



**CORROSION SURVEY  
CNRL**

District	LSD	Vessel Name	Vessel Number	Serial Number
BULRUSH 89F	00-00-000-0000	GLYCOL CONTACTOR	A3098509	95-7937-0

<b>Facility</b> COMPRESSOR	<b>Tag Number</b>	<b>Year Built</b> 1995	<b>CRN</b> M 2316.21	<b>Shell MAWP</b> 9928.0 kPa	<b>Shell MAWT</b> 54 °C
<b>Downhole LSD</b> B-088-F/094-A-16	<b>Skid</b>	<b>Manufacturer</b> WELLS-HALL FABRICATION	<b>Vessel CA</b> 3.2000 mm	<b>Tube MAWP</b>	<b>Tube MAWT</b>

Band	Material	Nominal	CA	Baseline	Previous	Current	% Wall Loss	TMIN	ST Loss mmpy	LT Loss mmpy	Retirement
<b>05</b>				<b>2017</b>	<b>2017</b>	<b>2023</b>					
<b>Location :</b> Bottom Head				<b>Ref.</b> 30.099	30.099	31.064					
<b>Shape :</b> Ellipsoidal	SA 516 - 70	27.5800	3.2000	<b>Min.</b> <b>30.099</b>	<b>30.099</b>	<b>30.149</b>	0.0	23.3496	0.0000	0.0000	2073
<b>OD :</b> 609.6				<b>Avg.</b> 30.480	30.480	30.708	*Default material. *No access under skirt.				
<b>10</b>				<b>2017</b>	<b>2017</b>	<b>2023</b>					
<b>Location :</b> Bottom Shell				<b>Ref.</b> 29.108	29.108	29.413					
<b>Shape :</b> Cylindrical	SA 516 - 70	28.5800	3.2000	<b>Min.</b> <b>29.108</b>	<b>29.108</b>	<b>29.057</b>	0.0	24.2796	0.0091	0.0091	2073
<b>OD :</b> 609.6				<b>Avg.</b> 29.464	29.464	29.337	*Default material.				
<b>15</b>				<b>2017</b>	<b>2017</b>	<b>2023</b>					
<b>Location :</b> Middle Shell				<b>Ref.</b> 29.362	29.362	29.718					
<b>Shape :</b> Cylindrical	SA 516 - 70	28.5800	3.2000	<b>Min.</b> <b>29.362</b>	<b>29.362</b>	<b>29.641</b>	0.0	24.2796	0.0000	0.0000	2073
<b>OD :</b> 609.6				<b>Avg.</b> 29.464	29.464	29.667	*Default material.				
<b>20</b>				<b>1995</b>	<b>2017</b>	<b>2023</b>					
<b>Location :</b> Middle Shell				<b>Ref.</b> 28.580	29.057						
<b>Shape :</b> Cylindrical	SA 516 - 70	28.5800	3.2000	<b>Min.</b> <b>28.580</b>	<b>29.057</b>		0.0	24.2796	0.0000	0.0000	2073
<b>OD :</b> 609.6				<b>Avg.</b> 28.580	29.464		*No UT in 2023; no safe access above roof. *Default material. *Baseline readings are nominal thickness at date of manufacture.				
<b>25</b>				<b>1995</b>	<b>2017</b>	<b>2023</b>					
<b>Location :</b> Top Shell				<b>Ref.</b> 28.580	28.931						
<b>Shape :</b> Cylindrical	SA 516 - 70	28.5800	3.2000	<b>Min.</b> <b>28.580</b>	<b>28.931</b>		0.0	24.2796	0.0000	0.0000	2073
<b>OD :</b> 609.6				<b>Avg.</b> 28.580	29.210		*No UT in 2023; no safe access above roof. *Default material. *Baseline readings are nominal thickness at date of manufacture.				



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<b>30</b>				<b>1995</b>	<b>2017</b>	<b>2023</b>					
Location :	Top Head			Ref. 27.580	28.042						
Shape :	Ellipsoidal	SA 516 - 70	27.5800	3.2000	Min. <b>27.580</b>	<b>28.042</b>	0.0	23.3496	0.0000	0.0000	2073
OD :	609.6			Avg. 27.580	28.321						
							*No UT in 2023; no safe access above roof. *Default material. *Baseline readings are nominal thickness at date of manufacture.				
<b>35</b>				<b>1995</b>	<b>2017</b>	<b>2023</b>					
Location :	Piping			Ref. 7.620	7.950						
Shape :	90° Elbow	A 234 - WPB	7.6200	0.9525	Min. <b>7.620</b>	<b>7.950</b>	0.0	3.1548	0.0000	0.0000	2073
OD :	88.9			Avg. 7.620	8.255						
							*No UT in 2023; no safe access above roof. *Baseline readings are assumed nominal thickness at date of manufacture.				
<b>40</b>				<b>2017</b>	<b>2017</b>	<b>2023</b>					
Location :	Piping			Ref. 8.712	8.712	9.372					
Shape :	90° Elbow	A 234 - WPB	8.5600	1.0700	Min. <b>8.712</b>	<b>8.712</b>	0.0	4.0561	0.0000	0.0000	2073
OD :	114.3			Avg. 9.144	9.144	9.372					
							*Nominal assumed.				
<b>45</b>				<b>2017</b>	<b>2017</b>	<b>2023</b>					
Location :	Piping			Ref. 7.010	7.010	7.645					
Shape :	90° Elbow	A 234 - WPB	7.6200	0.9525	Min. <b>7.010</b>	<b>7.010</b>	3.7	3.1548	0.0000	0.0000	2073
OD :	88.9			Avg. 7.366	7.366	7.696					
							*Nominal assumed.				
<b>50</b>				<b>2017</b>	<b>2017</b>	<b>2023</b>					
Location :	Piping			Ref. 6.705	6.705	7.366					
Shape :	90° Elbow	A 234 - WPB	7.6200	0.9525	Min. <b>6.705</b>	<b>6.705</b>	6.0	3.1548	0.0000	0.0000	2073
OD :	88.9			Avg. 7.239	7.239	7.340					
							*Nominal assumed.				



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Band	Material	Nominal	CA	Baseline	Previous	Current	% Wall Loss	TMIN	ST Loss mmpy	LT Loss mmpy	Retirement	
<b>55</b>				2017	2017	2023						
Location :	Nozzle			Ref. 8.534	8.534	8.737						
Shape :	360° Circ	SA 106 - B	8.7100	4.2888	Min. <b>8.534</b>	<b>8.534</b>	<b>8.712</b>	0.0	3.4200	0.0000	0.0000	2073
OD :	60.33			Avg. 9.017	9.017	8.966						



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Method and Equipment								
<b>Echo Procedure</b>	<b>Echo Technique</b>	<b>Manufacturer Make / Model</b>		<b>Serial #</b>	<b>Last Cal. Date</b>	<b>Calibration Blocks</b>		
RCSS-NDT-UT-005M Rev 01	RCSS-NDT-UT-006 Rev 01	GE / DMS/USM Go+		GOPLS14090046	11-18-2022	1.000" Step C/S		
Transducer								
<b>Angle</b>	<b>Freq (MHz)</b>	<b>Dia (in)</b>	<b>MFG.</b>	<b>Ref DB</b>	<b>Scan DB</b>	<b>Mode</b>	<b>Cable Length</b>	<b>Couplant</b>
0	7.50	0.19			Ref. +6	Comp. Dual	72.00	UT-X

Inspection Sign Off	
<b>Inspected By</b> Curtis Coleman - CGSB #13265/ SNT-TC-1A UTI, MTII	
<b>Review By</b> Ed Tymensen - CGSB #11424 / SNT-TC-1A UTIII, MTIII, PTIII / API 510 #27479 / API 653 #50947 / AB ISI-PVPP #000711 / SK PEI Class II #229	

Asset Comments
*Previous readings provided by client. *No safe access above roof.

**Disclaimers:**

- Tmin calculations herein are for information purposes only and are not to be considered as engineered calculations
- Tmin calculations utilized are based on ASME VIII Div 1 for pressure equipment, and ASME B31.3 for process piping
- Nozzle Tmin is the higher of calculated Tmin and ASME VIII Div 1 Table UG-45 (Nozzle Min. Thickness Requirements)
- Piping Tmin is the higher of calculated Tmin and API 574 Table 7 (Min. Thickness for Carbon Steel Pipe)
- Items flagged as CAUTION were found to have a minimum UT reading below Nominal - Corrosion Allowance
- Items flagged as CRITICAL were found to have a minimum UT reading below Tmin



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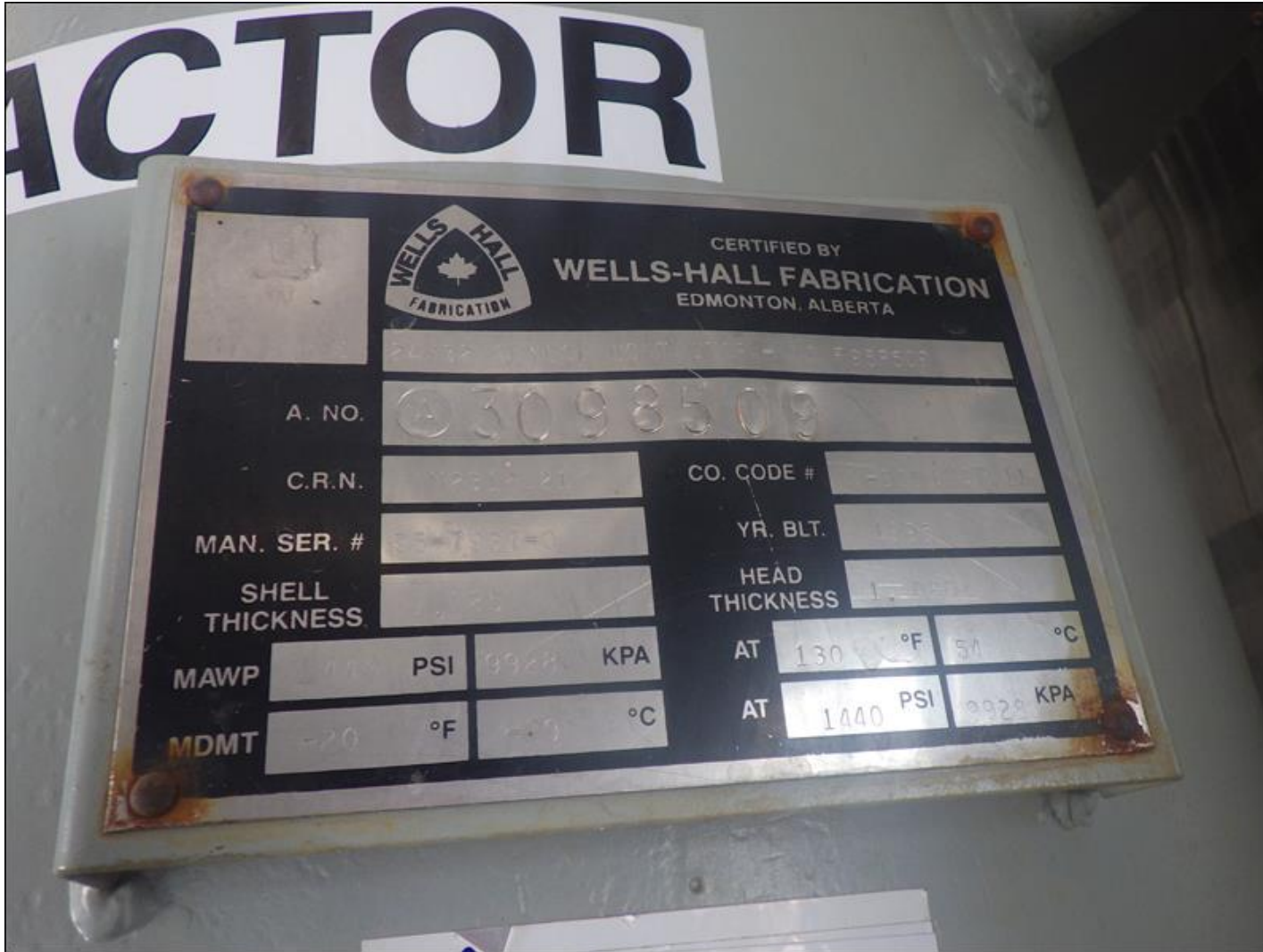
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## Vessel External Inspection Report

Client:	CNRL	District:	Bullrush	Date:	14-Mar-2023	
Surface LSD:	B-88-F/94-A-16	Downhole LSD:	N/A	Skid #:	N/A	
Description:	Glycol Contactor		RT:	1	HT:	Yes
Jur #:	A3098509	Equipment #:	N/A		CRN:	M 2316.21
MFR:	Wells Hall Fabrication	MFR S/N:	95-7937-0			
NB #:	N/A	Year Built:	1995		O.D.:	24 in
Shell MAWP:	1440 psi	Shell MAWT:	130 °F		Shell MDMT:	-20 °F
Tube MAWP:	N/A	Tube MAWT:	N/A		Tube MDMT:	N/A
Shell OP Pressure:	800 psi	Shell OP Temp:	80 °F		Manway (size):	N/A
Tube OP Pressure:	N/A	Tube OP Temp:	N/A		Cor. Allowance:	N/A
Head Type:	Ellipsoidal	Head Material:	N/A		Head Nominal:	1.086 in
Shell type:	Plate	Shell Material:	N/A		Shell Nominal:	1.125 in
Status:	Operating	External Insulation:	No		Orientation:	Vertical

External Inspection		SERVICE:	
ITEM:	CONDITION:	ITEM:	CONDITION:
Vessel Nameplate:	Good	Ladders / Platforms:	Good
Vessel Head:	Good	Gauges:	Good
Vessel Shell:	Good	Valves:	Good
Vessel Paint / Coating:	Good	Piping:	Good
Nozzles:	Good	Piping Coating:	Good
Vessel Saddle / Skirt / Supports / Bolts:	Good	Flanges / Bolting per Code:	Good
Insulation / Cladding:	Good	Piping Supports:	Good
Skid foundation / Supports:	Good	Piping Insulation:	N/A
Anodes:	N/A	Grounding:	Good
Instrumentation:	Good	Regulators Vented:	Good

\* Fair and Poor conditions require comment. Additional comments on page 2 as required.

<b>External Inspection Comments:</b>	Glycol Contactor is in good overall condition. Shell paint in good condition - no exposed metal. Piping is well supported - no leaks. Paint in good condition - no exposed metal. Ladder securely attached to shell - no damage. Skirt bolted to skid deck - no deformation. Skid package is grounded. Gauges are clean and clear.
<b>Fit for Service:</b>	Vessel is fit for continued service.
<b>YES</b>	

### PSV Details

PSV#:	FSJ 7677	Make/Model:	26EA13-120	CRN:	0G2369.5C
MFR:	Farris	MFR S/N:	CE-42794-1-A10	MFR Date:	N/A
Service Co.:	Unified Valve	Service Tag #:	1883V	Last Service:	8/28/2017
Set:	1440 psi	Cap:	5650 scfm	PSV Side:	Shell
Code:	NB / UV	Location:	Outlet piping	Vented to:	Atmosphere
Cap Seal:	Intact	Nameplate:	Secure, Legible	Drainage:	Good, no concerns
Properly Supported:	Yes	External Body Condition:	Good, no concerns		
	Size:	Type:	Block Valve:	Locked / Carsealed:	
Inlet:	1.00 in	Flanged	No	N/A	
Outlet:	2.00 in	Flanged	No	N/A	
PSV Comments:	Good overall condition. Properly supported in the upright position - set at vessel MAWP. PSV last serviced 2017. Check PSV service intervals, re-service as required.				

<b>Inspector:</b>	<b>Garett Tatton</b> API 510 # 99450 AB IPVPP # 001342	<b>Signature:</b>	
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# Vessel Inspection Report

Jur #:	A3098509	MFR S/N:	95-7937-0	Equipment #:	N/A
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LSD sign



Skid overview



Vessel data plate



Vessel overview



Vessel overview



Skirt overview



# Vessel Inspection Report

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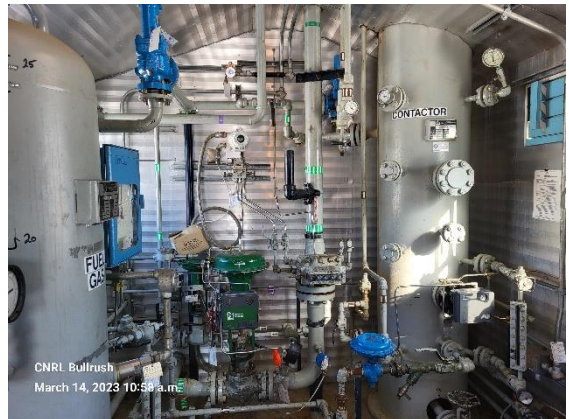
**Anchor bolts**



**Roof seal overview**



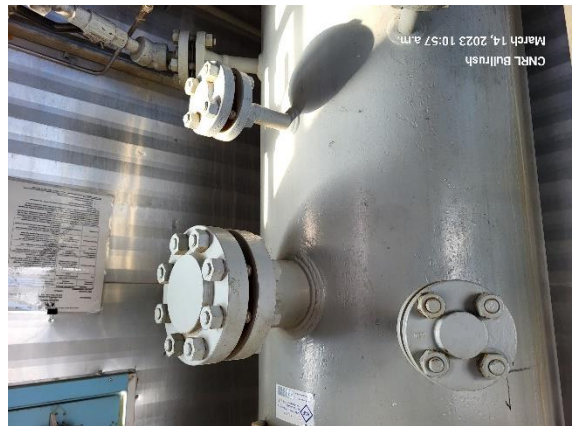
**Inlet piping overview**



**Outlet piping overview**



**Drain piping overview**



**Nozzle overview**

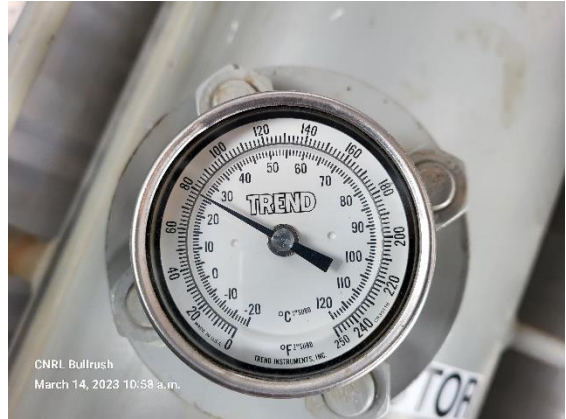


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**Pressure gauge overview**



**Temperature gauge overview**



**Liquid level gauge overview**



**Ground cable overview**



**PSV overview**

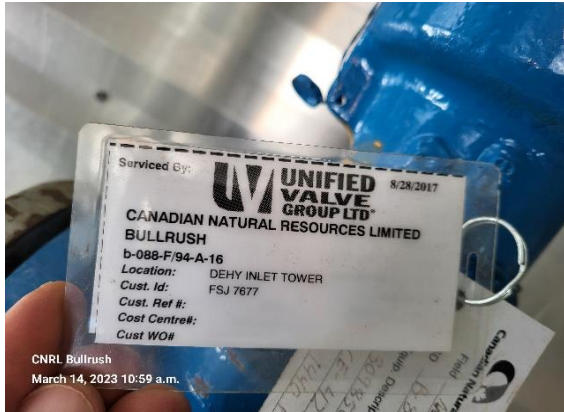


**Manuf. Data plate**



# Vessel Inspection Report

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PSV service tag



PSV service tag