

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

District: Ft St John, B.C.						
Facility: Cypress Gas Gathering		Location (LSD): c-61-L / 93-B-15				
Vessel Name & Equipment Number: 1000 bbl Produced Water Tank						
Orientation: Vertical						
Status: In Service			Regulatory Inspection			
PRESSURE VESSEL NAMEPLATE DATA						
"A" or "G" or "S" (Sask.) or BC Registration Number.			CRN Number Not Applicable			
Vessel serial number: G03-056-S1			Size : 15.25 ft x 32 ft			
Shell thickness: 4.8 mm			Shell material: SA 36			
Bottom thickness: 6.4 mm			Head material: SA 36			
Deck thickness: 4.8 mm			Deck Material: SA 36			
Design pressure	Shell: 4 oz		Operating pressure	Shell:		
	Tubes:			Tubes:		
Design Temp.	Shell:		Operating temperature	Shell:		
	Tubes:			Tubes:		
X-ray: Nil			Heat treatment: Nil			
Code parameters: API 650			Coated: 100 % Devco 253			
Manufacturer: GLM Tanks and Equipment			Year built: 2003			
Corrosion allowance: Not Stated			Manway? Yes			
PRESSURE SAFETY VALVE NAMEPLATE DATA						
Tag Number(s)	Set Pressure	CRN # / Code Stamp?	Manufacturer /Model or S/N / and Service Company	Capacity (Scfm)	Size	Set Date
PSV not required in this system						
Tube Side						
SERVICE CONDITIONS-INDICATE ALL THAT APPLY						
Sweet	Sour X		Oil	Gas		Water X
Amine	LPG		Condensate	Air		Glycol
Other (Describe): Produced Water						

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

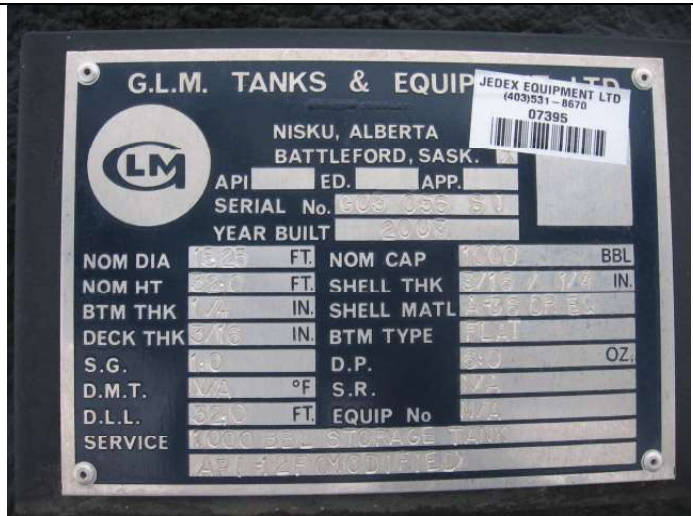
Reports reviewed and accepted by:
Mechanical Integrity Coordinator _____ **Date** _____

External Inspection Items	G	F	P	N/A	Comments
Insulation Verify sealed around manways, nozzles, no damage present, and there is no egress of moisture.	X				External is covered with tar over foam insulation – one small area exposed on shell where suspected failure.
External Condition Assess paint condition, areas peeling, record any corrosion, damage, etc (record location, size and depth of corrosion or damage)				X	No painted areas to assess.
Leakage Record any leakage at flanges, threaded joints, weep holes on repads, etc.			X		Tank was taken out of service due to leak in bottom – visual internal revealed a 2 inch by 4 inch hole in bottom of tank near shell to bottom area.
Base Assess condition of paint, fire protection, concrete. Look for corrosion, buckling, dents, etc. Look at vessel surface area near supports. Verify no signs of leakage at attachment to vessel and attachment welds are acceptable. Ground wire attached?	X				This tank sits above ground on concrete platform – platform sits above ground on pilings. No distortion to base. Tank is grounded.
Anchor Bolts Hammer tap to ensure secure. Look for cracking in treads or signs of deformation.	X				No anchor bolts – tank sits on concrete platform.
Concrete foundation Check for cracks, spalling, etc.	X				Tank sits on concrete base.
Ladder / Platform Describe general condition, ensure support is secure to vessel, describe any hazards.	X				Ladder – firmly attached to tank – no loose or missing sections.
Nozzle Assess paint, look for leakage, and ensure stud threads are fully engaged. Record any damage, deflection, etc. Are nozzles gusseted?	X				All studs engaged to nuts – no short bolts. Nozzles are not gusseted.
Gauges Ensure gauges are visible, working, no leakage, and suitable for range of MAWP/ Temp.	X				There is a level indicator on the external surface of the tank – is in good condition.
External Piping Ensure pipe is well supported. All clamps, supports, shoes, etc. in place. Look for evidence of structural overload, deflection, etc. Paint condition, external corrosion?	X				Well supported, no deflection, all clamps in place. Piping is insulated – no exposed metal.
Valving Ensure no leaks are visible. Valves are properly supported and chained if necessary.	X				Well supported – no leaks.
Thief Hatch: Ensure seal is intact and latch is operational.	X				Good condition, free movement, seal intact.
PSV Ensure PSV is set at pressure at or below that of vessel.				X	No PSV required.
NDE methods Was UT/ MPI done on vessel (MI coordinator to review results)				X	No NDE at this time.
Berm / Dike:	X				Concrete dike with vinyl liner – no ruptures.
Recommendations or corrective actions: Vessel is Fit for Service or describe corrective actions required) (MIC to review corrective actions with Operations, discuss with Chief Inspector where necessary, and get remedial action implemented)					
See internal inspection report for summary and recommendations.					

Internal Inspection Items	G	F	P	N/A	Comments
Coating Assess coating. Describe area coated, general condition of coating.	X				Internal surface is 100% coated – exposed metal where 2 inch x 4 inch through hole is on bottom. Remainder of coating is in good condition – no exposed metal.
Anodes. How many, type, condition. % consumed. Are they being replaced?	X				No anodes.
Internal Piping Is there any?	X				Outlet suction piping stem intact and firmly attached.
Internal supports: Fire tube / float / skimmer etc...	X				Fire tube supports are in place – no loose or missing sections. Float is intact and in place – very minimal water level is kept in this tank.
Bottom Record location, size and depth of all erosion, corrosion or mechanical damage.	X				100 % coated with epoxy – 1 area of exposed metal at through hole.
Shell Sections Record number of shell sections. Record location, size and depth of all erosion, corrosion or mechanical damage. Describe General condition.	X				3 courses – Good condition – 100% coated with epoxy, no exposed metal.
Roof / Deck: Record location, size and depth of all erosion, corrosion or mechanical damage. Describe General condition.	X				Good condition, 100% coated with epoxy – no exposed metal.
Deck supports:	X				No deck supports – deck is self supporting.
Float:	X				Intact and in place – free movement.
Nozzles:	X				All nozzles are unobstructed – coated internally, no failed areas of coating.
Welds Inspect all welds, including attachment welds.	X				Welds are coated with epoxy – no exposed metal.
Fire Tube / Heat Medium Coil:	X				Fire tube in place – no corrosion or erosion.
NDE Inspections				X	No NDE inspections at this time.
Recommendations or corrective actions (indicate if fit for service)					
Recommendations: 1. Weld repair hole in bottom of tank – this will simply require a 10 inch by 10 inch piece of A 36 material - .250 inches thick with 1 inch radius corners. 2. Fillet weld with E 7018-1 welding rod – weld from internal surface. 3. Recoat weld repair area with epoxy grout Devoc 142 C.					
Summary: This tank is in good overall condition, visual external and internal carried out – 100% coated with epoxy internally, no loose or lifted coating – 1 area on bottom has a through hole 2 inches by 4 inches. Bring it welding completed repair.					
Tank is fit for service					

Inspected By: Dellas Wiedman

Date: Jan 28 – 2009



Tank overview.

Data Plate



Some of the insulation was removed to determine where the failure was located.



Area of leak



Man way access



Berm and environment box.



Fire tube



Float



Suction piping



Deck



Through hole in bottom of tank – to be scab patched.