

**Canadian Natural Resources Limited  
GENERAL PRESSURE VESSEL INFORMATION**

**Job # 10.114022 / 10.115211**

District: <b>Fort St. John BC</b>	Skid No.
Facility: <b>Babcock Mountain Gas Gathering</b>	Location (LSD): <b>a-100-K / 93-I-15</b>
Tank Name / Equipment Number: <b>Produced Water Tank (Double wall / 400 BBL)</b>	
Orientation: <b>Vertical</b>	
Status: <b>In Service</b>	<b>Regulatory Inspection</b>

**PRESSURE VESSEL NAMEPLATE DATA**

"A" or "G" or "S" (Sask.) or BC Registration Number. <b>C56412</b>		CRN Number: N/A	
Tank serial number: D 05054 S1		Size: 12 ft x 20 ft	
Shell thickness: 4.8 mm / 4.8 mm		Shell material: SA 36	
Bottom thickness: 6.4 mm / 4.8mm		Bottom material: SA 36	
Deck thickness: 4.8mm		Deck material: SA 36	
Tube diameter:		Tube length:	
Channel thickness:		Channel material:	
Design pressure	Shell: 16 oz	Operating pressure	Shell:
	Tubes:		Tubes:
Design Temp.	Shell:	Operating temperature	Shell:
	Tubes:		Tubes:
X-ray: Nil		Heat treatment: Nil	
Code parameters: API 12F		Coated: 100% epoxy	
Manufacturer: GLM Tanks and Equipment		Year built: 2005	
Corrosion allowance: not stated		Manway: Yes	

**PRESSURE SAFETY VALVE NAMEPLATE DATA**

PSV Tag #	Manufacture	Model #	Serial #	Set Pressure (kPa)	Capacity (scfm)	Service Date
CRN #	Service By	Block Valve	Location	Size	Code Stamp	

**SERVICE CONDITIONS-INDICATE ALL THAT APPLY**

Sweet	Sour X	Oil	Gas	Water X
Amine	LPG	Condensate	Air	Glycol

Other (Describe):

**Inspection Interval** \_\_\_\_\_ **PSV Service Interval** \_\_\_\_\_

(Determined by MIC in conjunction with Chief Inspector following guidelines of CNRL's Owner-User Inspection Program)

Reports reviewed and accepted by:

**Mechanical Integrity Coordinator** \_\_\_\_\_ **Date** \_\_\_\_\_

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

Copy of report to be filed by MIC at site, and copy sent to Chief Inspector

<b>External Inspection Items</b>	G	F	P	N/A	<b>Comments</b>
<b>Insulation</b> Verify sealed around manways, nozzles, no damage present, and there is no egress of moisture.	X				<b>Tank shell is 100% spray foam insulated.</b> <b>Several areas of suspect bird damage to 6 inch diameter.</b> <b>No exposed metal.</b>
<b>External Condition</b> Assess paint condition, areas peeling, record any corrosion, damage, etc (record location, size and depth of corrosion or damage)	X				<b>Painted areas are in good condition – no exposed metal.</b> <b>No damage. Tank appears to sit straight and level.</b>
<b>Leakage</b> Record any leakage at flanges, threaded joints, weep holes on repads, etc.	X				<b>No leaks observed.</b>
<b>Base</b> Assess condition of paint, fire protection, concrete. Look for corrosion, buckling, dents, etc. Is tank mounted above ground water level – on pilings? Ground wire attached?	X				<b>Tank skid is welded to pilings above ground</b> <b>No buckling or dents.</b> <b>Ground wire attached to skid</b>
<b>Anchor Bolts</b> Hammer tap to ensure secure. Look for cracking in treads or signs of deformation. Is tank resting on deck – welded to supports?				X	<b>None</b>
<b>Concrete foundation</b> There may be a concrete ring under the tank. Check for cracks, spalling, etc.				X	<b>Steel</b>
<b>Ladder / Platform</b> Describe general condition, ensure support is secure to vessel, describe any hazards.	X				<b>No broken or loose sections.</b> <b>Ladder bolted to side of tank.</b> <b>Paint in good condition- no exposed metal.</b>
<b>Nozzle</b> Assess paint, look for leakage, and ensure stud threads are fully engaged. Record any damage, deflection, etc. Are nozzles gusseted?	X				<b>Stud threads are fully engaged to nuts – no leaks.</b> <b>No damage or deflections.</b> <b>Nozzles are not gusseted.</b>
<b>Gauges</b> Ensure gauges are visible, working, no leakage, and suitable for range of MAWP/ Temp. Remember some tanks require fuel gas or other positive protection so a pressure gauge may be installed.		X			<b>Liquid level gauge board attached to tank external.</b> <b>Level increments are faded to 20% remaining legibility.</b> <b>Remaining gauges are clean and clear.</b> <b>Temperature gauge: -20 to 120°C</b> <b>Interstitial level gauge attached.</b>
<b>External Piping</b> Ensure pipe is well supported. All clamps, supports, shoes, etc. in place. Look for evidence of structural overload, deflection, etc. Paint condition, insulation condition, any wet insulation, any external corrosion?	X				<b>Well supported – all clamps and supports in place.</b> <b>No overloads or deflections.</b> <b>Piping insulated- no damage present- no wet insulation.</b>
<b>Valving</b> Ensure no leaks are visible. Valves are properly supported and chained if necessary.	X				<b>Valves are supported properly- no leaks.</b>
<b>PSV</b> Ensure PSV is set at pressure at or below that of vessel.				X	<b>No PSV.</b>
<b>NDE methods</b> Was UT/ MPI done on vessel (MI coordinator to review results)	X				<b>Ultrasonic corrosion survey carried out, no metal thickness detected below nominal minus corrosion allowance.</b>
<b>Secondary Containment:</b> This may be a double wall tank with a pressure gauge or level gauge indicator. Also a concrete or steel dike with vinyl liner – describe.	X				<b>This tank is double walled with a steel ring and vinyl liner in good condition.</b> <b>No damage.</b>
<b>Recommendations or corrective actions : Vessel is Fit for Service or describe corrective actions required)</b> (MIC to review corrective actions with Operations, discuss with Chief Inspector where necessary, and get remedial action implemented) <b>Recommendations:</b> 1. Consider replacing level gauge board. <b>Summary:</b> Tank is in overall good condition, visual external inspection carried out. <b>Tank is fit for service</b>					

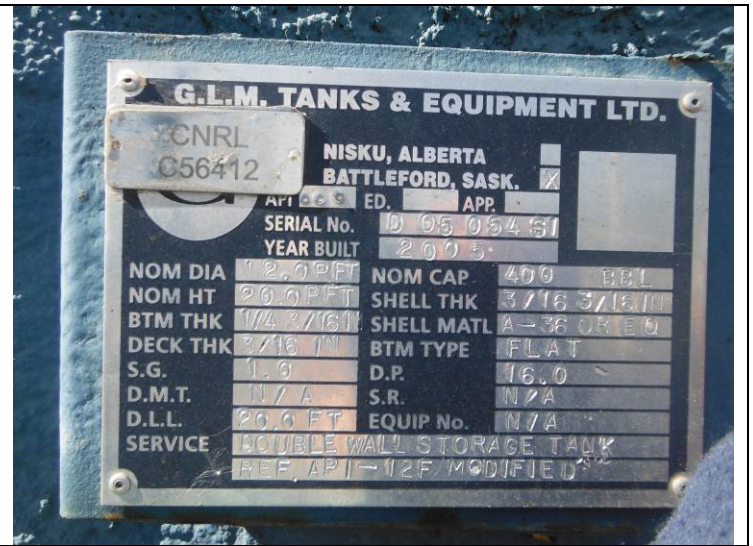
**Inspected By:** Chris Maxsom

**Date:** January 31, 2014

<b>Internal Inspection Items</b>	<b>G</b>	<b>F</b>	<b>P</b>	<b>N/A</b>	<b>Comments</b>
<b>Coating</b> Assess coating. Describe area coated, general condition of coating.	X				<b>Tank is 100% internally coated with epoxy. Good condition. One area of chipped coating at manway repaired at time of inspection.</b>
<b>Anodes.</b> How many, type, condition. % consumed. Are they being replaced?				X	<b>None.</b>
<b>Internal Piping</b> 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.				X	<b>None.</b>
<b>Bottom</b> Record location, size and depth of all erosion, corrosion or mechanical damage. Describe General condition.	X				<b>Good condition – no areas of failed coating. No damage.</b>
<b>Shell Sections</b> Record number of shell sections. Record location, size and depth of all erosion, corrosion or mechanical damage. Describe General condition.	X				<b>4 shell sections in good condition. No corrosion. No damage.</b>
<b>Roof / Deck</b> Record location, size and depth of all erosion, corrosion or mechanical damage. Describe General condition.	X				<b>Good condition. No corrosion. No damage.</b>
<b>Float</b>	X				<b>Float is intact and in place with free movement</b>
<b>Man Way Access</b>	X				<b>One coating chip repaired at time of inspection.</b>
<b>Nozzles</b>	X				<b>Nozzles are coated, unobstructed and in good condition - Stainless steel suction nozzles – no damage.</b>
<b>Thermal Probe</b>	X				<b>Good condition. No damage.</b>
<b>Welds</b> Inspect all welds, including attachment welds. Record all service-related damages and if there is any discuss with Chief Inspector before closing.	X				<b>All welds are in coated and in good condition.</b>
<b>NDE Inspections</b>				X	<b>No internal NDE at this time</b>
<b>Other: Firetube</b>	X				<b>Firetube: MT, VE carried out. MT: No cracking detected VE: No external corrosion, pitting or damaged noted.</b>
<b>Recommendations or corrective actions (indicate if fit for service)</b> <b>Recommendations: No recommendations at this time.</b> <b>Summary: This tank is in good overall condition, visual internal carried out. MT and VE carried out firetube – no issues.</b> <b>Tank is fit for service.</b>					

**Inspected By:** Chris Maxsom ABSA #0539

**Date:** September 5, 2014



LSD

Data plate



Overview - Tank and containment

Tank support // Lower shell // Manway



Interstitial level gauge

Temperature gauge



Level board – faded, minimal legibility



Valves and piping well supported



Manway



Overview - Bottom



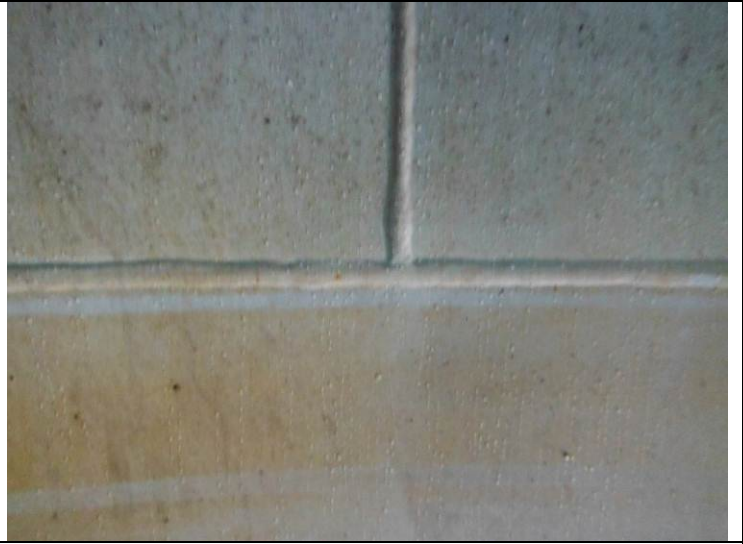
Lower shell



Upper shell



**Truck out box**



**Shell tee weld - typical condition, no issues**



**Deck**



**Nozzles**



**Coating chip repaired at time of inspection**



**Fire tube - no cracking detected**