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Ultrasonic Inspection Report

UT_A0444877_sept2019

Client:				Date: Sept 30, 2019			
LSD: n/a		Item(s) Inspected: Separator and Fuel Gas Scrubber				Job #: 8528	
Material: Carbon Steel		Thickness Range: 0 to 75mm				WO #: n/a	
Procedure: UT-01 Rev.5		Ref. Code: ASME VIII & ASME B31.3		Surf. Temp: -20° to 20° C		Surf. Prep: Painted	
UT Equipment: Asset# FD-4		Olympus Epoch XT		Serial Number: 111398005		Cal. Due: July 12, 2020	
Transducer 1: Asset# T-164		Dakota 0° Dual 5MHz		Diam. 6.35mm		Serial Number: 500AN	
Transducer 2: Asset# T-86		GE Pulse Echo 0° 5MHz		Diameter 12.7mm		Serial Number: 13K021L8	
Transducer 3: Asset# T-167		Olympus D790-SM Hot Probe 0° 5MHz		Diam. 6.35mm		Serial #1196681	
Cal. Block 1: Asset# CB-51		Carbon Steel Step Wedge		6.25 - 25mm		SN: 15-4561	
Cal. Block 2: Asset# CB-53		Stainless Steel Step Wedge		0.100 to 0.500"		Serial Number: E-33	
Couplant: Echo Mix		Cable 1: 2m Dual BNC to Microdot		Cable 2: 2m Single BNC to Microdot		Gain Level: 60 dB	

Job Scope: To perform a baseline ultrasonic thickness survey on the requested separator and fuel gas scrubber located in the yard.

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

Client Representative:	
Technician(s): Lance Smith (CGSB MT-2, UT-2, PT-2 #8052) (SNT-TC-1A MT-II, UT-II, PT-II)	
Assistant(s):	



ULTRASONIC THICKNESS SURVEY

"UTS"

Report Summary

The accompanying UTS report provides representation and data of equipment requested for inspection as accessible. The ISO drawing(s) show condition monitoring locations (CMLs) with numbers that correlate with the ultrasonic thickness readings recorded on the following pages. All CML locations identified on the ISO drawing(s) are inspected to locate the minimum thickness and determine an average thickness. CMLs that have thickness readings less than the calculated flagged thickness are coloured **BLUE** on the ISO drawings and data pages for quick reference purposes. CMLs with unusual wall thicknesses are given descriptive comments to aid future trending.

UTS Procedure

All CML locations identified on the CAD drawing are scanned completely by continuously coupling an ultrasonic transducer to the item being tested. The average scan location on vessel heads and shells includes a 2" wide by 16" long test band. The average scan location on piping and fittings is a 2" wide band at critical areas, such as the outside radius of elbows, neck of tees, the back of tees, or any other areas of concern.

Vessels

Flag thicknesses are determined by subtracting the given corrosion allowances from the nominal thickness as stated on a vessel data plate or a client provided MDR or U1A form for the vessel.

Piping

Flag thicknesses for piping is determined by subtracting 12.5% (mill tolerance) from the nominal thickness. The 12.5% is input as the corrosion allowance on the UTS report.

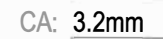
Equipment

All equipment used for each UTS is listed on the ultrasonic report and is in accordance with Lance Inspections Inc. procedure UT-01 (Rev. 6). All ultrasonic machines calibrations, field calibrations, and performance of ultrasonic thickness surveys are completed in accordance with Lance Inspections Inc. procedure UT-01 (Rev. 6)

Sincerely,

A handwritten signature in blue ink, appearing to read "Lance Smith", is written over a horizontal line.

Lance Smith,
Lance Inspections Inc.



SEPT. 2019 VESSEL OUT OF SERVICE AT TIME OF INSPECTION.



UTS Data Sheet

Client:

Facility: **n/a**

Location: **yard**

Equip Description: **Horizontal Separator**

Reg A#: **0444877**

Drawing #: **1**

	Nominal Thickness (mm)	Corrosion Allowance (mm)	Flag Thickness (mm)
101 Description: Bottom Shell Date: Sept. 30, 19 Minimum: 56.3 Average: 56.6 Comments:	57.2	3.2	54.0
102 Description: Lower Shell Date: Sept. 30, 19 Minimum: 56.9 Average: 57.1 Comments:	57.2	3.2	54.0
103 Description: Lower Shell Date: Sept. 30, 19 Minimum: 56.7 Average: 56.8 Comments:	57.2	3.2	54.0
104 Description: Mid Shell Date: Sept. 30, 19 Minimum: 56.4 Average: 56.6 Comments:	57.2	3.2	54.0
105 Description: Upper Shell Date: Sept. 30, 19 Minimum: 55.9 Average: 56.3 Comments:	57.2	3.2	54.0
106 Description: Upper Head Date: Sept. 30, 19 Minimum: 56.1 Average: 56.7 Comments:	57.2	3.2	54.0
107 Description: Lower Head Date: Sept. 30, 19 Minimum: 54.6 Average: 55.2 Comments:	57.2	3.2	54.0
108 Description: Bottom Shell Date: Sept. 30, 19 Minimum: 56.1 Average: 56.4 Comments:	57.2	3.2	54.0



UTS Data Sheet

Client:

Facility: **n/a**

Location: **yard**

Equip Description: **Horizontal Separator**

Reg A#: **0444877**

Drawing #: **1**

	Nominal Thickness (mm)	Corrosion Allowance (mm)	Flag Thickness (mm)
109 Description: Bottom Shell Date: Sept. 30, 19 Minimum: 56.2 Average: 56.5 Comments:	57.2	3.2	54.0
110 Description: Boot Shell Date: Sept. 30, 19 Minimum: 28.3 Average: 28.5 Comments:		3.2	
111 Description: Boot Head Date: Sept. 30, 19 Minimum: 27.4 Average: 27.8 Comments: <i>Sept. 2019_Min scan at nozzle weld.</i>	28.6	3.2	25.4
112 Description: Circ on 2" Nozzle Date: Sept. 30, 19 Minimum: 27.0 Average: 27.4 Comments:		3.2	
113 Description: Circ on 2" Nozzle Date: Sept. 30, 19 Minimum: 26.7 Average: 27.0 Comments:		3.2	
114 Description: Circ on 1.5" Nozzle Date: Sept. 30, 19 Minimum: 15.2 Average: 15.8 Comments:		3.2	
115 Description: Circ on 1.5" Nozzle Date: Sept. 30, 19 Minimum: 16.0 Average: 16.4 Comments:		3.2	
116 Description: Circ on 1.5" Nozzle Date: Sept. 30, 19 Minimum: 16.1 Average: 16.5 Comments:		3.2	



UTS Data Sheet

Client:

Facility: **n/a**

Location: **yard**

Equip Description: **Horizontal Separator**

Reg A#: **0444877**

Drawing #: **1**

	Nominal Thickness (mm)	Corrosion Allowance (mm)	Flag Thickness (mm)
117 Description: Circ on 3" Nozzle Date: Sept. 30, 19 Minimum: 25.9 Average: 26.2 Comments:		3.2	
118 Description: Circ on 3" Nozzle Date: Sept. 30, 19 Minimum: 25.9 Average: 26.2 Comments:		3.2	
119 Description: Circ on 2" Nozzle Date: Sept. 30, 19 Minimum: 26.2 Average: 26.5 Comments:		3.2	
120 Description: 6" 90° Elbow Date: Sept. 30, 19 Minimum: 18.3 Average: 18.9 Comments: <i>Sept. 2019_Min scan at mid elbow.</i>	18.2	2.3	15.9
121 Description: 6" 90° Elbow Date: Sept. 30, 19 Minimum: 18.9 Average: 21.2 Comments: <i>Sept. 2019_Min scan at right of apex.</i>	18.2	2.3	15.9
122 Description: 2" 90° Elbow Date: Sept. 30, 19 Minimum: 5.3 Average: 5.5 Comments:	5.5	0.7	4.8
123 Description: 6" 90° Elbow Date: Sept. 30, 19 Minimum: 18.1 Average: 19.0 Comments: <i>Sept. 2019_Min scan at mid elbow.</i>	18.2	2.3	15.9
124 Description: 6" 90° Elbow Date: Sept. 30, 19 Minimum: 19.7 Average: 20.2 Comments: <i>Sept. 2019_Min scan at upstream weld.</i>	18.2	2.3	15.9



UTS Data Sheet

Client:

Facility: **n/a**

Location: **yard**

Equip Description: **Horizontal Separator**

Reg A#: **0444877**

Drawing #: **1**

	Nominal Thickness (mm)	Corrosion Allowance (mm)	Flag Thickness (mm)
125 Description: 3" 90° Elbow Date: Sept. 30, 19 Minimum: 12.3 Average: 12.7 Comments: <i>Sept. 2019_Min scan at mid elbow.</i>	11.1	1.4	9.7
126 Description: Circ on 3" Pipe Date: Sept. 30, 19 Minimum: 10.6 Average: 10.9 Comments:	11.1	1.4	9.7
127 Description: 4" 90° Elbow Date: Sept. 30, 19 Minimum: 12.4 Average: 13.0 Comments: <i>Sept. 2019_Min scan at mid elbow.</i>	13.5	1.7	11.8
128 Description: 2" 90° Elbow Date: Sept. 30, 19 Minimum: 8.6 Average: 8.9 Comments:	8.7	1.1	7.6
129 Description: 6" 90° Elbow Date: Sept. 30, 19 Minimum: 19.0 Average: 19.5 Comments: <i>Sept. 2019_Min scan at mid elbow.</i>	18.2	2.3	15.9
130 Description: 2" 90° Elbow Date: Sept. 30, 19 Minimum: 3.4 Average: 8.2 Comments: <i>Sept. 2019_Pit noted at downstream weld.</i>	8.7	1.1	7.6
131 Description: 2" 90° Elbow Date: Sept. 30, 19 Minimum: 8.5 Average: 8.8 Comments:	8.7	1.1	7.6
132 Description: 2" 90° Elbow Date: Sept. 30, 19 Minimum: 8.6 Average: 8.9 Comments:	8.7	1.1	7.6



UTS Data Sheet

Client:

Facility: **n/a**

Location: **yard**

Equip Description: **Horizontal Separator**

Reg A#: **0444877**

Drawing #: **1**

	Nominal Thickness (mm)	Corrosion Allowance (mm)	Flag Thickness (mm)
133 Description: 2" 90° Elbow Date: Sept. 30, 19 Minimum: 8.5 Average: 8.7 Comments:	8.7	1.1	7.6
134 Description: 2" 90° Elbow Date: Sept. 30, 19 Minimum: 8.5 Average: 8.7 Comments:	8.7	1.1	7.6
135 Description: 1.5" 90° Elbow Date: Sept. 30, 19 Minimum: 4.7 Average: 5.0 Comments:	5.1	0.6	4.5
136 Description: 2" 90° Elbow Date: Sept. 30, 19 Minimum: 5.7 Average: 8.0 Comments: <i>Sept. 2019_Pitting at upstream weld.</i>	8.7	1.1	7.6
137 Description: 2" 90° Elbow Date: Sept. 30, 19 Minimum: 8.6 Average: 8.7 Comments:	8.7	1.1	7.6
138 Description: 2" 90° Elbow Date: Sept. 30, 19 Minimum: 8.3 Average: 8.6 Comments:	8.7	1.1	7.6
139 Description: 2" 90° Elbow Date: Sept. 30, 19 Minimum: 8.6 Average: 8.9 Comments:	8.7	1.1	7.6



Customer: _____ Description: HORIZONTAL SEPARATOR

Facility: N/A Location: YARD

Reg A#: NO DATA PLATE Serial #: _____ Drawing#: 2

CRN #: _____ Manufacturer: _____ Unit #: _____ Year Built: _____

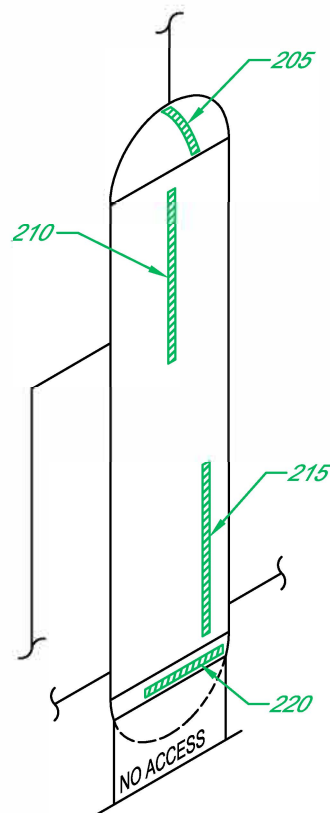
Shell MAWP: _____ Shell MAWT: _____ Shell Material: _____ Nominal: _____ CA: _____

Tube "A" MAWP: _____ Tube "A" MAWT: _____ Head Material: _____ Nominal: _____ CA: _____

Tube "B" MAWP: _____ Tube "B" MAWT: _____ Tube Material: _____ Nominal: _____ CA: _____

Size: 8in x 29in Manway: NO MDMT: _____ Boot Shell Mat: _____ Nominal: _____ CA: _____

Insulated: NO C Stamp: _____ RT: _____ PWHT: _____ Boot Head Mat: _____ Nominal: _____ CA: _____





Client:

Facility: **n/a**

Location: **yard**

Equip Description: **Fuel Gas Scrubber**

Reg A#: **No data plate**

Drawing #: **2**

Nominal Thickness (mm)	Corrosion Allowance (mm)	Flag Thickness (mm)
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205

Description: **Top Head**

Date: **Sept. 30, 19**

Minimum: **7.3**

Average: **7.5**

Comments:

210

Description: **Upper Shell**

Date: **Sept. 30, 19**

Minimum: **8.2**

Average: **8.4**

Comments:

215

Description: **Lower Shell**

Date: **Sept. 30, 19**

Minimum: **8.2**

Average: **8.4**

Comments:

220

Description: **Bottom Head**

Date: **Sept. 30, 19**

Minimum: **6.8**

Average: **7.3**

Comments: *Sept. 2019_Min scan at knuckle. Limited access.*
