a resurvey.

A **baseline** is when Lance Inspections has not completed a previous thickness survey on the pressure equipment requiring testing. The equipment is to be drawn isometrically; the static data is to be recorded; the UT scan locations (CMLs) are to be chosen, scanned, and the thickness readings are to be recorded.

A **resurvey** is when pressure equipment has had a previous UTS completed by Lance Inspections. All the equipment has already been drawn, the data has already been recorded, and the UT CML locations have already been chosen. For this inspection, UT is to be completed on the existing CMLs, and the thickness readings are to be recorded for comparison purposes.

Condition Monitoring Locations (CMLs)
CMLs are the locations where UT will be conducted. In-depth instruction on where CMLs should be placed is not possible because of the different vessel types, processes, damage mechanisms, and piping configurations.
Lance Inspections has a general guideline for selecting CML test points on pressure equipment, which can be found in the Lance Inspections NDT Procedure and Techniques Manual (Rev. 10, Section 3). Additional CML placement is based on the Technician's experience, knowledge of the process, initial findings, or client request. All CML locations are identified on a drawing that is in the UTS report.

Lance Inspections identifies each CML on the pressure vessel or piping with a numbered metal tag and marks the scan area with a paint marker. This is for the client's knowledge and to assist Lance Inspections technicians with UTS resurveys. It is essential to accurately locate and scan the same CML areas as in previous inspections for trendability.

At Lance Inspections, the horizontal and vertical CMLs for UTS scanning are typically 3 inches wide x 16 inches long. These bands are primarily used for vertical and horizontal pressure vessel shells and heads. Circular CMLs on piping are typically 3 inches wide x 360°. The average scan location on a fitting is a 3" wide band at critical areas as accessible, such as the outside radius of elbows, neck of tees, the back of tees, or any other areas of concern.

Low-Thickness Readings Identification
Thickness readings that are less than a predetermined thickness (referred to as a flag thickness) are marked in blue on the CML identification drawings in the UTS report. Lance Inspections does not deem CMLs acceptable or rejectable. Flagged CMLs in the report are for client review purposes.

Lance inspections determines the flag thicknesses for each CML by the following methods:

A pressure vessel's flag thickness is determined by subtracting the given designed corrosion allowance from the nominal thickness. If there is no stated corrosion allowance available, then Lance Inspections uses a Thickness Reduction Flag (TRF) value for vessel and nozzle CMLs. This value is 1.5mm (0.059") less than the known nominal thickness. Without a known nominal, the flag thickness for vessel and nozzle CMLs will be 1.5mm (0.059") from the initial minimum thickness reading.

A flag thickness for piping is determined by subtracting 12.5% (mill tolerance) from the pipe nominal thickness. The 12.5% is considered the corrosion allowance on the UTS report. Piping and fitting points without a known nominal thickness will have a 1.5mm corrosion allowance taken from the initial minimum thickness reading for the flag.

Sincerely,

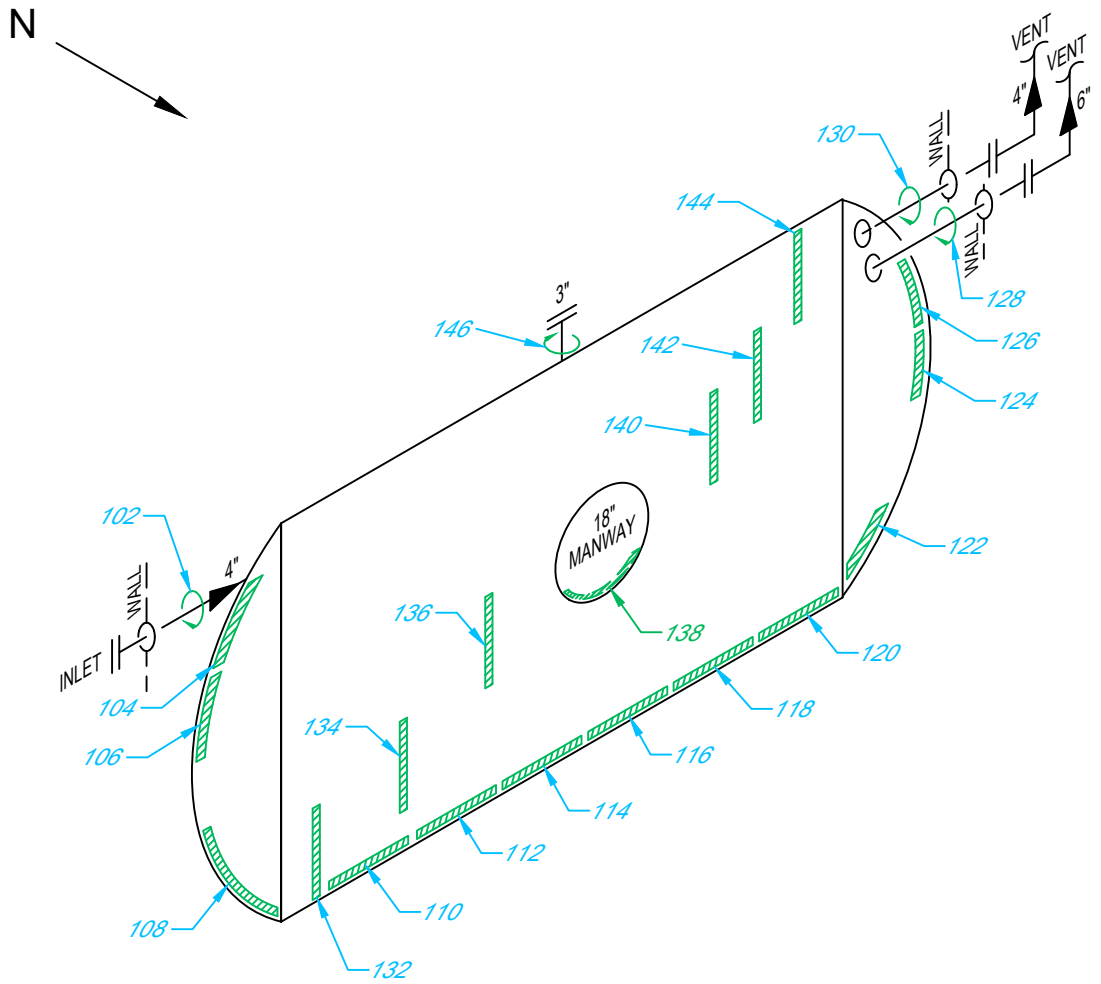
Lance Smith,
Owner/General Manager
Lance Inspections Inc.

Steve Utz
NDT Level 3/Quality Control Manager
Lance Inspections Inc.

LANCE INSPECTIONS INC.

Customer: FUELLED		Description: 75 BBL FLARE KNOCKOUT DRUM			
Facility: N/A		Location: N/A			
Reg A#: N/A		Serial #: K637		Drawing#: 1	
CRN #: N/S	Manufacturer: R. POLLITT	Unit #: C58946		Year Built: N/S	
Shell MAWP: 103 kPa	Shell MAWT: 38°C	Shell Material: SA 36	Nominal: 4.8mm	CA: 0.0mm	
Tube "A" MAWP:	Tube "A" MAWT:	Head Material: SA 36	Nominal: 6.4mm	CA: 0.0mm	
Tube "B" MAWP:	Tube "B" MAWT:	Tube Material:	Nominal:	CA:	
Size: 84in x 96in	Manway: 18in	MDMT: -29°C	Boot Shell Mat:	Nominal:	CA:
Insulated: NO	C Stamp: NO	RT: NO	PWHT: NO	Boot Head Mat:	Nominal: CA:

SEP 2025_LOCATED ON CNRL SITE 07-19-65-07 W6M AT TIME OF INSPECTION.
SEP 2025_NOT IN SERVICE AT TIME OF INSPECTION.
SEP 2025_VESSEL IS INTERNALLY COATED.



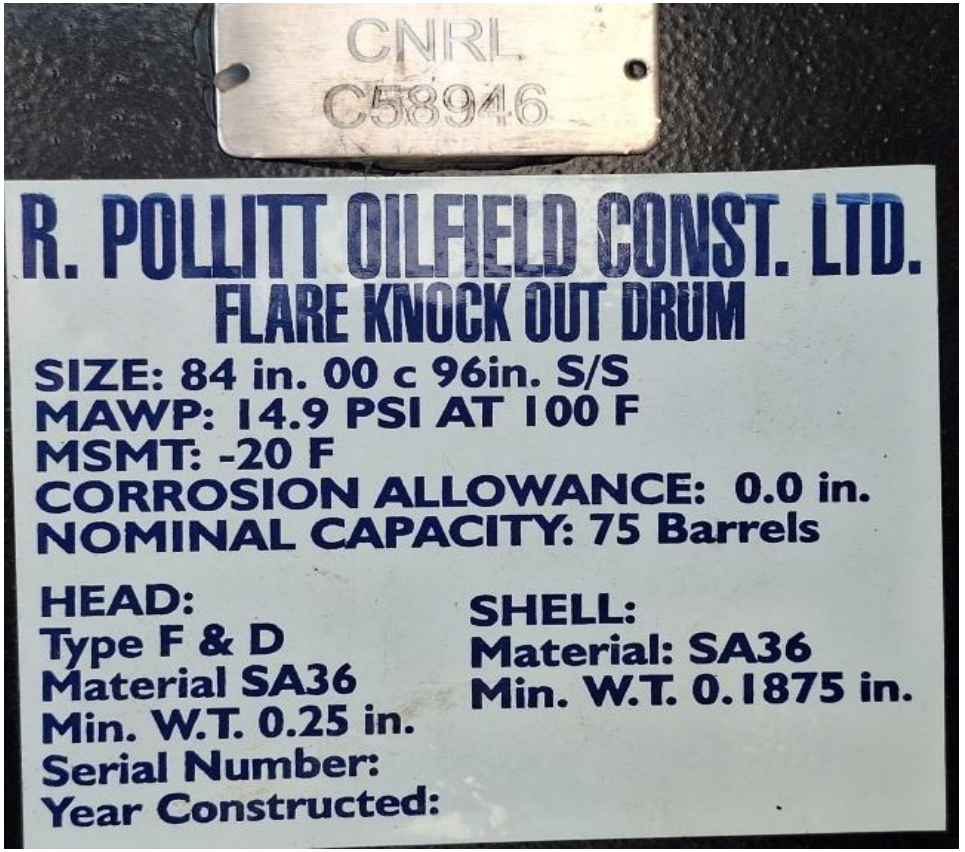
Revision Date: SEP. 8, 25

LANCE INSPECTIONS INC.

Client: **Fuelled**
Unit #: **C58946**
Equip Description: **75 bbl Flare Knockout Drum**
Serial #: **K637**
Drawing #: **1**

Vessel Overview

Data Plate



LANCE INSPECTIONS INC.

UTS Data Sheet

Client: **Fuelled**
Unit #: **C58946**
Equip Description: **75 bbl Flare Knockout Drum**
Serial #: **K637**
Drawing #: **1**

		Nominal Thickness (mm)	Corrosion Allowance (mm)	Flag Thickness (mm)
102				
Description:	**Circ on 4" Nozzle**	6.0	0.0	6.0
Date:	Sep. 8, 25			
Minimum:	5.8			
Average:	6.2			
Comments:	*Flange rating 150 lb.*			
104				
Description:	**Upper East Head**	6.4	0.0	6.4
Date:	Sep. 8, 25			
Minimum:	5.8			
Average:	6.2			
Comments:	*Sep 2025_Min scan at nozzle.*			
106				
Description:	**Upper East Head**	6.4	0.0	6.4
Date:	Sep. 8, 25			
Minimum:	5.5			
Average:	5.9			
Comments:	*Sep 2025_Min scan at weld.*			
108				
Description:	**Lower East Head**	6.4	0.0	6.4
Date:	Sep. 8, 25			
Minimum:	5.1			
Average:	5.6			
Comments:	*Sep 2025_Min scan at bottom of band.*			
110				
Description:	**Bottom Shell**	4.8	0.0	4.8
Date:	Sep. 8, 25			
Minimum:	4.7			
Average:	4.8			
Comments:				
112				
Description:	**Bottom Shell**	4.8	0.0	4.8
Date:	Sep. 8, 25			
Minimum:	4.7			
Average:	4.8			
Comments:				
114				
Description:	**Bottom Shell**	4.8	0.0	4.8
Date:	Sep. 8, 25			
Minimum:	4.7			
Average:	4.9			
Comments:				
116				
Description:	**Bottom Shell**	4.8	0.0	4.8
Date:	Sep. 8, 25			
Minimum:	4.7			
Average:	4.8			
Comments:				

LANCE INSPECTIONS INC.

UTS Data Sheet

Client: **Fuelled**
Unit #: **C58946**
Equip Description: **75 bbl Flare Knockout Drum**
Serial #: **K637**
Drawing #: **1**

		Nominal Thickness (mm)	Corrosion Allowance (mm)	Flag Thickness (mm)
118				
Description:	**Bottom Shell**	4.8	0.0	4.8
Date:	Sep. 8, 25			
Minimum:	4.7			
Average:	4.8			
Comments:				
120				
Description:	**Bottom Shell**	4.8	0.0	4.8
Date:	Sep. 8, 25			
Minimum:	4.7			
Average:	4.8			
Comments:				
122				
Description:	**Lower West Head**	6.3	0.0	6.3
Date:	Sep. 8, 25			
Minimum:	4.7			
Average:	5.8			
Comments:	*Sep 2025_Min scan at bottom of band.*			
124				
Description:	**Mid West Head**	6.3	0.0	6.3
Date:	Sep. 8, 25			
Minimum:	5.5			
Average:	6.0			
Comments:	*Sep 2025_Min scan at weld.*			
126				
Description:	**Upper West Head**	6.3	0.0	6.3
Date:	Sep. 8, 25			
Minimum:	5.4			
Average:	5.9			
Comments:	*Sep 2025_Min scan at nozzle.*			
128				
Description:	**Circ on 6" Nozzle**	7.1	0.0	7.1
Date:	Sep. 8, 25			
Minimum:	6.9			
Average:	7.2			
Comments:	*Flange rating 150 lb.*			
130				
Description:	**Circ on 4" Nozzle**	6.0	0.0	6.0
Date:	Sep. 8, 25			
Minimum:	5.7			
Average:	6.1			
Comments:	*Flange rating 150 lb.*			
132				
Description:	**Lower Shell**	4.8	0.0	4.8
Date:	Sep. 8, 25			
Minimum:	4.7			
Average:	4.8			
Comments:				

LANCE INSPECTIONS INC.

UTS Data Sheet

Client: **Fuelled**
Unit #: **C58946**
Equip Description: **75 bbl Flare Knockout Drum**
Serial #: **K637**
Drawing #: **1**

		Nominal Thickness (mm)	Corrosion Allowance (mm)	Flag Thickness (mm)
134				
Description:	**Lower Shell**	4.8	0.0	4.8
Date:	Sep. 8, 25			
Minimum:	4.8			
Average:	4.9			
Comments:				
136				
Description:	**Lower Shell**	4.8	0.0	4.8
Date:	Sep. 8, 25			
Minimum:	4.7			
Average:	4.8			
Comments:				
138				
Description:	**Bottom of 18" Manway**			4.8
Date:	Sep. 8, 25			
Minimum:	6.3			
Average:	6.6			
Comments:	*Flange rating 150 lb.*			
140				
Description:	**Upper Shell**	4.8	0.0	4.8
Date:	Sep. 8, 25			
Minimum:	4.8			
Average:	4.9			
Comments:				
142				
Description:	**Upper Shell**	4.8	0.0	4.8
Date:	Sep. 8, 25			
Minimum:	4.7			
Average:	4.8			
Comments:				
144				
Description:	**Upper Shell**	4.8	0.0	4.8
Date:	Sep. 8, 25			
Minimum:	4.7			
Average:	4.8			
Comments:				
146				
Description:	**Circ on 3" Nozzle**	5.5	0.0	5.5
Date:	Sep. 8, 25			
Minimum:	5.4			
Average:	5.8			
Comments:	*Flange rating 150 lb.*			