



Pressure Vessel Inspection Report - EXTERNAL

PIM Sales Order #:	115- 03	Date:	March 01 ,2023
PIM Work Order #:	IS- 01	Sales # Desc.	LPG Storage Bullet

Client:	Fuelled Inc.		
Facility:	Industrial Park, Drayton Valley	Vessel Name:	LPG Storage Bullet
Location (LSD):	Drayton Valley, AB	Equipment Number:	V-820
Status:	In-Service Inspection on Operating Equipment <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Tag Number:	n/a
	In-Service Inspection on Non-Operating Equipment <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Orientation:	Horizontal
Type of Inspection:	<input checked="" type="checkbox"/> Baseline <input type="checkbox"/> Interval <input type="checkbox"/> Repair/Alteration	Remains In-Service:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

1.0 NAMEPLATE DATA

Jurisdictional Registration Number:	A203367	CRN:	E7900.2
Manufacturer:	Strathcona Steel Mfg Inc.	Year Built:	1983
Vessel Serial Number:	83-725C	Size (diameter x length-estimate):	3658 mm x 30480 mm S/S
Shell Thickness:	19.000 mm	Shell material:	SA516-70 (including Boot Shell)
Head Thickness:	20.6/21.4/9.2 mm	Head material:	SA516-70 (including Boot Shell)
Boot Shell:	12.7 mm	Tube Material:	n/a
Tube diameter:	n/a	Tube length:	n/a
Channel Thickness:	n/a	Channel material:	n/a
Design Pressure:	Shell: 1103 kPa	Operating Pressure:	Shell: N/A psi
MAWP psi	Tubes: n/a		Tubes: n/a
Design Temperature:	Shell: 70 °C	Operating Temperature:	Shell: N/A °F
MDMT -29 °C	Tubes: n/a		Tubes: n/a
X-ray:	UW11(a)5(b), RT2	Heat treatment:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Code Parameters:	ASME, SEC VIII, DIV 1	Code Case:	N/A
Corrosion Allowance:	1.5mm	Joint efficiency (if on nameplate):	100%
		Manway:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 1 - 20"

2.0 PRESSURE SAFETY VALVE NAME PLATE DATA

Manufacturer / Model/ Serial # & Code Stamp	Size (Inlet x Outlet)	Set Pressure (psi)	Capacity (scfm)	CRN	Tag Number (s)	Set Date
Manufacturer/ Model:						
Serial #/ Code Stamp:						
Location of PRV:	<input type="checkbox"/> On Vessel	<input type="checkbox"/> In System	<input type="checkbox"/> Tube Side	<input type="checkbox"/> Open to Atmosphere	<input type="checkbox"/> Non Code	<input type="checkbox"/> Vent to Relief System
Inlet Isolation Valve:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	If Yes - Is there a procedure documented for control of lock out?		<input type="checkbox"/> Yes	<input type="checkbox"/> No
Are the Valves Locked Out?	<input type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> N/A	Comments:			
Is PSV capacity verified to design condition?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	NO PSV			

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3.0 SERVICE CONDITIONS INDICATE ALL THAT APPLY					
<input type="checkbox"/> Sweet	<input type="checkbox"/> Sour	<input type="checkbox"/> Process Oil	<input type="checkbox"/> Gas	<input type="checkbox"/> Water	<input type="checkbox"/> Low Temp
<input type="checkbox"/> Amine	<input checked="" type="checkbox"/> LPG	<input type="checkbox"/> Condensate	<input type="checkbox"/> Air	<input type="checkbox"/> Glycol	<input type="checkbox"/> Thermal Fluid
Other (Describe):					
4.0 PIPING DATA					
Primary Flange Rating:	CL150	ASME	B31.1 <input type="checkbox"/>	B31.3 <input checked="" type="checkbox"/>	B31.5 <input type="checkbox"/> Other NFS
Piping Design Pressure:	N/A <input type="checkbox"/> psi <input type="checkbox"/> kpa	Piping Operation Pressure:		N/A <input type="checkbox"/> psi <input type="checkbox"/> kpa	
Nearest Vessel Design Pressure:	1103 <input type="checkbox"/> psi <input checked="" type="checkbox"/> kpa	Diameters Welded:		2", 3", 6", 20"	
Comments:	Diameters Threaded:		3/4", 1"		

Fill out all forms as completely as possible. All information is important!
Use back of sheets to record additional information or sketch if required.

G - Good	F - Fair	P = Poor	N/A = Not Applicable
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External Inspection Items	G	F	P	N/A	COMMENTS
NDE methods UT/MPI report done on vessel Chief Inspection to review methods	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See UT Report Attached
External Condition Assess paint, record location, size and depth of corrosion or damage.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Tell Tale Drilled <input checked="" type="checkbox"/> Not Tell Tale Drilled Slight paint erosion all along top of vessel
Nozzle Assess and record paint look for leakage, and stud engagement and corrosion, verify / inspect gussets. Record any damage, deflection, etc.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Blind flange lost traceability on 6" nozzle because of corrosion, to be replaced or removed, one nozzle blind flange installed upside down
Leakage Record Report leakage at flanges, threaded joints, weep holes on repads, etc.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Slight corrosion in weepholes and on flange surfaces of both PSV nozzles on top of vessel
Saddle Record corrosion, buckling, dents, etc. Look at vessel surface area near supports and attachment welds. Verify no signs of leakage at attachment to vessel and ground wire attached.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Fixed and sliding saddles
Anchor Bolts Hammer tap to ensure secure. Record corrosion, cracking in threads or signs of deformation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Concrete Foundation Record cracks, spalling, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Gauges Verify gauges are visible, working, no leakage, and suitable for range of MAWP/ Temp.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	One temp gauge installed on head
External Piping Verify pipe is supported. (Clamps, supports, shoes, etc. in place). Record any structural overload, deflection, verify paint condition, external corrosion, studs and nuts, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	



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External Inspection Items	G	F	P	N/A	COMMENTS
Valving Verify/record visible leaks properly supported and CSO/CSC.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Bleed ring and valve installed, no information on these
PSV Verify set is at or below vessel MAWP. Discharge piping is greater to or equal to valve outlet and is properly supported / routed. Verify PSV seals/ tags. Status of block valves, check car seal log.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
PSV Verify properly installed and is supported adequately for the discharge loads.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Insulation/Cladding Verify condition around appurtenances no damage present, and there is no ingress of moisture.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Only the communicating chamber is insulated, no moisture within insulation noted.
Ladder/Platform Describe condition, supports Hazards and compliance.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Recommendations or corrective actions: Vessel is Fit for Service OR Describe Corrective Actions (Operations to, discuss with Chief Inspector where necessary, and get remedial action implemented)					
Observations and Findings:					
No Corrosion noted anywhere on vessel shell and heads, flange gasket surfaces to be wire brushed clean prior to boltup, remove or replace 6" blind, paint wearing off from environment, all weepholes to be greased,					
Recommendations:					
<input type="checkbox"/> Replace PSV <input type="checkbox"/> Add PSV <input type="checkbox"/> Add Autodrain <input type="checkbox"/> Replace PI <input type="checkbox"/> Add PI <input type="checkbox"/> Other - Specify					
Summary:					
In good serviceable condition, no specification information about Communicating chamber shell and repad and about all blinds on MDR, MDR does specify constructed to 1980 Code Edition					
Inspection Interval _____ 1 _____ # years PSV Service Interval _____ 1 _____ # years (Determined by Chief Inspection guidelines of Peregrine Integrity Management Owner-User Inspection Program)					
Vessel Scrapped - All three conditions below must be satisfied					
Vessel has been removed from service and there is no intention to return it to pressure service.					
The nameplate has been removed and all other identification has been removed.					
The vessel is in a condition that it cannot be pressurized. i.e. A hole has been cut in the vessel, or a nozzle has been removed, or a head has been cut off.					
<input type="checkbox"/> Yes <input type="checkbox"/> No Date: _____ (yyyy-mm-dd)					
Vessel sold and transferred the registration of the vessel to:					
TO: _____ Date: _____ (yyyy-mm-dd)					

Inspected By:	Helder Carreiro	Date:	2023-03-01
	ABSA ISI # A-82050 (Cert # 000356)		yyyy-mm-dd
Verified By			
Chief Inspector:	Paul Frederick	Date:	2023-03-02
	ABSA ISI # A-82133 (Cert # 000357), TSASK Class I #80543		yyyy-mm-dd



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ACTION ITEMS LIST

Action Item	Responsible Party	Date Resolved

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Equipment Photos



Photo 1: Nameplate



Photo 2: Manway gasket face



Photo 3: Repad traceability stamping



Photo 4: Saddles with vent in welding



Photo 5: Insulated sump, repad



Photo 6: Bled ring and valve installed

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Equipment Photos



Photo 7: Corrosion around weepholes



Photo 8: Untraceable blind flange to be removed/replaced



Photo 9: Flange surface corroded



Photo 10: Blind flange installed upside down



Photo 11: Manway Blind



Photo 12: Overall

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Client:	Fuelled Inc.		
Facility:	Industrial Park, Drayton Valley	Vessel Name:	LPG Storage Bullet
Location (LSD):	Drayton Valley, AB	Equipment Number:	V-820
Status: In-Service Inspection on Operating Equipment	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Tag Number: n/a	Orientation: Horizontal
In-Service Inspection on Non-Operating Equipment	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Remains In-Service:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Type of Inspection:	<input checked="" type="checkbox"/> Baseline	<input type="checkbox"/> Interval	<input type="checkbox"/> Repair/Alteration

1.0 NAMEPLATE DATA

Jurisdictional Registration Number:	A203367	CRN:	E7900.2
Manufacturer:	Strathcona Steel Mfg Inc.	Year Built:	1983
Vessel Serial Number:	83-725C	Size (diameter x length-estimate):	3658 mm x 30480 mm S/S
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Head Thicknesses:	20.6/21.4/9.2 mm	Head material:	SA516-70 (including Boot Shell)
Boot Shell	12.7 MM	Tube Material:	n/a
Tube diameter:	n/a	Tube length:	n/a
Channel Thickness:	n/a	Channel material:	n/a
Design Pressure:	Shell: 1103 kPa	Operating Pressure:	Shell: N/A psi
MAWP psi	Tubes: n/a		Tubes: n/a
Design Temperature:	Shell: 70 °C	Operating Temperature:	Shell: N/A °F
MDMT -29 °C	Tubes: n/a		Tubes: n/a
X-ray:	UW11(a)5(b), RT2	Heat treatment:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Code Parameters:	ASME, SEC VIII, DIV 1	Code Case:	N/A
		Joint efficiency (if on nameplate):	100%
Corrosion Allowance:	1.5mm	Manway:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 1 - 20"

2.0 PRESSURE SAFETY VALVE NAME PLATE DATA

Manufacturer / Model/ Serial # & Code Stamp	Size (Inlet x Outlet)	Set Pressure (psi)	Capacity (scfm)	CRN	Tag Number (s)	Set Date
Manufacturer/ Model: Serial #/ Code Stamp:						
Location of PRV:	<input type="checkbox"/> On Vessel	<input type="checkbox"/> In System	<input type="checkbox"/> Tube Side	<input type="checkbox"/> Open to Atmosphere	<input type="checkbox"/> Non Code	<input type="checkbox"/> Vent to Relief System
Inlet Isolation Valve:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	If Yes - Is there a procedure documented for control of lock out?		<input type="checkbox"/> Yes	<input type="checkbox"/> No
Are the Valves Locked Out?	<input type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> N/A	Comments:			
Is PSV capacity verified to design condition?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	No PSV			

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3.0 SERVICE CONDITIONS INDICATE ALL THAT APPLY					
<input type="checkbox"/> Sweet	<input type="checkbox"/> Sour	<input type="checkbox"/> Process Oil	<input type="checkbox"/> Gas	<input type="checkbox"/> Water	<input type="checkbox"/> Low Temp
<input type="checkbox"/> Amine	<input checked="" type="checkbox"/> LPG	<input type="checkbox"/> Condensate	<input checked="" type="checkbox"/> Air	<input type="checkbox"/> Glycol	<input type="checkbox"/> Thermal Fluid
Other (Describe):					

Fill out all forms as completely as possible. All information is important!
Use back of sheets to record additional information or sketch if required.

G - Good	F - Fair	P = Poor	N/A = Not Applicable
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Internal Inspection Items	G	F	P	N/A	COMMENTS
Inlet Area Describe corrosion. Look at nozzles, coupling, and areas of damage. Address corrosion sizes and effected areas.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Supports Condition, amounts of corrosion Are they being replaced?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All Ladder rungs in good condition
Internal Piping Is there any? If so, carbon or stainless steel. Describe condition, dents, corrosion, erosion, etc. Ensure supports are secure and any bolts are suitable for future use.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Baffles, deflector plates, etc. If present, describe condition. Look closely at welds attached to vessel wall.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Weir plate and vortex breaker present and in good condition
Bottom Head Note all corrosion, erosion or mechanical damage. (If vessel is horizontal identify direction of this head)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Communicatin Chamber head and shell in good condition
Top Head Note all corrosion, erosion or mechanical damage. (If vessel is horizontal identify direction of this head)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Shell Sections Record number of shell sections. Record location, size and depth of all erosion, corrosion or mechanical damage. Describe general condition. If any corrosion greater than corrosion allowance is observed in either shell or head, discuss with Chief Inspector before closing vessel.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	No corrosion noted
Demister Pad Is it in place? Is it clean? If any corrosion is apparent in vessel, lift pad and check top head for corrosion.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Welds Inspect all welds, including attachment welds. Record all service-related damages and if there is any discuss with Chief Inspector before closing.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Repairs Required If yes, ensure procedure and copy of AB is on file, and one sent to Chief Inspector who will send one to local ABSA AI.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No Repairs required



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External Inspection Items	G	F	P	N/A	COMMENTS
NDE WAS ANY NDE DONE. (INCLUDE NAME OF NDE SERVICE PROVIDER, VENDOR REPORT NUMBER, DESCRIPTION OF AREA INSPECTED, AND SUMMARY OF RESULTS)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See PIM UT Report.
Recommendations or corrective actions: Vessel is Fit for Service OR Describe Corrective Actions (Operations to, discuss with Chief Inspector where necessary, and get remedial action implemented)					
Observations and Findings:					
No findings noted					
Recommendations:					
Vessel to be cleaned of surface dirt and debris prior to being into service					
Summary:					
In good serviceable condition					
Inspection Interval _____ 1 _____ # years PSV Service Interval _____ 1 _____ # years (Determined by Chief Inspection guidelines of Peregrine Integrity Management Owner-User Inspection Program)					
Vessel Scrapped - All three conditions below must be satisfied					
Vessel has been removed from service and there is no intention to return it to pressure service.					
The nameplate has been removed and all other identification has been removed.					
The vessel is in a condition that it cannot be pressurized. i.e. A hole has been cut in the vessel, or a nozzle has been removed, or a head has been cut off.					
<input type="checkbox"/> Yes <input type="checkbox"/> No Date: _____ (yyyy-mm-dd)					
Vessel sold and transferred the registration of the vessel to:					
TO: _____ Date: _____ (yyyy-mm-dd)					

Inspected By:	<u>Helder Carreiro</u>	Date:	<u>2023-03-01</u>
	ABSA ISI # A-82050 (Cert # 000356)		yyyy-mm-dd
Verified By			
Chief Inspector:	<u>Paul Frederick</u>	Date:	<u>2023-03-02</u>
	ABSA ISI # A-82133 (Cert # 000357), TSASK Class I #80543		yyyy-mm-dd

ACTION ITEMS LIST		
Action Item	Responsible Party	Date Resolved

Calgary Office
406, 11979 - 40 Street SE
Calgary, Alberta T2Z 4M3

T 403.254-4231, F 403.452-6342
Peregrine-im.ca

Grande Prairie Office
107, 10821 - 78 Avenue
Grande Prairie, Alberta T8W 2L2

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Equipment Photos



Photo 1: Surface debris in vessel welding good condition



Photo 2: Shell longseam and circseam welding in good condition

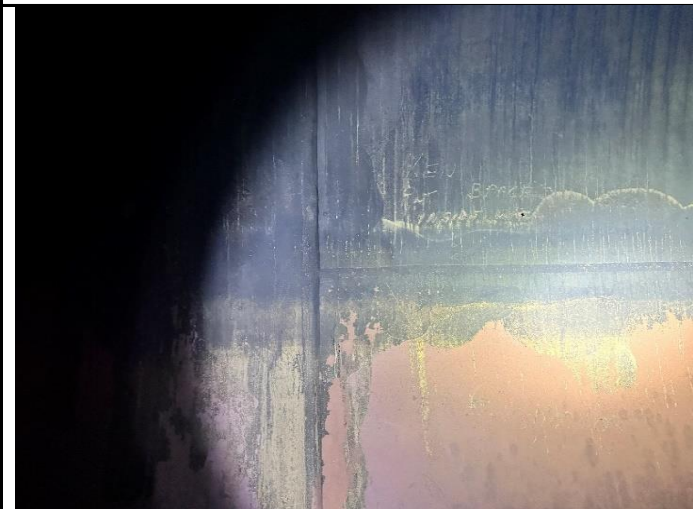


Photo 3: Shell longseam and circseam welding in good condition



Photo 4: Weir Plate in good condition



Photo 5: Vortex Breaker in good condition



Photo 6: Sump in good condition, to be cleaned of debris

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Equipment Photos



Photo 7: PSV nozzles on top of vessel in good condition

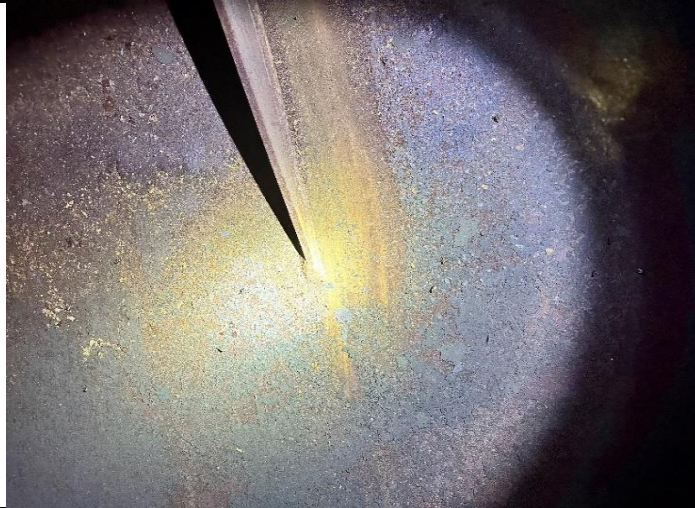


Photo 8: Debris in vessel



Photo 9: Debris in vessel



Photo 10: Debris in vessel

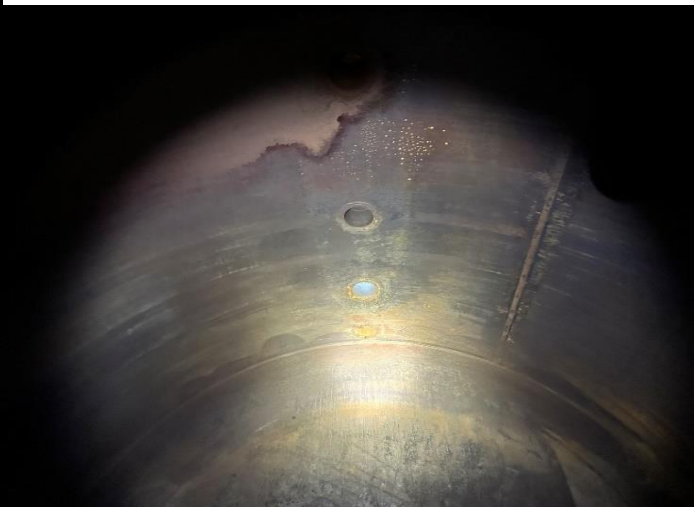


Photo 11: PSV nozzles on top of vessel



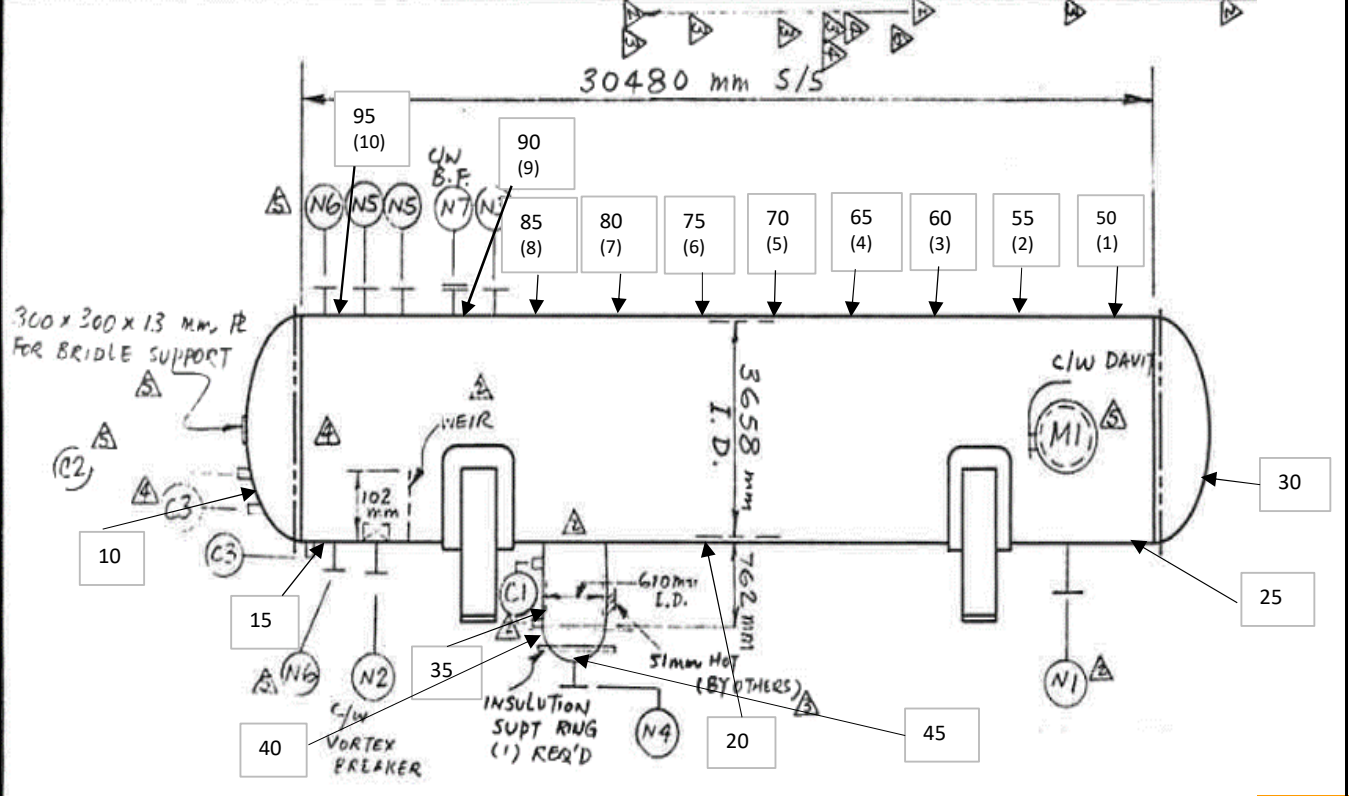
Photo 12: Debris in vessel

Ultrasonic Thickness External Report

PIM Sales Order #: 115-03 Date: March 01, 2023
 PIM Work Order #: TE-01 Report #: LPG Storage Bullet

CLIENT INFORMATION			
Client:	Fuelled Inc.	Tag #:	V-820
Facility:	Industrial Park, Drayton Valley	Serial #:	
Location:	Drayton Valley, AB	Provincial Registration #:	A203367
Equipment Description:	LPG Storage Bullet		

CONDITION MONITORING LOCATIONS (TML's)



INFORMATION - UT EQUIPMENT DETAILS

METHOD	<input checked="" type="checkbox"/> Thickness	<input type="checkbox"/> Flaw Detection	<input type="checkbox"/> Contact	<input type="checkbox"/> Immersion			
INSTRUMENT	Olympus	MODEL	EPOCH-600	S/N	130573012	DATE	2023-08-18
CAL. BLOCK	Step Wedge	S/N	21-2552	CABLE-TYPE	Coaxial	LENGTH	48"
CAL. BLOCK		S/N		COUPLANT	UT-Ultra-GEL		
CAL. BLOCK		S/N		SPECIAL EQUIP			

INFORMATION - TRANSDUCERS AND CALIBRATIONS

	TEST ANGLE	PROBE TYPE		FREQ (MHZ)	SER NO.	PROBE DIA.	TRANSFER VALUE	TEST FROM		REFERENCE REFLECTOR	REFERENCE		SCAN SENSITIVITY	RANGE
		Single	Dual					FRONT	BACK		dB	% FSH		
1	<input checked="" type="checkbox"/> 0°	<input type="checkbox"/>	<input type="checkbox"/>	5	813564	0.500"		<input checked="" type="checkbox"/>	<input type="checkbox"/>	1st BW	Various	80	Various	2"
2	<input type="checkbox"/> 45°	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>					
3	<input type="checkbox"/> 60°	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>					
4	<input type="checkbox"/> 70°	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>					
5	<input type="checkbox"/> —	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>					

Ultrasonic Thickness External Report

PIM Sales Order #: 115-03
PIM Work Order #: TE-01

Date: March 01, 2023
Report #: LPG Storage Bullet

TEST SURFACE AND THICKNESS READINGS

Surface Condition:	<input checked="" type="checkbox"/> Painted	<input type="checkbox"/> As Welded	<input type="checkbox"/> Machined	<input type="checkbox"/> Shot Blasted	<input type="checkbox"/> Clean Bare Metal
Surface Temperature:	<input checked="" type="checkbox"/> <0°C (32°F)	<input type="checkbox"/> 0° (32°F) to 120°C (250°F)	<input type="checkbox"/> 120°C (250°F) to 260°C (500°F)	<input type="checkbox"/> >260°C (500°F)	

DATA RESULTS - UT DATA

1) TML Number	10	15	20	25	30	35	40
TML Description	Head	Bottom Shell	Bottom Shell	Shell	Head	Shell	Head
Direction:	Sump end	Sump end	Mid shell	Manway end	Manway end	Sump	Sump
Flange Rating:	NA	NA	NA	NA	NA		
Pipe Schedule:		NA	NA	NA	NA		
Nominal Thickness:	0.842"	0.748"	0.748"	0.748"	0.811"	0.500"	0.365"
Mill Tolerance:	0.000"	0.000"	0.000"	0.000"	0.000"	0.000"	0.000"
Corr. Allowance:	0.059"	0.059"	0.059"	0.059"	0.059"	0.059"	0.059"
Minimum Thickness:	0.783"	0.689"	0.689"	0.689"	0.752"	0.441"	0.306"
Readings	1) 0.813"	0.759"	0.766"	0.765"	0.810"	0.498"	0.368"
	2) 0.818"	0.755"	0.775"	0.767"	0.808"	0.505"	0.365"
	3) 0.830"	0.761"	0.768"	0.768"	0.816"	0.502"	0.365"
	4)						
	5)						
	6)						
	7)						
	8)						
	9)						
	10)						
	11)						
	12)						
2) TML Number	45	50	55	60	65	70	75
TML Description	ManWay	Ring 1	Ring 2	Ring 3	Ring 4	Ring 5	Ring 6
Direction:	Bottom	Both Sides					
Flange Rating:	150	NA	NA	NA	NA	NA	NA
Pipe Schedule:	20	NA	NA	NA	NA	NA	NA
Nominal Thickness:	0.500"	0.748"	0.748"	0.748"	0.748"	0.748"	0.748"
Mill Tolerance:	0.060"	0.000"	0.000"	0.000"	0.000"	0.000"	0.000"
Corr. Allowance:	0.000"	0.059"	0.059"	0.059"	0.059"	0.059"	0.059"
Minimum Thickness:	0.440"	0.689"	0.689"	0.689"	0.689"	0.689"	0.689"
Readings	1) 0.500"	0.750"	0.755"	0.670"	0.771"	0.765"	0.765"
	2) 0.502"	0.751"	0.754"	0.765"	0.774"	0.772"	0.762"
	3) 0.504"	0.749"	0.750"	0.750"	0.775"	0.771"	0.761"
	4)						
	5)						
	6)						
	7)						
	8)						
	9)						
	10)						
	11)						
	12)						

Ultrasonic Thickness External Report

PIM Sales Order #: 115-03
 PIM Work Order #: TE-01

Date: March 01, 2023
 Report #: LPG Storage Bullet

DATA RESULTS - UT DATA									
3) TML Number	80	85	90	95	095	100	105		
TML Description	Ring 7	Ring 8	Ring 9	Ring 10					
Direction:									
Flange Rating:	NA	NA	NA	NA					
Pipe Schedule:	NA	NA	NA	NA					
Nominal Thickness:	0.748 "	0.748 "	0.748 "	0.748 "					
Mill Tolerance:	0.000 "	0.000 "	0.000 "	0.000 "					
Corr. Allowance:	0.059 "	0.059 "	0.059 "	0.059 "					
Minimum Thickness:	0.689 "	0.689 "	0.689 "	0.689 "					
Readings	1) 0.765 "	0.750 "	0.768 "	0.775 "					
	2) 0.763 "	0.752 "	0.765 "	0.750 "					
	3) 0.765 "	0.754 "	0.765 "	0.756 "					
	4)								
	5)								
	6)								
	7)								
	8)								
	9)								
	10)								
	11)								
	12)								

Comments:
1) TML 60 Location previously marked as a Low Spot. After internal inspection and external inspection it was determined to be grinding during original fabrication.
2) Each area was scanned and the low average and high WT's were recorded.
3) Each course was examined on both sides and on the bottom to provide the results above.
4) The shell readings were taken closer to the bottom.

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Equipment Photos



Photo 1: Name Plate

Photo 2: overview



Photo 3: 11110 Thick head



Photo 4: 11115 Shell Bottom



Photo 5: 11120 Mid shell



Photo 6: 11125 BTM Shell and 11130 Head

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Equipment Photos



Photo 7: 11135 Sump Head



Photo 8: 11140 Sump shell



Photo 9: Manway measured WT at bottom on 20" pipe



Photo 10: Ring 1-4



Photo 11: Ring 5-10



Photo 12: Ring 3 - Low Point