

#123 - 8805 Resources Road
Grande Prairie, AB
T8V 3A6
phone: 780-933-9700
lsmith@lanceinspections.com



Ultrasonic Inspection Report

UT_A 0521805_A 0521806_oct2025

			Date: Oct 2, 2025
Item(s) Inspected: Vessels and Piping			Job #: 13790
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 vessels and piping.

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

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

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.

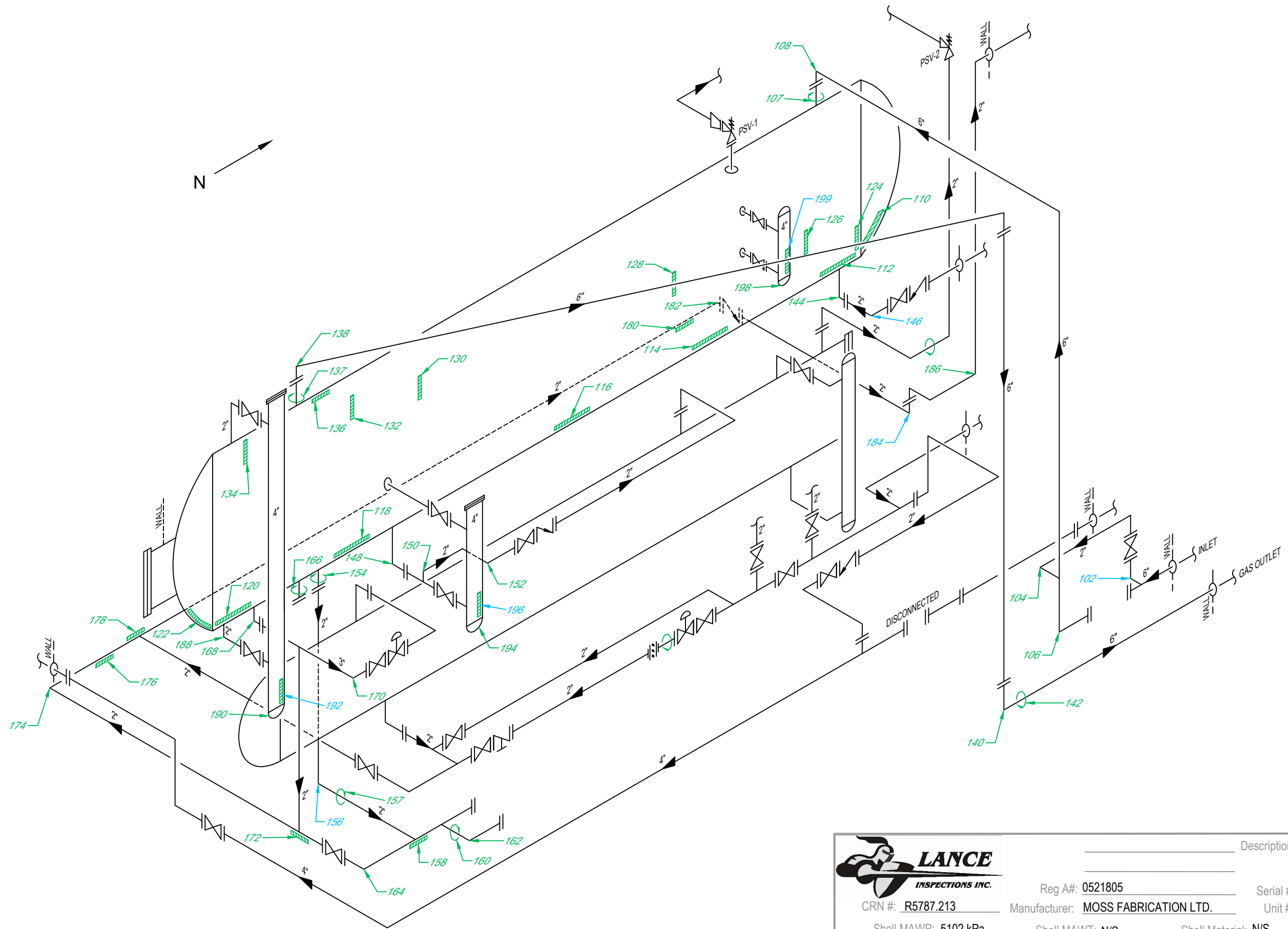
Sincerely,

Lance Smith,
Owner/General Manager
Lance Inspections Inc.

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



Dwg#	Item Description	Reg A#	Serial #	CRN #	Date of Last Inspection	U-1A or MFG Design Data Required	Flagged Items
1	Horizontal Inlet Separator	0521805	3407-1	R5787.213	Oct. 2, 25	✓	102, 146, 156, 184, 192, 196, 199
2	Horizontal Blowcase	0521806	3407-2	R5952.213	Oct. 2, 25	✓	224, 228, 232, 244, 246, 248



Description: HORIZONTAL INLET SEPARATOR		
Reg A#: 0521805	Serial #: 3407-1	Drawing#: 1
CRN #: R5787.213	Manufacturer: MOSS FABRICATION LTD.	Unit #: N/A
Year Built: 2004		
Shell MAWP: 5102 kPa	Shell MAWT: N/S	Shell Material: N/S
Nominal: N/S	CA: N/S	
Tube "A" MAWP:	Tube "A" MAWT:	Head Material: N/S
Nominal: N/S	CA: N/S	
Tube "B" MAWP:	Tube "B" MAWT:	Tube Material:
Nominal:	CA:	
Size: 72in	Manway: N/A	MDMT: -32°C
Boot Shell Mat:	Nominal:	CA:
Insulated: N/S	C Stamp: N/S	RT: -1
PWHT: N/S	Boot Head Mat:	Nominal:
CA:		



Equip Description: **Horizontal Inlet Separator**

Reg A#: **0521805**

Drawing #: **1**

UTS Data Sheet

	Nominal Thickness (mm)	Corrosion Allowance (mm)	Flag Thickness (mm)
102 Description: 2" 90° Elbow Date: Oct. 2, 25 Minimum: 4.7 Average: 5.2 Comments: <i>Oct. 2025_Wall loss noted.</i>	5.5	0.7	4.8
104 Description: 2" 90° Elbow Date: Oct. 2, 25 Minimum: 5.1 Average: 5.6 Comments:	5.5	0.7	4.8
106 Description: 6" 90° Elbow Date: Oct. 2, 25 Minimum: 6.6 Average: 7.0 Comments: <i>Oct. 2025_Limited access due to pipe support.</i>	7.1	0.9	6.2
107 Description: Circ on 6" Nozzle Date: Oct. 2, 25 Minimum: 20.8 Average: 21.5 Comments:	21.9		20.4
108 Description: 6" 90° Elbow Date: Oct. 2, 25 Minimum: 6.6 Average: 7.0 Comments:	7.1	0.9	6.2
110 Description: Lower North Head Date: Oct. 2, 25 Minimum: 41.9 Average: 42.9 Comments: <i>Oct. 2025_Min scan at knuckle.</i>			40.4
112 Description: Bottom Shell Date: Oct. 2, 25 Minimum: 38.8 Average: 39.1 Comments:			37.3
114			

Description: **Bottom Shell**

37.5

Date: Oct. 2, 25

Minimum: 39.0

Average: 39.1

Comments:



Equip Description: **Horizontal Inlet Separator**

Reg A#: **0521805**

Drawing #: **1**

Nominal

Corrosion

Flag

		Thickness (mm)	Allowance (mm)	Thickness (mm)
116	Description: Bottom Shell			37.5
	Date: Oct. 2, 25			
	Minimum: 39.0			
	Average: 39.1			
	Comments:			
118	Description: Bottom Shell			37.6
	Date: Oct. 2, 25			
	Minimum: 39.1			
	Average: 39.3			
	Comments:			
120	Description: Bottom Shell			37.0
	Date: Oct. 2, 25			
	Minimum: 38.5			
	Average: 38.9			
	Comments: <i>Oct. 2025_Min scan at nozzle.</i>			
122	Description: Lower South Head			40.3
	Date: Oct. 2, 25			
	Minimum: 41.8			
	Average: 42.6			
	Comments:			
124	Description: Lower Shell			37.4
	Date: Oct. 2, 25			
	Minimum: 38.9			
	Average: 39.1			
	Comments:			
126	Description: Lower Shell			37.7
	Date: Oct. 2, 25			
	Minimum: 39.2			
	Average: 39.3			
	Comments:			
128	Description: Mid Shell			37.5
	Date: Oct. 2, 25			
	Minimum: 39.0			
	Average: 39.2			
	Comments:			
130	Description: Mid Shell			37.1
	Date: Oct. 2, 25			
	Minimum: 38.6			
	Average: 39.0			
	Comments:			



UTS Data Sheet

Equip Description: **Horizontal Inlet Separator**

Reg A#: **0521805**

Drawing #: **1**

Horizontal Inlet Separator

Equip Description: **0521805**

Reg A#: **1**

Drawing #:

	Nominal Thickness (mm)	Corrosion Allowance (mm)	Flag Thickness (mm)
132			
Description: Upper Shell			37.7
Date: Oct. 2, 25			
Minimum: 39.2			
Average: 39.3			
Comments:			
134			
Description: Upper Shell			37.9
Date: Oct. 2, 25			
Minimum: 39.4			
Average: 39.5			
Comments:			
136			
Description: Top Shell			37.9
Date: Oct. 2, 25			
Minimum: 39.4			
Average: 39.5			
Comments:			
137			
Description: Circ on 6" Nozzle	21.9		20.4
Date: Oct. 2, 25			
Minimum: 20.7			
Average: 21.3			
Comments:			
138			
Description: 6" 90° Elbow	7.1	0.9	6.2
Date: Oct. 2, 25			
Minimum: 6.7			
Average: 7.0			
Comments:			
140			
Description: 6" 90° Elbow	7.1	0.9	6.2
Date: Oct. 2, 25			
Minimum: 6.6			
Average: 7.1			
Comments:			
142			
Description: Circ on 6" Pipe	7.1	0.9	6.2
Date: Oct. 2, 25			
Minimum: 7.0			
Average: 7.3			
Comments:			
144			
Description: 2" 90° Nozzle	8.7		7.2
Date: Oct. 2, 25			
Minimum: 8.7			
Average: 9.1			
Comments:			

		Nominal Thickness (mm)	Corrosion Allowance (mm)	Flag Thickness (mm)
146	Description: 2" 90° Elbow Date: Oct. 2, 25 Minimum: 3.2 Average: 4.8 Comments:	5.5	0.7	4.8
148	Description: 2" 90° Nozzle Date: Oct. 2, 25 Minimum: 9.2 Average: 9.5 Comments:	8.7		7.2
150	Description: 2" 90° Elbow Date: Oct. 2, 25 Minimum: 5.2 Average: 5.6 Comments:	5.5	0.7	4.8
152	Description: 2" 90° Elbow Date: Oct. 2, 25 Minimum: 5.2 Average: 5.6 Comments:	5.5	0.7	4.8
154	Description: Circ on 2" Nozzle Date: Oct. 2, 25 Minimum: 8.5 Average: 9.0 Comments:	8.7		7.2
156	Description: 2" 90° Elbow Date: Oct. 2, 25 Minimum: 4.3 Average: 5.2 Comments: <i>Oct. 2025_Erosion noted.</i>	5.5	0.7	4.8
157	Description: Circ on 2" Pipe Date: Oct. 2, 25 Minimum: 5.3 Average: 5.8 Comments:	5.5	0.7	4.8
158	Description: Back of 2" x 2" Tee Date: Oct. 2, 25 Minimum: 7.2 Average: 8.2 Comments:	5.5	0.7	4.8



Equip Description: **Horizontal Inlet Separator**

Reg A#: **0521805**

Drawing #: **1**

		Nominal Thickness (mm)	Corrosion Allowance (mm)	Flag Thickness (mm)
160	Description: Circ on 2" Pipe	5.5	0.7	4.8
	Date: Oct. 2, 25			
	Minimum: 5.3			
	Average: 5.7			
	Comments:			
162	Description: 2" 90° Elbow	5.5	0.7	4.8
	Date: Oct. 2, 25			
	Minimum: 5.2			
	Average: 5.7			
	Comments:			
164	Description: 2" 90° Elbow	5.5	0.7	4.8
	Date: Oct. 2, 25			
	Minimum: 5.1			
	Average: 5.5			
	Comments:			
166	Description: Circ on 2" Nozzle	8.7		7.2
	Date: Oct. 2, 25			
	Minimum: 8.3			
	Average: 8.9			
	Comments:			
168	Description: 3" 90° Nozzle	15.2		13.7
	Date: Oct. 2, 25			
	Minimum: 15.0			
	Average: 15.4			
	Comments:			
170	Description: 3" 90° Elbow	7.6	1.0	6.6
	Date: Oct. 2, 25			
	Minimum: 7.1			
	Average: 7.6			
	Comments:			
172	Description: Back of 2" x 2" Tee	5.5	0.7	4.8
	Date: Oct. 2, 25			
	Minimum: 6.8			
	Average: 8.1			
	Comments: Oct. 2025_ Min scan at upstream weld.			
174	Description: 2" 90° Elbow	5.5	0.7	4.8
	Date: Oct. 2, 25			
	Minimum: 4.9			
	Average: 5.3			
	Comments:			



Horizontal Inlet Separator

Equip Description: **0521805**

Reg A#: **1**

Drawing #:

		Nominal Thickness (mm)	Corrosion Allowance (mm)	Flag Thickness (mm)
176	Description: Bottom Band on 2" Pipe	5.5	0.7	4.8
	Date: Oct. 2, 25			
	Minimum: 5.1			
	Average: 5.4			
	Comments:			
178	Description: Back of 2" x 2" Tee	5.5	0.7	4.8
	Date: Oct. 2, 25			
	Minimum: 6.9			
	Average: 7.0			
	Comments: <i>Oct. 2025_Min scan at downstream weld.</i>			
180	Description: Bottom Band on 2" Pipe	5.5	0.7	4.8
	Date: Oct. 2, 25			
	Minimum: 5.2			
	Average: 5.5			
	Comments: <i>Oct. 2025_Limited access due to pipe support.</i>			
182	Description: 2" 90° Elbow	5.5	0.7	4.8
	Date: Oct. 2, 25			
	Minimum: 4.9			
	Average: 5.3			
	Comments:			
184	Description: 2" 90° Elbow	5.5	0.7	4.8
	Date: Oct. 2, 25			
	Minimum: 4.5			
	Average: 5.3			
	Comments: <i>Oct. 2025_Corrosion noted.</i>			
186	Description: 2" 90° Elbow	3.9	0.5	3.4
	Date: Oct. 2, 25			
	Minimum: 3.5			
	Average: 3.8			
	Comments: <i>Oct. 2025_Min scan at upstream weld.</i>			
188	Description: 2" 90° Nozzle	8.7		7.2
	Date: Oct. 2, 25			
	Minimum: 9.3			
	Average: 9.7			
	Comments:			
190	Description: End cap on 4" Column	6.0	0.8	5.2
	Date: Oct. 2, 25			
	Minimum: 6.9			
	Average: 7.7			
	Comments: <i>Oct. 2025_Shallow corrosion noted.</i>			



Equip Description: **Horizontal Inlet Separator**

Reg A#: **0521805**

Drawing #: **1**

192

Description: **Vertical Band on 4" Column**
Date: Oct. 2, 25
Minimum: 5.0
Average: 5.6
Comments: Oct. 2025_Corrosion noted.

	Nominal Thickness (mm)	Corrosion Allowance (mm)	Flag Thickness (mm)
	6.0	0.8	5.2

194

Description: **End cap on 4" Column**
Date: Oct. 2, 25
Minimum: 6.3
Average: 7.5
Comments: Oct. 2025_Shallow corrosion noted.

	6.0	0.8	5.2
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196

Description: **Vertical Band on 4" Column**
Date: Oct. 2, 25
Minimum: 5.2
Average: 5.7
Comments: Oct. 2025_Corrosion noted.

	6.0	0.8	5.2
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198

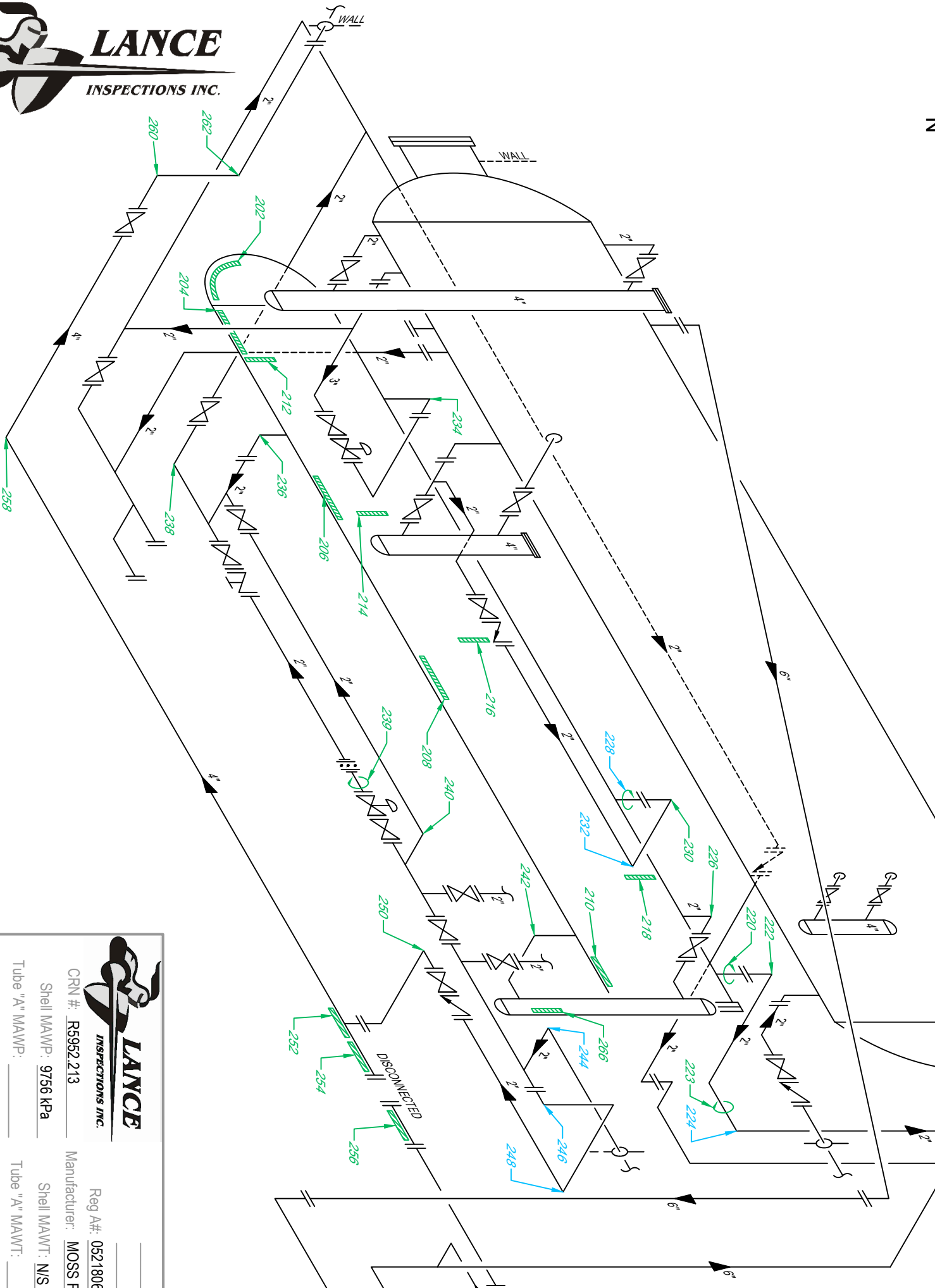
Description: **End cap on 4" Column**
Date: Oct. 2, 25
Minimum: 9.8
Average: 11.0
Comments:

	8.6	1.1	7.5
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199

Description: **Vertical Band on 4" Column**
Date: Oct. 2, 25
Minimum: 7.3
Average: 7.6
Comments:

	8.6	1.1	7.5
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CRN #:	R5952.213
Shell MAWP:	9756 kPa
Tube "A" MAWP:	
Tube "B" MAWP:	
Size:	N/S
Insulated:	N/S
C Stamp:	N/S
RT:	-1
PWH:	
Reg At:	0521806
Manufacturer:	MOSS F
Shell MAWP:	N/S
Tube "A" MAWP:	
Tube "B" MAWP:	
Size:	N/S
Insulated:	N/S
C Stamp:	N/S
RT:	-1
PWH:	



UTS Data Sheet

Equip Description: **Horizontal Blowcase**

Reg A#: **0521806**

Drawing #: **2**

Nominal
Thickness
(mm)

Corrosion
Allowance
(mm)

Flag
Thickness
(mm)

202

Description: **Lower South Head**

35.3

Date: Oct. 2, 25

Minimum: 36.8

Average: 37.7

Comments:

204

Description: **Bottom Shell**

37.0

Date: Oct. 2, 25

Minimum: 38.5

Average: 39.1

Comments: Oct. 2025_Min scan at surface weld.

206

Description: **Bottom Shell**

37.6

Date: Oct. 2, 25

Minimum: 39.1

Average: 39.2

Comments:

208

Description: **Bottom Shell**

37.5

Date: Oct. 2, 25

Minimum: 39.0

Average: 39.1

Comments:

210

Description: **Bottom Shell**

37.2

Date: Oct. 2, 25

Minimum: 38.7

Average: 39.0

Comments:

212

Description: **Lower Shell**

36.8

Date: Oct. 2, 25

Minimum: 38.3

Average: 38.7

Comments:

214

Description: **Mid Shell**

37.6

Date: Oct. 2, 25

Minimum: 39.1

Average: 39.2

Comments:

216

Description: **Mid Shell**

37.7

Date: Oct. 2, 25

Minimum: 39.2

Average: 39.4

Comments:



Equip Description: **Horizontal Blowcase**

Reg A#: **0521806**

Drawing #: **2**

Nominal Thickness (mm)	Corrosion Allowance (mm)	Flag Thickness (mm)
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218

Description: **Upper Shell**

37.8

Date: Oct. 2, 25

Minimum: 39.3

Average: 39.5

Comments:

220

Description: **Circ on 2" Nozzle**

8.7

7.2

Date: Oct. 2, 25

Minimum: 8.4

Average: 8.7

Comments:

222

Description: **2" 90° Elbow**

5.5

0.7

4.8

Date: Oct. 2, 25

Minimum: 5.2

Average: 5.5

Comments:

223

Description: **Circ on 2" Pipe**

5.5

0.7

4.8

Date: Oct. 2, 25

Minimum: 5.2

Average: 5.6

Comments: Oct. 2025_Corrosion noted.

224

Description: **2" 90° Elbow**

5.5

0.7

4.8

Date: Oct. 2, 25

Minimum: 3.7

Average: 4.8

Comments: Oct. 2025_Corrosion noted.

226

Description: **2" 90° Nozzle**

8.7

7.2

Date: Oct. 2, 25

Minimum: 8.6

Average: 9.1

Comments:

228

Description: **Circ on 2" Nozzle**

8.7

1.1

7.6

Date: Oct. 2, 25

Minimum: 7.2

Average: 7.6

Comments:

230

Description: **2" 90° Elbow**

5.5

0.7

4.8

Date: Oct. 2, 25

Minimum: 5.0

Average: 5.5

Comments:



Equip Description: **Horizontal Blowcase**

Reg A#: **0521806**

Drawing #: **2**

	Nominal Thickness (mm)	Corrosion Allowance (mm)	Flag Thickness (mm)
232 Description: 2" 90° Elbow Date: Oct. 2, 25 Minimum: 4.7 Average: 5.0 Comments:	5.5	0.7	4.8
234 Description: 3" 90° Nozzle Date: Oct. 2, 25 Minimum: 11.0 Average: 11.7 Comments: Oct. 2025_Min scan at right of apex.	11.1		9.6
236 Description: 2" 90° Nozzle Date: Oct. 2, 25 Minimum: 9.0 Average: 9.4 Comments:	8.7		7.2
238 Description: 2" 90° Elbow Date: Oct. 2, 25 Minimum: 5.4 Average: 5.8 Comments:	5.5	0.7	4.8
239 Description: Circ on 2" Pipe Date: Oct. 2, 25 Minimum: 5.3 Average: 5.8 Comments:	5.5	0.7	4.8
240 Description: 2" 90° Elbow Date: Oct. 2, 25 Minimum: 5.1 Average: 5.4 Comments:	5.5	0.7	4.8
242 Description: 2" 90° Nozzle Date: Oct. 2, 25 Minimum: 8.5 Average: 9.1 Comments:	8.7		7.2
244 Description: 2" 90° Elbow Date: Oct. 2, 25 Minimum: 4.7 Average: 5.1 Comments: Oct. 2025_Corrosion noted.	5.5	0.7	4.8



Description: **Horizontal Blowcase**

Reg A#: **0521806**

Drawing #: **2**

	Nominal Thickness (mm)	Corrosion Allowance (mm)	Flag Thickness (mm)
246 Description: 2" 90° Elbow Date: Oct. 2, 25 Minimum: 4.2 Average: 4.6 Comments: <i>Oct. 2025_Corrosion noted.</i>	5.5	0.7	4.8
248 Description: 2" 90° Elbow Date: Oct. 2, 25 Minimum: 4.8 Average: 5.3 Comments:	5.5	0.7	4.8
250 Description: 2" 90° Elbow Date: Oct. 2, 25 Minimum: 4.9 Average: 5.3 Comments:	5.5	0.7	4.8
252 Description: Back of 2" x 4" Tee Date: Oct. 2, 25 Minimum: 9.6 Average: 10.0 Comments:	8.6	1.1	7.5
254 Description: Bottom Band on 4" Pipe Date: Oct. 2, 25 Minimum: 8.0 Average: 8.4 Comments:	8.6	1.1	7.5
256 Description: Bottom Band on 4" Pipe Date: Oct. 2, 25 Minimum: 8.0 Average: 8.4 Comments:	8.6	1.1	7.5
258 Description: 4" 90° Elbow Date: Oct. 2, 25 Minimum: 7.8 Average: 8.3 Comments:	8.6	1.1	7.5
260 Description: 4" 90° Elbow Date: Oct. 2, 25 Minimum: 8.2 Average: 8.6 Comments:	8.6	1.1	7.5



Equip Description: **Horizontal Blowcase**

Reg A#: **0521806**

Drawing #: **2**

262

Description: **4" 90° Elbow**

Date: **Oct. 2, 25**

Minimum: **8.7**

Average: **9.0**

Comments:

Nominal
Thickness
(mm)

Corrosion
Allowance
(mm)

Flag
Thickness
(mm)

8.6

1.1

7.5