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## Ultrasonic Inspection Report

UT\_SN K0TK-63-T75-12241\_oct2025

Client: <b>Fuelled</b>	Facility: <b>n/a</b>	Date: <b>Oct 1, 2025</b>
LSD: <b>n/a</b>	Item(s) Inspected: <b>Flare Knockout Drum</b>	Job #: <b>13788</b>
Material: Carbon Steel / Stainless Steel	Thickness Range: 0 to 75mm	WO #: <b>n/a</b>
Procedure: UT-01 Rev. 10	Ref. Code: ASME VIII & ASME B31.3	Surf. Temp: -20° to 20° C
UT Equipment: Asset# FD-15	Olympus Epoch XT	Serial Number: 070057201
Transducer 1: Asset# T-295	Technisonic Research	0° Dual 5MHz Diam. 6.35mm
Transducer 2: Asset# T-54	Olympus D-790-SM	Hot Probe 0° 5MHz Diam. 6.35mm
Transducer 3: Asset# T-255	Olympus P/E	0° 5MHz Diameter 12.7mm
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
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 located at 03-26-66-07 w6m in the Gold Creek 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): Karsyn Utz	
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](mailto: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.

Customer: FUELLEDDescription: FLARE KNOCKOUT DRUMFacility: N/ALocation: N/AReg A#: N/ASerial #: K0TK-63-T75-12241Drawing#: 1CRN #: N/SManufacturer: BILTON MANUFACTURINGUnit #: N/SYear Built: 2001Shell MAWP: 103 kPaShell MAWT: N/S

INTERNAL

Shell Material: SA 516 70NNominal: 9.5mmCA: N/STube "A" MAWP: Tube "A" MAWT: 

EXTERNAL SHELL

Head Material: SA 36Nominal: 4.8mmCA: N/STube "B" MAWP: Tube "B" MAWT: 

INTERNAL HEAD

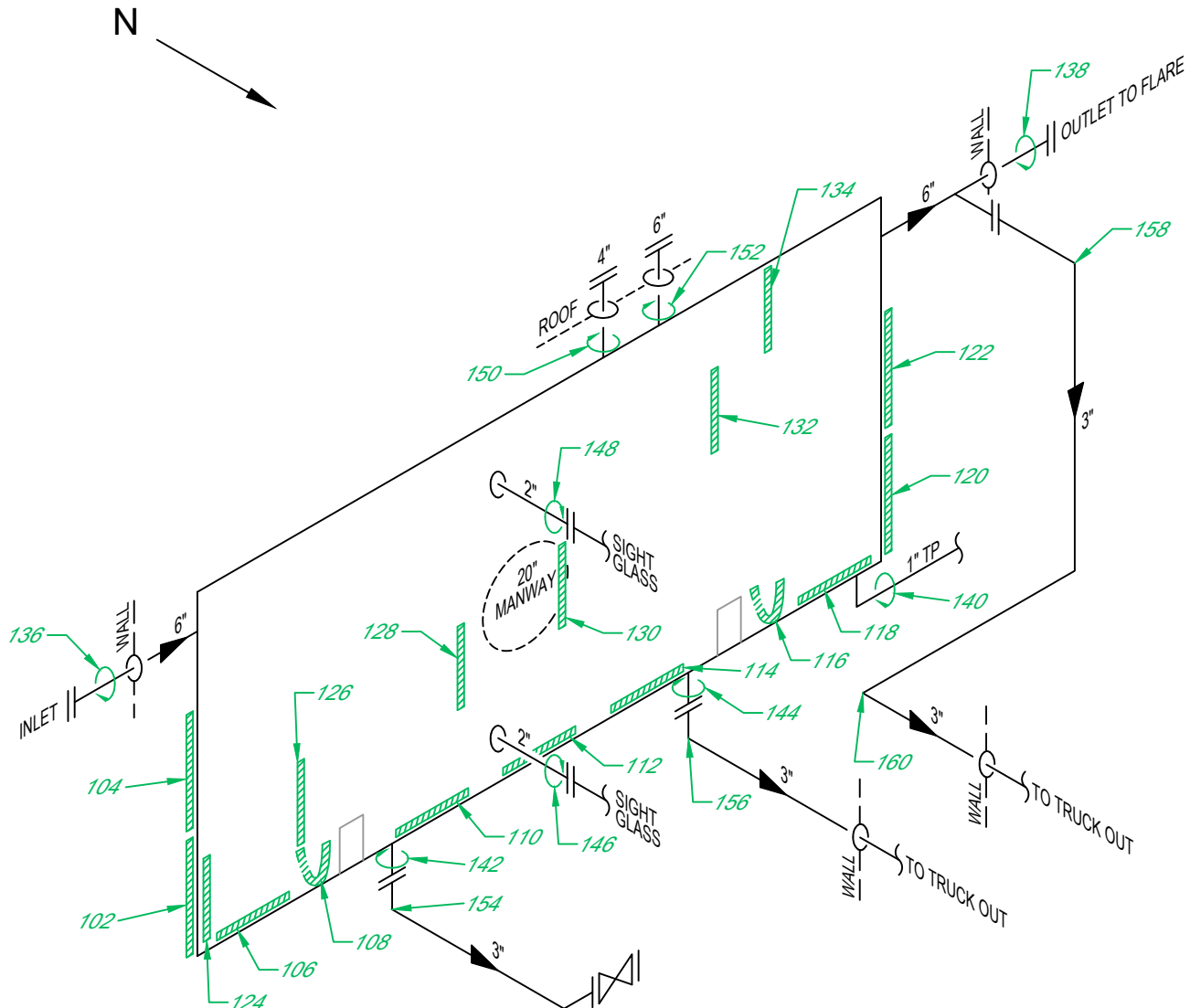
Tube Material: SA 516 70NNominal: 9.5mmCA: N/SSize: 6ft x 10ftManway: 20inMDMT: N/S

EXTERNAL HEAD

Boot Shell Mat: SA 36Nominal: 4.8mmCA: N/SInsulated: YESC Stamp: N/SRT: N/SPWHT: N/SBoot Head Mat: Nominal: CA: 

NOTE: VESSEL IS INTERNALLY COATED.

OCT 2025 LOCATED ON CNRL SITE 03-26-66-07 W6M AT TIME OF INSPECTION.





Client: **Fuelled**

Unit #: **n/s**

Equip Description: **Flare Knockout Drum**

Serial #: **K0TK-63-T75-12241**

Drawing #: **1**

### Vessel Overview



### Data Plate

<b>MADE IN CANADA</b>		<b>BILTON</b>		<b>INNISFAIL, ALBERTA</b>	
<b>Welding &amp; Manufacturing Ltd.</b>					
SERIAL NUMBER	K0TK - GB - T75 - 12241				
YEAR BUILT	2001				
NOMINAL DIAMETER	6'-0" ID				
NOMINAL LENGTH	10'-0" S/S				
NOMINAL CAPACITY	M <sup>3</sup>		BBL	500	
INTERIOR THICKNESS	SHELL	3/4" SA-516	HEADS	3/4" SA-516	
EXTERIOR THICKNESS	SHELL	3/16" SA-36	HEADS	3/16" SA-36	
DESIGN PRESSURE	50 PSI 14.9 MAWP			TEST	75 PSI
COATING	INT.	PE/GE 253		EXT.	ENAMEL/INSUL
# B100					



## UTS Data Sheet

Client: **Fuelled**

Unit #: **n/s**

Equip Description: **Flare Knockout Drum**

Serial #: **K0TK-63-T75-12241**

Drawing #: **1**

	Nominal Thickness (mm)	Corrosion Allowance (mm)	Flag Thickness (mm)
<b>102</b> Description: <b>Lower East Head Plate</b> Date: Oct. 1, 25 Minimum: 4.7 Average: 4.8 Comments:	4.8		3.3
<b>104</b> Description: <b>Mid East Head Plate</b> Date: Oct. 1, 25 Minimum: 4.7 Average: 4.8 Comments:	4.8		3.3
<b>106</b> Description: <b>Bottom Shell</b> Date: Oct. 1, 25 Minimum: 4.7 Average: 4.8 Comments:	4.8		3.3
<b>108</b> Description: <b>Bottom Shell</b> Date: Oct. 1, 25 Minimum: 4.8 Average: 4.9 Comments:	4.8		3.3
<b>110</b> Description: <b>Bottom Shell</b> Date: Oct. 1, 25 Minimum: 4.7 Average: 4.8 Comments:	4.8		3.3
<b>112</b> Description: <b>Bottom Shell</b> Date: Oct. 1, 25 Minimum: 4.7 Average: 4.8 Comments:	4.8		3.3
<b>114</b> Description: <b>Bottom Shell</b> Date: Oct. 1, 25 Minimum: 4.6 Average: 4.7 Comments:	4.8		3.3
<b>116</b> Description: <b>Bottom Shell</b> Date: Oct. 1, 25 Minimum: 4.7 Average: 4.8 Comments:	4.8		3.3



## UTS Data Sheet

Client: **Fuelled**

Unit #: **n/s**

Equip Description: **Flare Knockout Drum**

Serial #: **K0TK-63-T75-12241**

Drawing #: **1**

	Nominal Thickness (mm)	Corrosion Allowance (mm)	Flag Thickness (mm)
<b>118</b> Description: <b>Bottom Shell</b> Date: Oct. 1, 25 Minimum: 4.6 Average: 4.7 Comments:	4.8		3.3
<b>120</b> Description: <b>Lower West Head Plate</b> Date: Oct. 1, 25 Minimum: 4.8 Average: 4.9 Comments:	4.8		3.3
<b>122</b> Description: <b>Mid West Head Plate</b> Date: Oct. 1, 25 Minimum: 4.8 Average: 4.9 Comments:	4.8		3.3
<b>124</b> Description: <b>Lower Shell</b> Date: Oct. 1, 25 Minimum: 4.7 Average: 4.8 Comments:	4.8		3.3
<b>126</b> Description: <b>Lower Shell</b> Date: Oct. 1, 25 Minimum: 4.8 Average: 4.9 Comments:	4.8		3.3
<b>128</b> Description: <b>Lower Shell</b> Date: Oct. 1, 25 Minimum: 4.7 Average: 4.8 Comments:	4.8		3.3
<b>130</b> Description: <b>Mid Shell</b> Date: Oct. 1, 25 Minimum: 4.7 Average: 4.8 Comments:	4.8		3.3
<b>132</b> Description: <b>Upper Shell</b> Date: Oct. 1, 25 Minimum: 4.8 Average: 4.9 Comments:	4.8		3.3



## UTS Data Sheet

Client: **Fuelled**

Unit #: **n/s**

Equip Description: **Flare Knockout Drum**

Serial #: **K0TK-63-T75-12241**

Drawing #: **1**

		Nominal Thickness (mm)	Corrosion Allowance (mm)	Flag Thickness (mm)
<b>134</b>				
Description:	<b>Upper Shell</b>	4.8		3.3
Date:	Oct. 1, 25			
Minimum:	4.9			
Average:	5.0			
Comments:				
<b>136</b>				
Description:	<b>Circ on 6" Nozzle</b>	11.0		9.5
Date:	Oct. 1, 25			
Minimum:	10.8			
Average:	11.1			
Comments:				
<b>138</b>				
Description:	<b>Circ on 6" Nozzle</b>	11.0		9.5
Date:	Oct. 1, 25			
Minimum:	10.8			
Average:	11.2			
Comments:				
<b>140</b>				
Description:	<b>Circ on 1" Threaded Pipe</b>	4.6	0.6	4.0
Date:	Oct. 1, 25			
Minimum:	4.3			
Average:	4.6			
Comments:				
<b>142</b>				
Description:	<b>Circ on 3" Nozzle</b>	7.6		6.1
Date:	Oct. 1, 25			
Minimum:	7.3			
Average:	7.7			
Comments:				
<b>144</b>				
Description:	<b>Circ on 3" Nozzle</b>	7.6		6.1
Date:	Oct. 1, 25			
Minimum:	7.2			
Average:	7.7			
Comments:				
<b>146</b>				
Description:	<b>Circ on 2" Nozzle</b>	5.5		4.0
Date:	Oct. 1, 25			
Minimum:	5.2			
Average:	5.5			
Comments:				
<b>148</b>				
Description:	<b>Circ on 2" Nozzle</b>	5.5		4.0
Date:	Oct. 1, 25			
Minimum:	5.1			
Average:	5.5			
Comments:				





## UTS Data Sheet

Client: **Fuelled**

Unit #: **n/s**

Equip Description: **Flare Knockout Drum**

Serial #: **K0TK-63-T75-12241**

Drawing #: **1**

	Nominal Thickness (mm)	Corrosion Allowance (mm)	Flag Thickness (mm)
<b>150</b>			
Description: <b>Circ on 4" Nozzle</b>	8.6		7.1
Date: Oct. 1, 25			
Minimum: 8.4			
Average: 8.7			
Comments: <i>Oct 2025_Limited access due to roof.</i>			
<b>152</b>			
Description: <b>Circ on 6" Nozzle</b>	11.0		9.5
Date: Oct. 1, 25			
Minimum: 10.7			
Average: 11.0			
Comments: <i>Oct 2025_Limited access due to roof.</i>			
<b>154</b>			
Description: <b>3" 90° Elbow</b>	7.6	1.0	6.6
Date: Oct. 1, 25			
Minimum: 7.1			
Average: 7.6			
Comments:			
<b>156</b>			
Description: <b>3" 90° Elbow</b>	7.6	1.0	6.6
Date: Oct. 1, 25			
Minimum: 7.4			
Average: 7.7			
Comments:			
<b>158</b>			
Description: <b>3" 90° Elbow</b>	7.6	1.0	6.6
Date: Oct. 1, 25			
Minimum: 6.8			
Average: 7.2			
Comments:			
<b>160</b>			
Description: <b>3" 90° Elbow</b>	7.6	1.0	6.6
Date: Oct. 1, 25			
Minimum: 7.0			
Average: 7.4			
Comments:			