

Canadian Natural Resources Limited
GENERAL PRESSURE VESSEL INFORMATION **Job # 05.003071**

District: Grande Prairie AB	Skid No.
Facility: Gold Creek East Gas Field	Location (LSD): 06-33-67-04W6M
Vessel Name Equipment Number: Flare Knockout Drum	
Orientation: Horizontal	
Status: In Service	Regulatory Inspection

PRESSURE VESSEL NAMEPLATE DATA

“A” or “G” or “S” (Sask.) or BC Registration Number. C 10834	CRN Number: Non Code		
Vessel serial number: R 893	Size: 6 ft. x 10 ft.		
Shell thickness: 19.1 mm	Shell material: SA 36		
Head thickness: 19.1 mm	Head material: SA 36		
Tube wall thickness:	Tube material:		
Tube diameter:	Tube length:		
Channel thickness:	Channel material:		
Design pressure	Shell: Atmospheric	Operating pressure	Shell:
	Tubes:		Tubes:
Design Temp.	Shell:	Operating temperature	Shell:
	Tubes:		Tubes:
X-ray: Nil	Heat treatment: Nil		
Code parameters: Non Code	Coated: No		
Manufacturer: Rialta	Year built: 2002		
Corrosion allowance: 1.6 mm	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 X	Water X
Amine	LPG	Condensate X	Air	Glycol
Other (Describe):				

Inspection Interval _____ **PSV Service Interval** _____
 (Determined by MIC in conjunction with Chief Inspector following guidelines of CNRL 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

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				No damage present – no egress of moisture. All straps in place and secure. Sealed around nozzles.
External Condition Assess paint condition, areas peeling, record any corrosion, damage, etc (record location, size and depth of corrosion or damage)	X				Paint in good condition. No exposed metal.
Leakage Record any leakage at flanges, threaded joints, weep holes on repads, etc.	X				No leaks observed.
Saddle/Skirt 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				Saddle: Welded directly to skid frame. No buckling or dents. No corrosion at attachment welds to vessel. Ground wire attached to skid.
Anchor Bolts Hammer tap to ensure secure. Look for cracking in treads or signs of deformation.				X	Vessel welded to skid frame. No deformation.
Concrete foundation Check for cracks, spalling, etc.				X	
Ladder / Platform Describe general condition, ensure support is secure to vessel, describe any hazards.				X	
Nozzle Assess paint, look for leakage, and ensure stud threads are fully engaged. Record any damage, deflection, etc. Are nozzles gusseted?	X				Stud threads are fully engaged to nuts. No leaks observed. No damage or deflections. Nozzles are not gusseted.
Gauges Ensure gauges are visible, working, no leakage, and suitable for range of MAWP/ Temp.				X	No gauges on vessel.
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				Piping is well supported – all clamps and supports are in place. No structural overloads or deflections. Paint peeling to 50% of area. Brown scale on exposed metal.
Valving Ensure no leaks are visible. Valves are properly supported and chained if necessary.	X				No leaks are visible. Valves are supported properly.
PSV Ensure PSV is set at pressure at or below that of vessel.				X	Vessel vent to flare.
NDE methods Was UT/ MPI done on vessel (MI coordinator to review results)	X				Ultrasonic thickness survey carried out – no metal thickness detected below nominal minus corrosion allowance.
Other					
<p>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) Recommendations: No recommendations at this time Summary: Vessel is in overall good condition, visual external inspection and ultrasonic corrosion survey performed—No metal thickness detected below nominal minus corrosion allowance. Vessel is fit for service.</p>					

Inspected By: Gerry Avery

Date: April 16, 2009

Internal Inspection Items	G	F	P	N/A	Comments
Coating Assess coating. Describe area coated, general condition of coating.				X	<ul style="list-style-type: none"> Non coated vessel.
Anodes. How many, type, condition. % consumed. Are they being replaced?				X	<ul style="list-style-type: none"> No anodes.
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.	X				<ul style="list-style-type: none"> Carbon steel stand pipe and deflector piping. All piping in good condition with no corrosion dents or erosion noted. All bolting secure and in good condition.
Trays How many? Type of material. Are valves in place. Check for erosion/ corrosion; wear on tray valve legs. Cleanliness?				X	
Baffles, deflector plates, etc. If present, describe condition. Look closely at welds attached to vessel wall.	X				<ul style="list-style-type: none"> Deflector piping in good condition with all welds acceptable.
Top Head Note all corrosion, erosion or mechanical damage. (If vessel is horizontal identify direction of this head)	X				<ul style="list-style-type: none"> No corrosion or mechanical damage noted.
Bottom Head Note all corrosion, erosion or mechanical damage. (If vessel is horizontal identify direction of this head)	X				<ul style="list-style-type: none"> No corrosion or mechanical damage noted.
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.	X				<ul style="list-style-type: none"> (1) shell section. No corrosion or mechanical damage noted. Good condition throughout.
Demister pad Is it in place? Is it clean? If any corrosion is apparent in vessel, lift pad and check top head for corrosion.				X	
Welds Inspect all welds, including attachment welds. Record all service-related damages and if there is any discuss with Chief Inspector before closing.	X				<ul style="list-style-type: none"> All welds in good condition with no service related damage noted.
Repairs Required. If yes, ensure procedure and copy of AB 40 is on file, and one sent to local ABSA, and Chief Inspector				X	
NDE Was any NDE done. (MI coordinator to review results)				X	
<p>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)</p> <p>Recommendations: No recommendations.</p> <p>Summary: This vessel is in good condition, visual external and internal carried out – internal is not coated – no corrosion or pitting detected.</p> <p>Vessel is fit for service.</p>					

Inspected By: C. Menzies / D. Wiedman

Date: May 11, 2009

Photo Table



LSD

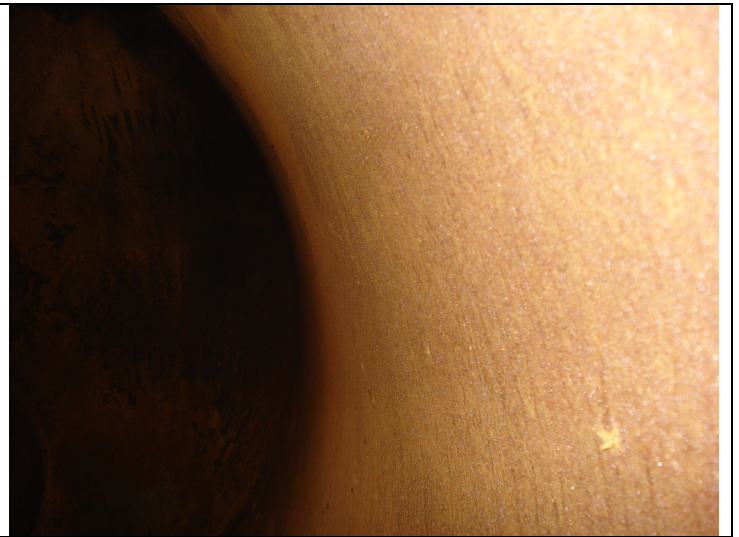
vessel data plate



vessel overview



View of the shell



View of the shell



View of attachment.



View of attachment.



View of the deposits left behind post cleaning



View of the deposits left behind post cleaning