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LANCE INSPECTIONS INC.

Ultrasonic Inspection Report

UT_A 0607664_oct2025

Client: **Rare Oilfield Services**	Facility: **Northland Logistics**	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 / Surf. Prep: Painted
UT Equipment:	Asset# FD-15 Olympus Epoch XT	Serial Number: 070057201 / Cal. Due: Oct. 15, 2026
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# 0607664, at Northland Logistics.

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.

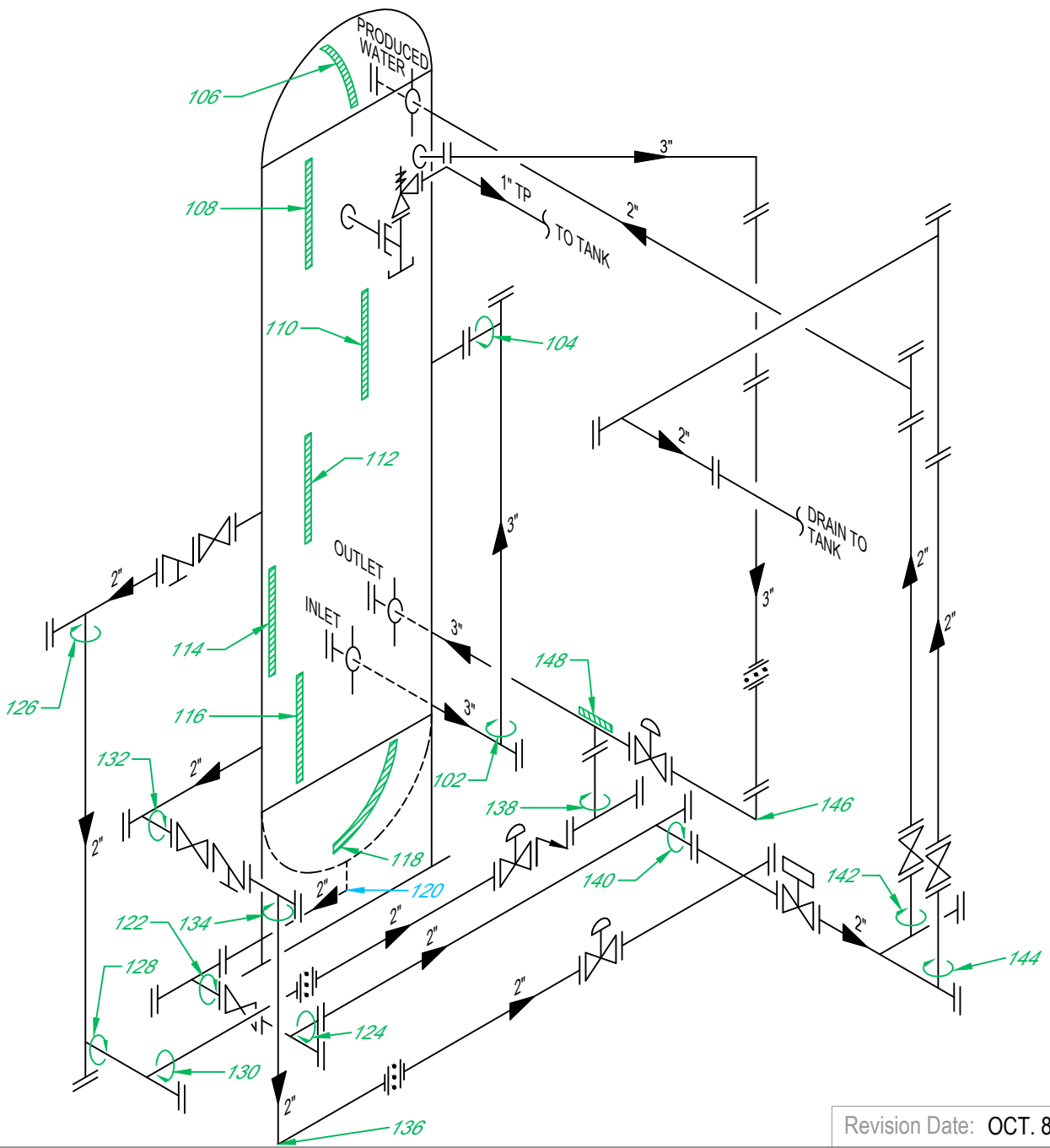
LANCE INSPECTIONS INC.

Customer:	RARE OILFIELD SERVICES	Description:	3 PHASE SEPARATOR
Facility:	NORTHLAND LOGISTICS	Location:	N/A
Reg A#:	0607664	Serial #:	12138
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:	TAYLOR	Serviced By:	UNIFIED VALVE
Model:	82E8351311	Service Date:	25-SEP-19
Serial:	075157-273	Code Stamp:	UV
Set Pressure:	9928 kPa	CRN:	OG01316.2C
Capacity:	5179 scfm	Location:	SHELL
Tag:	N/A	Inlet Size:	1" MT
Flows To:	TANK	Outlet Size:	1" FT



Revision Date: OCT. 8, 25

LANCE INSPECTIONS INC.

UTS Data Sheet

Client: **Rare Oilfield Services**
Unit #: **n/a**
Equip Description: **3 Phase Separator**
Reg A#: **0607664**
Drawing #: **1**

	Nominal Thickness (mm)	Corrosion Allowance (mm)	Flag Thickness (mm)
102			
Description: **Neck of 3" x 3" Tee**	7.6	1.0	6.6
Date: Oct. 8, 25			
Minimum: 7.3			
Average: 7.8			
Comments:			
104			
Description: **Neck of 3" x 3" Tee**	7.6	1.0	6.6
Date: Oct. 8, 25			
Minimum: 7.6			
Average: 8.0			
Comments:			
106			
Description: **Top Head**	30.2	3.2	27.0
Date: Oct. 8, 25			
Minimum: 31.3			
Average: 32.5			
Comments:			
108			
Description: **Upper Shell**	31.8	3.2	28.6
Date: Oct. 8, 25			
Minimum: 32.7			
Average: 32.8			
Comments:			
110			
Description: **Upper Shell**	31.8	3.2	28.6
Date: Oct. 8, 25			
Minimum: 32.7			
Average: 32.8			
Comments:			
112			
Description: **Mid Shell**	31.8	3.2	28.6
Date: Oct. 8, 25			
Minimum: 32.7			
Average: 32.8			
Comments:			
114			
Description: **Lower Shell**	31.8	3.2	28.6
Date: Oct. 8, 25			
Minimum: 32.6			
Average: 32.7			
Comments:			
116			
Description: **Lower Shell**	31.8	3.2	28.6
Date: Oct. 8, 25			
Minimum: 32.3			
Average: 32.5			
Comments:			

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UTS Data Sheet

Client: **Rare Oilfield Services**
Unit #: **n/a**
Equip Description: **3 Phase Separator**
Reg A#: **0607664**
Drawing #: **1**

	Nominal Thickness (mm)	Corrosion Allowance (mm)	Flag Thickness (mm)
118 Description: **Bottom Head** Date: Oct. 8, 25 Minimum: 31.3 Average: 32.4 Comments:	30.2	3.2	27.0
120 Description: **2" 90° Nozzle** Date: Oct. 8, 25 Minimum: 6.7 Average: 9.5 Comments: *Oct. 2025_Min scan at mid elbow.*	11.1	3.2	7.9
122 Description: **Neck of 2" x 2" Tee** Date: Oct. 8, 25 Minimum: 5.4 Average: 5.9 Comments:	5.5	0.7	4.8
124 Description: **Neck of 2" x 2" Tee** Date: Oct. 8, 25 Minimum: 5.7 Average: 6.2 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: 6.8 Average: 7.2 Comments:	5.5	0.7	4.8
132 Description: **Neck of 2" x 2" Tee** Date: Oct. 8, 25 Minimum: 5.5 Average: 6.2 Comments:	5.5	0.7	4.8

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UTS Data Sheet

Client: **Rare Oilfield Services**
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	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: 5.5			
Average: 6.0			
Comments:			
136			
Description: **2" 90° Elbow**	5.5	0.7	4.8
Date: Oct. 8, 25			
Minimum: 5.1			
Average: 5.5			
Comments:			
138			
Description: **Neck of 2" x 2" Tee**	5.5	0.7	4.8
Date: Oct. 8, 25			
Minimum: 5.3			
Average: 5.8			
Comments:			
140			
Description: **Neck of 2" x 2" Tee**	5.5	0.7	4.8
Date: Oct. 8, 25			
Minimum: 5.5			
Average: 6.0			
Comments:			
142			
Description: **Neck of 2" x 2" Tee**	5.5	0.7	4.8
Date: Oct. 8, 25			
Minimum: 6.0			
Average: 6.4			
Comments:			
144			
Description: **Neck of 2" x 2" Tee**	5.5	0.7	4.8
Date: Oct. 8, 25			
Minimum: 5.1			
Average: 5.6			
Comments:			
146			
Description: **3" 90° Elbow**	7.6	1.0	6.6
Date: Oct. 8, 25			
Minimum: 7.2			
Average: 7.5			
Comments:			
148			
Description: **Back of 2" x 3" Tee**	7.6	1.0	6.6
Date: Oct. 8, 25			
Minimum: 7.4			
Average: 8.0			
Comments:			

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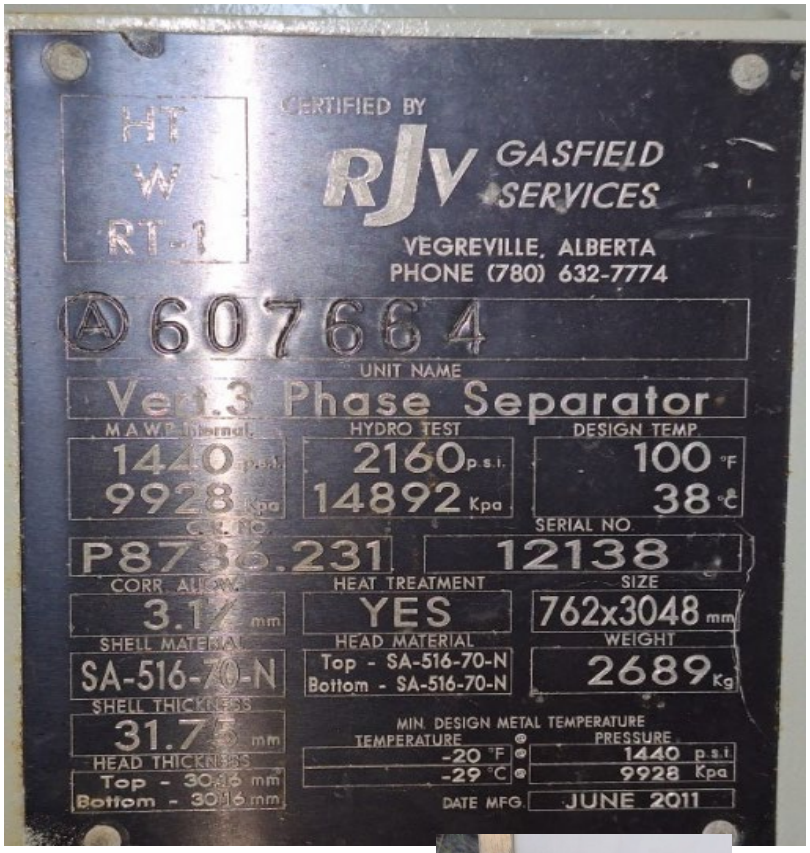
Vessel Overview

Data Plate



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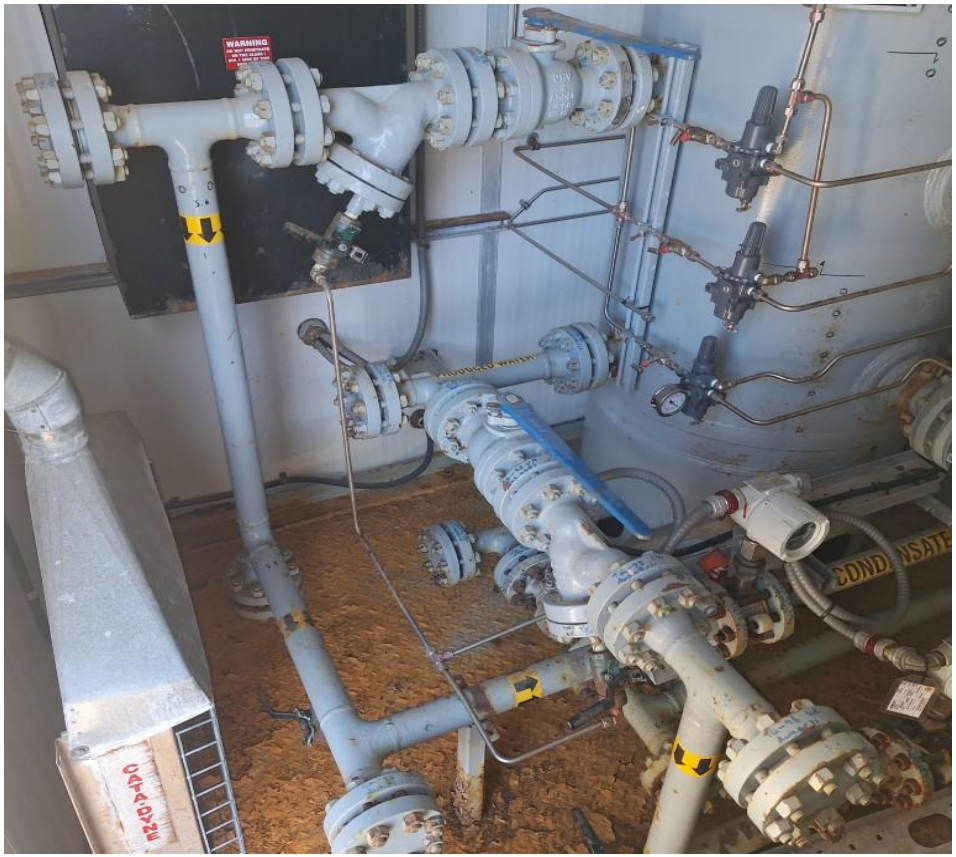

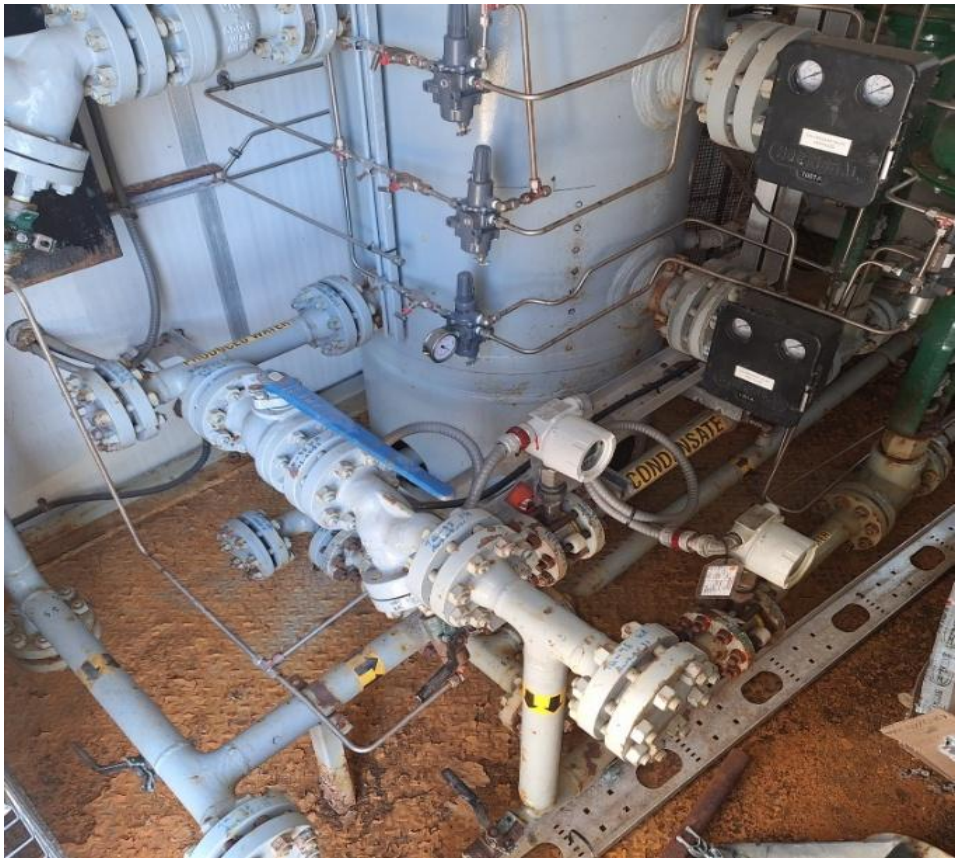

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