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**Ultrasonic
 Inspection Report**

UT_A 0606800_oct2025

Client: Rare Oilfield Services		Date: Oct 8, 2025
LSD: n/a	Item(s) Inspected: 3 Phase Separator	Job #: 13794
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
UT Equipment:	Asset# FD-15 Olympus Epoch XT	Serial Number: 070057201
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 separator, A# 0606800

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

Client Representative: Rob Gryba
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)

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.



Customer: RARE OILFIELD SERVICES Description: 3 PHASE SPEARATOR

Facility: _____ Location: N/A

Reg A#: 0606800 Serial #: 12078 Drawing#: 1

CRN #: P8736.231 Manufacturer: RJV Unit #: N/A Year Built: 2011

Shell MAWP: 9928 kPa Shell MAWT: 38°C Shell Material: SA 516 70N Nominal: 31.8mm CA: 3.2mm

Tube "A" MAWP: _____ Tube "A" MAWT: _____ Head Material: SA 516 70N Nominal: 30.2mm CA: 3.2mm

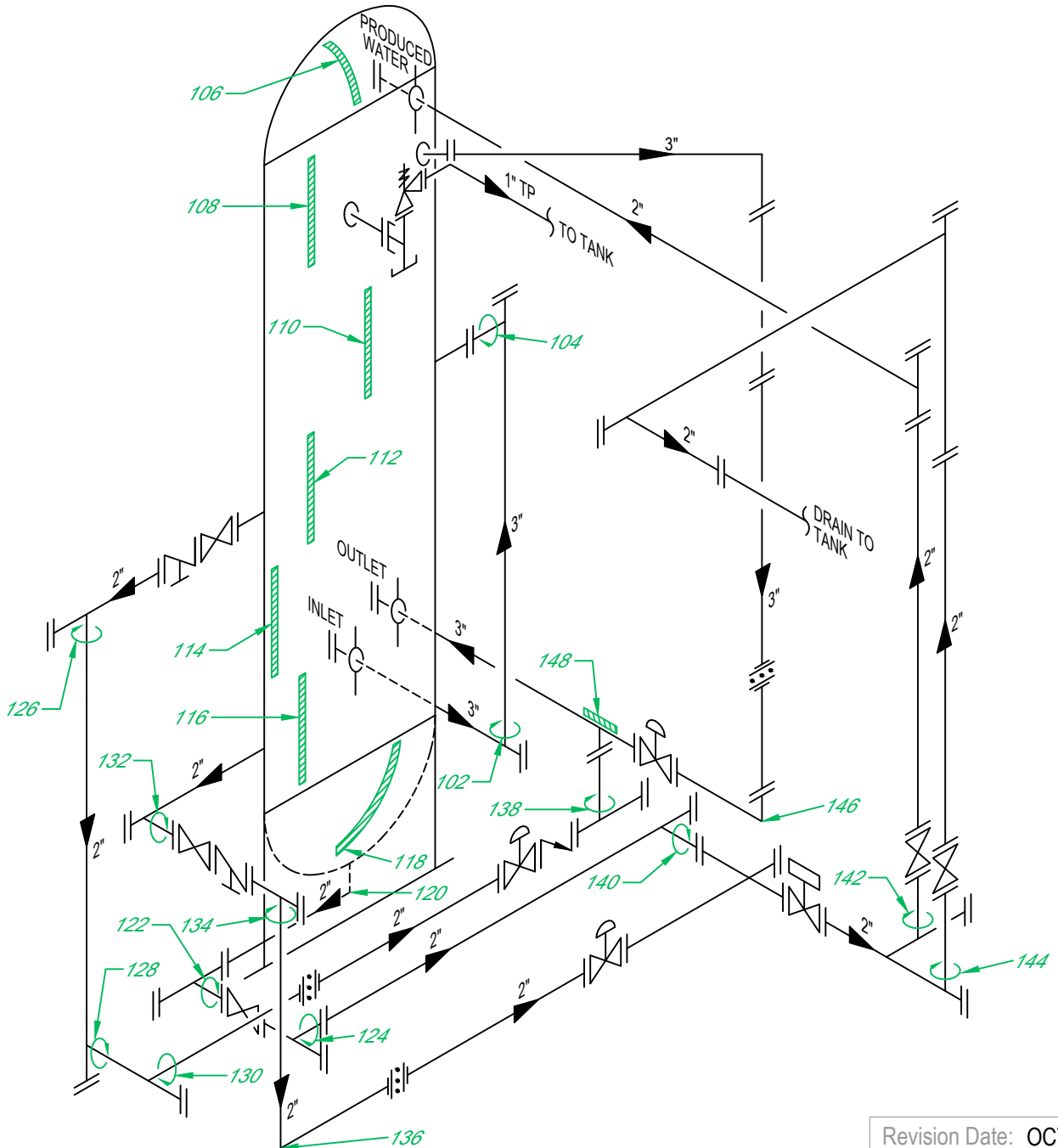
Tube "B" MAWP: _____ Tube "B" MAWT: _____ Tube Material: _____ Nominal: _____ CA: _____

Size: 30in x 10ft Manway: NO MDMT: -29°C Boot Shell Mat: _____ Nominal: _____ CA: _____

Insulated: NO C Stamp: N/A RT: 1 PWHT: N/A Boot Head Mat: _____ Nominal: _____ CA: _____

PSV DATA

Manufacturer: <u>TAYLOR</u>	Serviced By: <u>UNIFIED VALVE</u>
Model: <u>82E8351311</u>	Service Date: <u>25-SEP-19</u>
Serial: <u>075157624</u>	Code Stamp: <u>UV</u>
Set Pressure: <u>9928 kPa</u>	CRN: <u>OG01316.2C</u>
Capacity: <u>5179 scfm</u>	Location: <u>SHELL</u>
Tag: <u>N/A</u>	Inlet Size: <u>1" MT</u>
Flows To: <u>TANK</u>	Outlet Size: <u>1" FT</u>





UTS Data Sheet

Client: **Rare Oilfield Services**
 Unit #: **n/a**
 Equip Description: **3 Phase Separator**
 Reg A#: **0606800**
 Drawing #: **1**

	Nominal Thickness (mm)	Corrosion Allowance (mm)	Flag Thickness (mm)
102 Description: Neck of 3" x 3" Tee Date: Oct. 8, 25 Minimum: 7.4 Average: 7.9 Comments:	7.6	1.0	6.6
104 Description: Neck of 3" x 3" Tee Date: Oct. 8, 25 Minimum: 7.2 Average: 7.9 Comments:	7.6	1.0	6.6
106 Description: Top Head Date: Oct. 8, 25 Minimum: 31.2 Average: 32.5 Comments:	30.2	3.2	27.0
108 Description: Upper Shell Date: Oct. 8, 25 Minimum: 32.3 Average: 32.5 Comments:	31.8	3.2	28.6
110 Description: Upper Shell Date: Oct. 8, 25 Minimum: 32.6 Average: 32.7 Comments:	31.8	3.2	28.6
112 Description: Mid Shell Date: Oct. 8, 25 Minimum: 32.5 Average: 32.6 Comments:	31.8	3.2	28.6
114 Description: Lower Shell Date: Oct. 8, 25 Minimum: 32.5 Average: 32.6 Comments:	31.8	3.2	28.6
116 Description: Lower Shell Date: Oct. 8, 25 Minimum: 32.3 Average: 32.5 Comments:	31.8	3.2	28.6



UTS Data Sheet

Client: **Rare Oilfield Services**
 Unit #: **n/a**
 Equip Description: **3 Phase Separator**
 Reg A#: **0606800**
 Drawing #: **1**

		Nominal Thickness (mm)	Corrosion Allowance (mm)	Flag Thickness (mm)
118	Description: Bottom Head Date: Oct. 8, 25 Minimum: 31.2 Average: 32.5 Comments: <i>Oct. 2025_Min scan at bottom band.</i>	30.2	3.2	27.0
120	Description: 2" 90° Nozzle Date: Oct. 8, 25 Minimum: 9.8 Average: 10.4 Comments:	11.1	3.2	7.9
122	Description: Neck of 2" x 2" Tee Date: Oct. 8, 25 Minimum: 5.7 Average: 6.2 Comments:	5.5	0.7	4.8
124	Description: Neck of 2" x 2" Tee Date: Oct. 8, 25 Minimum: 5.3 Average: 5.8 Comments:	5.5	0.7	4.8
126	Description: Neck of 2" x 2" Tee Date: Oct. 8, 25 Minimum: 5.6 Average: 6.1 Comments:	5.5	0.7	4.8
128	Description: Neck of 2" x 2" Tee Date: Oct. 8, 25 Minimum: 5.4 Average: 6.0 Comments:	5.5	0.7	4.8
130	Description: Neck of 2" x 2" Tee Date: Oct. 8, 25 Minimum: 5.4 Average: 6.0 Comments:	5.5	0.7	4.8
132	Description: Neck of 2" x 2" Tee Date: Oct. 8, 25 Minimum: 5.5 Average: 6.1 Comments:	5.5	0.7	4.8



UTS Data Sheet

Client: **Rare Oilfield Services**
 Unit #: **n/a**
 Equip Description: **3 Phase Separator**
 Reg A#: **0606800**
 Drawing #: **1**

		Nominal Thickness (mm)	Corrosion Allowance (mm)	Flag Thickness (mm)
134	Description: Neck of 2" x 2" Tee	5.5	0.7	4.8
	Date: Oct. 8, 25			
	Minimum: 5.8			
	Average: 6.3			
	Comments:			
136	Description: 2" 90° Elbow	5.5	0.7	4.8
	Date: Oct. 8, 25			
	Minimum: 5.3			
	Average: 5.6			
	Comments:			
138	Description: Neck of 2" x 2" Tee	5.5	0.7	4.8
	Date: Oct. 8, 25			
	Minimum: 5.8			
	Average: 6.3			
	Comments:			
140	Description: Neck of 2" x 2" Tee	5.5	0.7	4.8
	Date: Oct. 8, 25			
	Minimum: 5.2			
	Average: 5.7			
	Comments:			
142	Description: Neck of 2" x 2" Tee	5.5	0.7	4.8
	Date: Oct. 8, 25			
	Minimum: 5.8			
	Average: 6.5			
	Comments:			
144	Description: Neck of 2" x 2" Tee	5.5	0.7	4.8
	Date: Oct. 8, 25			
	Minimum: 5.5			
	Average: 6.1			
	Comments:			
146	Description: 3" 90° Elbow	7.6	1.0	6.6
	Date: Oct. 8, 25			
	Minimum: 7.3			
	Average: 7.7			
	Comments:			
148	Description: Back of 2" x 3" Tee	7.6	1.0	6.6
	Date: Oct. 8, 25			
	Minimum: 7.6			
	Average: 8.3			
	Comments:			

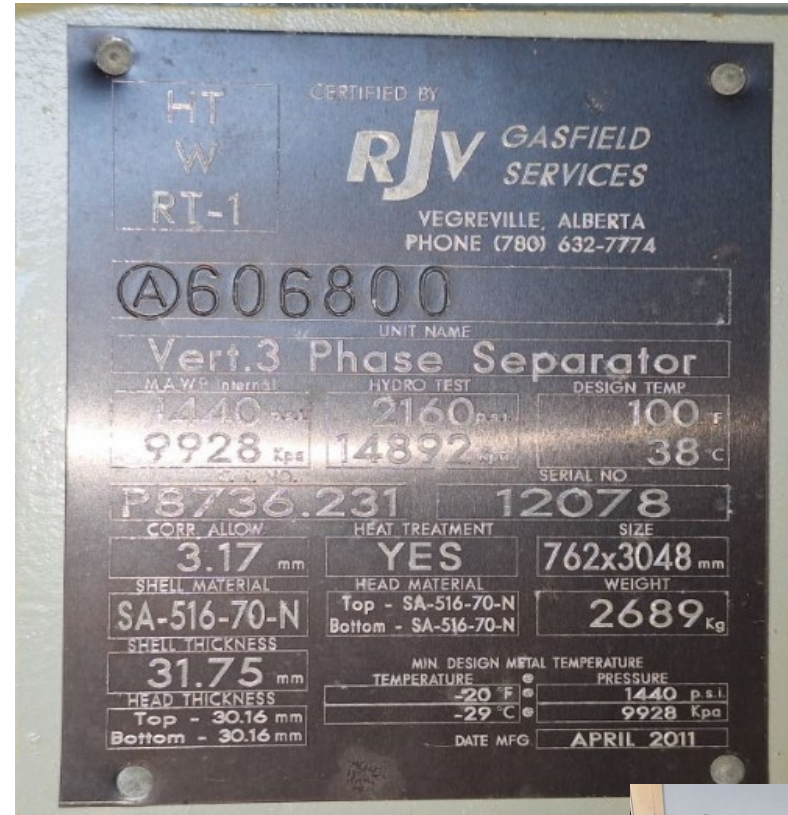


Client: **Rare Oilfield Services**
 Unit #: **n/a**
 Equip Description: **3 Phase Separator**
 Reg A#: **0606800**
 Drawing #: **1**

Vessel Overview

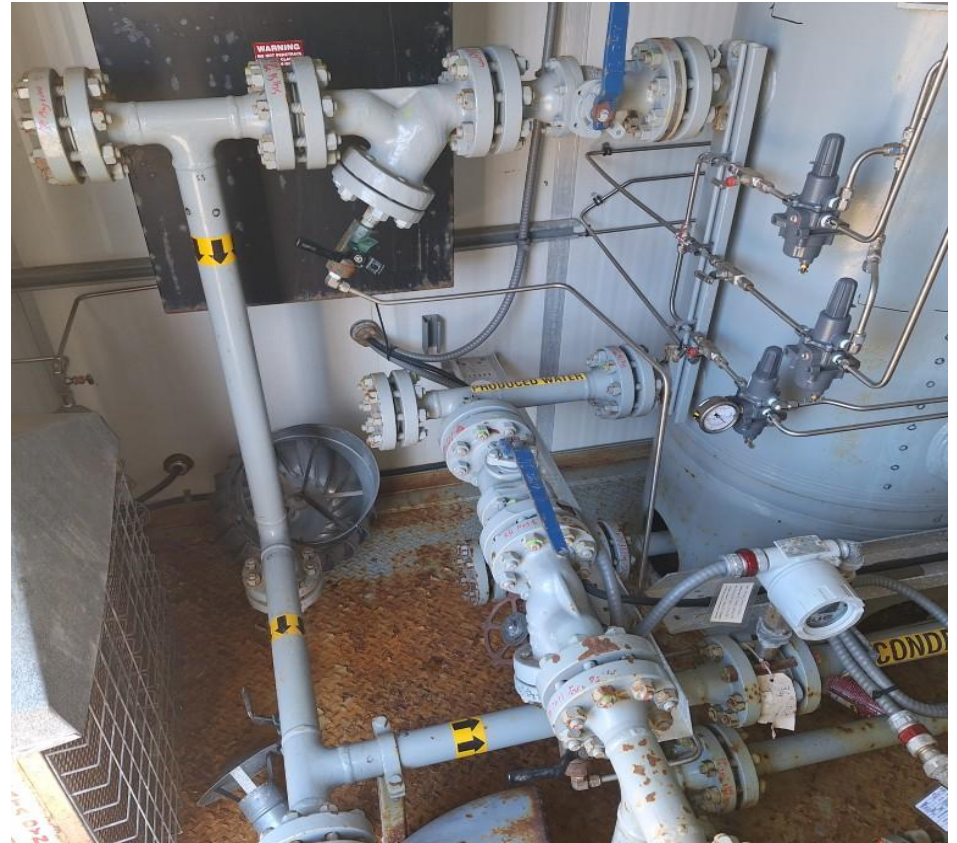


Data Plate





Client: **Rare Oilfield Services**
Unit #: **n/a**
Equip Description: **3 Phase Separator**
Reg A#: **0606800**
Drawing #: **1**





Client: **Rare Oilfield Services**
Unit #: **n/a**
Equip Description: **3 Phase Separator**
Reg A#: **0606800**
Drawing #: **1**





Client: **Rare Oilfield Services**
Unit #: **n/a**
Equip Description: **3 Phase Separator**
Reg A#: **0606800**
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Client: **Rare Oilfield Services**
Unit #: **n/a**
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