



Pressure Vessel Visual Inspection Report

Equip Id	62065240	SAP ID	62065240	Asset Type	Treater
Plant	Lloydminster Production	Unit	Marsden NB	System	N/A
Description	TREATER, FIREVESS-VESSEL				
FLOC	H1-04-004-00001	LSD	01-30-044-26W3		
Insp Date	Sep 18, 2018	Inspector	Luke Newport	Insp Type	VIExt
Company	Inspector	Confidence	Medium		

Details

ID	Description	Condition	Location	NCR	Comment
V1	General Other (Please Explain)	Fair			Nameplate was in-place and clearly legible. Saskatchewan CRN A0777.3 in-place. TSASK license 1011527 current.
V6	Ladder/Stairway/Platform	Poor			Ladder and PSV access platform supported on one vertical I-beam. Access platform moves when you climb it.
V7	Heads	Fair			Head visible inside attached building no concerns.
V9	Electrical Ground	Fair			The vessel was ground through the skid. Ground wires are secure.
V11	Coating/Painting	Fair			The east head and north side of shell inside the building were fully painted. Paint in fair condition with a few area's missing with only minor surface corrosion.
V13	Gauge/Site Glass	Fair			Associated temperature and pressure gauges were clear and appeared in fair condition.
V14	Shell	Fair			Shell visible inside attached building no concerns.
V24	Saddle/Skirt	Fair			Supported by two saddles on steel skid, anchor bolts secure
V31	Connections Other (Please explain)	Fair			Associated piping was aligned and secure.
V33	Nozzles	Fair			UT was complete on the desand inlet nozzles and associated piping as well desand outlet nozzles and associated piping with no concerns found. See IRIS report CA1099-UT1-110 and UT survey data which can be found in DM.
V34	Manways	Fair			Both manways had no concerns.
V37	Bolting	Fair			B7 & 2H
V38	Flanges	Fair			On the desand jet water all the valves were removed except for the firetube jet water for flange face inspection. On the desand outlet all the 2" valves were removed except for the 3" valves. On the flange faces that were inspected no concerns were identified.
V41	Insulation Other (Please explain)	Fair			The west head and south side of shell extending outside the building were clad and insulated. Repair cladding around nozzles on the top of the vessel to prevent CUI.
V51	Relief Devices Other (Please explain)	Fair			The PSV 62065113 (Crosby, ser# SE-19321-1) protecting the treater was in place at the time of inspection. The PSV was serviced in 2017 and is due 2020. The 3" PSV is currently mounted on a 2" vessel nozzle with a 2"x3" swedge between. There was a technical review completed on this swedge and PSV and was found not to be a concern see documentation inside DM.

Summary

Marsden Unit 1 Battery - 01-30-044-26W3
Eq# 62065240, Treater, Uni-Melt serial # 88-J-57, A#154920, CRN A-0777.3
MAWP 75psi @ 300F

See internal inspection summary for external summary and recommendations.



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Description	TREATER, FIREVESS-VESSEL				
FLOC	H1-04-004-00001	LSD	01-30-044-26W3		
Insp Date	Sep 18, 2018	Inspector	Luke Newport	Insp Type	VIIInt
Company	Inspector	Confidence	High		

Details

ID	Description	Condition	Location	NCR	Comment
V7	Heads	Fair			Acceptable
V8	Welds	Fair			Acceptable
V9	Nozzles	Fair			PSV nozzle clear
V10	Shell	Fair			Acceptable
V21	Internals Other (Please explain)	Fair			Desand piping - Desand piping had major scale build-up, sand pans are coated with minimal scale.
V21	Internals Other (Please explain)	Fair			Anodes - The vessel was equipped with four anode connections. The anodes were 50% consumed. External shunt wires were secure and in place.
V21	Internals Other (Please explain)	Poor			Bottom two sample lines in water level were scaled over
V21	Internals Other (Please explain)	Fair			Firetubes (2) -were sandblasted. MT performed with no cracking identified. Visual inspection revealed no concerns with the south tube, north tube on top of the burner side on tube to tube sheet fillet weld under deposit corrosion has occurred and requires repair. See DM for repair and MT completed.
V23	Baffle/Wier	Fair			Treater baffles and weirs were secure. Screens in place and secure.
V25	Thermowells	Fair			Acceptable
V27	Nonmetallic Linings	Poor			2018: Coating looks to have been applied to heavily and is starting to crack out and fail, worst area is in the firetube end. Some internal damage to the coating at the 5-7 o'clock position from removing internals. Also the coating has failed from the sand pans rubbing through in the mid-section. Test strip in the firetube section had been coated over and has failed. Any locations that had previously failed had scale build over with no corrosion occurring in areas that were removed. Due to the amount of coating repairs required they will be left as is and monitored at next inspection.

Summary

Marsden Unit 1 Battery - 01-30-044-26W3
Eq# 62065240, Treater, Uni-Melt serial # 88-J-57, A#154920, CRN A-0777.3
MAWP 75psi @ 300F

Summary:

An external and internal visual inspection with UT survey was performed to verify the integrity of the treater. The treater was found to be generally in fair condition although immediate repairs were required to the north burner before putting back into service.

Recommendations:

- repair cladding around nozzles on the top of the vessel
- clean tubing for bottom two sample points
- internally inspect treater in 3 years; at that time:
 - sandblast and MT firetube
 - repeat UT survey of desand nozzles and piping
 - remove internal sand pans and external desand valves for flange evaluation
 - monitor areas where coating has failed for corrosion occurring to the shell

cc: Trevor Bygrove, Kevin Proctor, Kyle Forbes, Trevor Taylor, Barret Forget



62065240 Equipment Detail

Plant	Lloydminster Production	Unit	Marsden NB	System	N/A
SAP ID	62065240	Equip Id	62065240	Asset Type	Pressure Vessel
Description	TREATER, FIREVESS-VESSEL				
Manuf.	UNIMELT LTD.	Serial #	88-J-57	Year Built	1986
Const Code	ASME Section VIII - Div 1	Int.Access	Yes	Prov #	154920
Cost Ctr		FLOC	H1-04-004-00001	LSD	01-30-044-26W3
Time Based	Y	Opt RI Grp	PresVes Grade 2b	CRN	[No Value Defined]
User Status	ISF	Sys Status	INST	Active	Y

Equipment Protection

PSV	Protects	Component
62065113	62065240	Pressure Vessel

Inspections

Insp Type	Method	Insp Date	Inspection	Company	Confidence
VIInt		Sep 18, 2018	Luke Newport	Inspector	High
VIExt		Sep 18, 2018	Luke Newport	Inspector	Medium
VIInt		Jul 07, 2015	Luke Newport	Husky Energy Inc.	Medium
VIExt		Jul 07, 2015	Luke Newport	Husky Energy Inc.	Medium
VIInt		Jul 09, 2014	Marie Whitman		High
VIExt		Jul 09, 2014	Marie Whitman		Medium
VIInt		Jul 04, 2013	Marie Whitman		Medium
VIInt		Jul 26, 2012	Marie Lafontaine		High
VIExt		Jul 26, 2012	Marie Lafontaine		High

Inspection Plan

Planned By: Luke Newport

Planning Date: Oct 31, 2018

Dmg Mech	Method	Due Date	Freq	SAP Not #	SAP W.O. #	PREP
Internal Corrosion	UT	Sep 17, 2021	3			
Environmental Cracking	MT or PT	Sep 17, 2021	3			
External Deterioration	VI-Ext	Sep 17, 2021	3			
Internal Corrosion	VI-Int	Sep 17, 2021	3			Visual external, visual internal, UT, MT of firetube

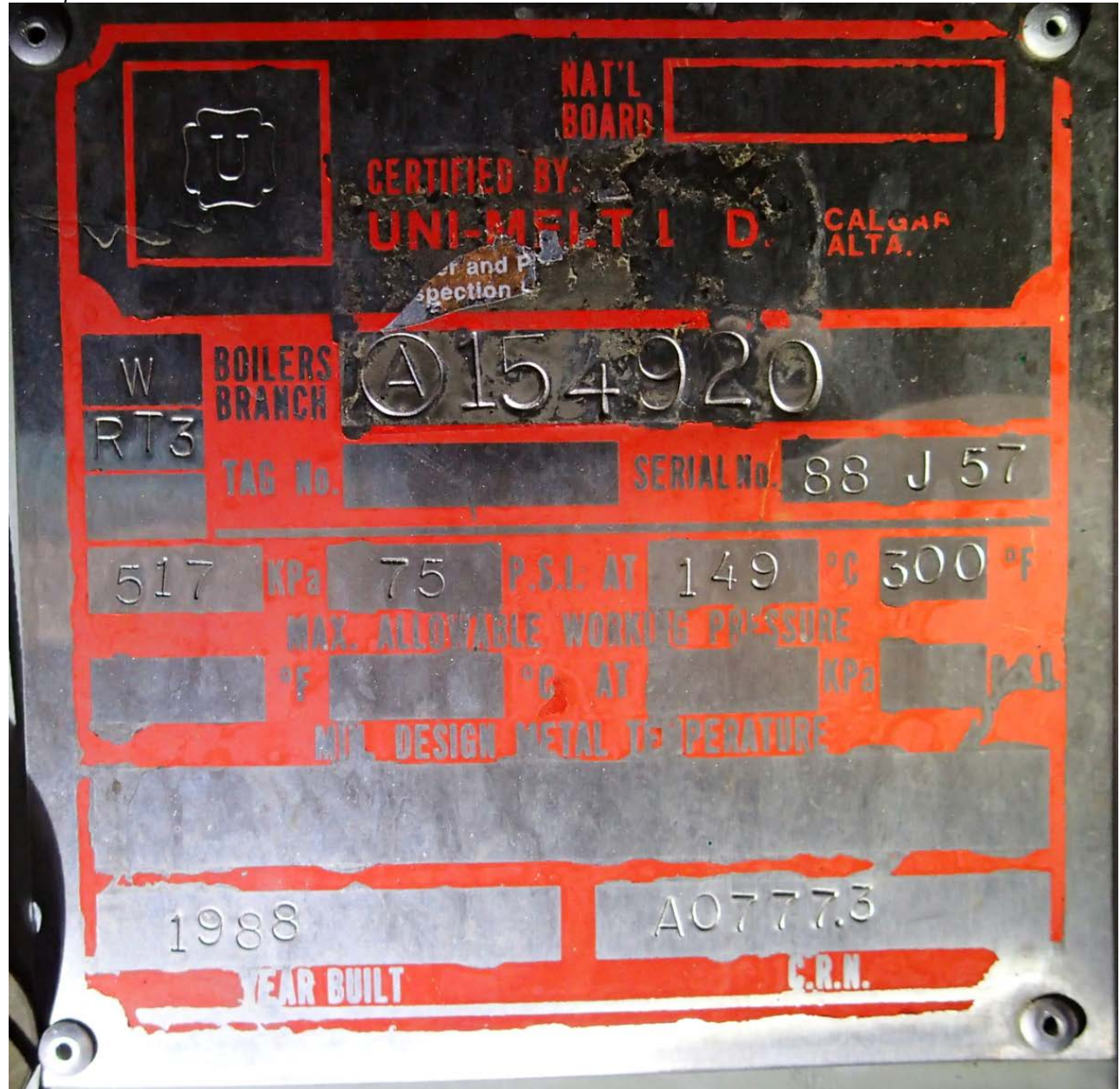
PHOTOS

GENERAL

Inspection Date	2018-09-18	Inspected By	Luke Newport	Equipment #	62065240
Plant	HOG	Op Unit	Marsden	LSD	01-30-044-26w3

PHOTOS

Nameplate



PHOTOS

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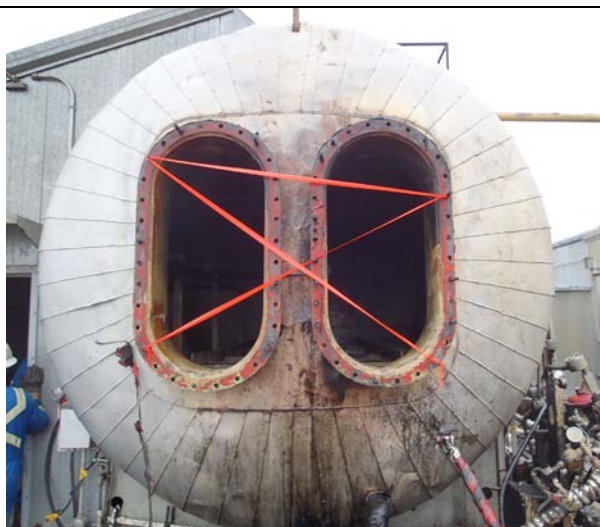
PHOTOS



East head inside attached building.



General external overview of the vessel.



West firetube end of the vessel.



PSV attached to the vessel.

PHOTOS

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PHOTOS



PSV nameplate



PSV service tag.



General overview of the top of the vessel looking west.



General overview of the top of the vessel looking east.

PHOTOS

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PHOTOS



Cladding that requires repair on the top of the vessel.



Cladding that requires repair on the top of the vessel.



One of the anodes removed from the vessel.



The sand pans and desand piping removed from the vessel.

PHOTOS

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PHOTOS



The vessel saddle sitting on the structural steel.



The west manway cover.



The west manway.



Desand internal piping.

PHOTOS

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PHOTOS



General internal overview of the vessel inside the attached building.



The desand inlet and outlet valves removed for flange face evaluation.



The two desand firetube valves that were not removed for inspection.



Desand outlet piping all the valves were removed except for the two 3" valves with arrows pointing at them.

PHOTOS

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PHOTOS



The north side of the firetube end.



One of the coating failures.







The patch that was applied to the north side of the vessel, cracking to the coating can be seen beside the patch.



Area of coating failure in the bottom of the vessel from the firetube end to the sales end of the vessel. Coating was applied too heavily.

PHOTOS

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PHOTOS	
 <p><i>The south side of the firetube end of the vessel.</i></p>	 <p>The slot.</p>
 <p><i>The back end of the vessel, black dots are spots of coating failure where sand pans were rubbing.</i></p>	 <p>The vessel screens.</p>

PHOTOS

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PHOTOS



The bottom two sample lines that are plugged off.



The sales head of the vessel.



South firetube.



PHOTOS

GENERAL

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PHOTOS



North firetube.



PHOTOS

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PHOTOS	
	
<p><i>North fire tube top of burner side with under deposit corrosion occurring to the fillet weld.</i></p>	