Canadian Natural Resources Limited
GENERAL PRESSURE VESSEL INFORMATION **Job # 10.111452**

District: Grande Prairie AB	Skid No.
Facility: Spring Lake Gas Gathering	**Location (LSD): 06-13-76-12W6M**
Vessel Name Equipment Number: 3 Phase Separator	
Orientation: Vertical	
Status: In Service	**Regulatory Inspection**

PRESSURE VESSEL NAMEPLATE DATA

"A" or "G" or "S" (Sask.) or BC Registration Number. **A0490281**		CRN Number: L 8388.2	
Vessel serial number: C1829A-VS		Size: 20 in. X 96 in.	
Shell thickness: 22.2 mm		Shell material: SA 516-70N	
Head thickness: 23.8 mm		Head material: SA 516-70N	
Tube wall thickness:		Tube material:	
Tube diameter:		Tube length:	
Channel thickness:		Channel material:	
Design pressure	Shell: 1440 PSI	Operating pressure	Shell: 0 – 1500 PSI
	Tubes:		Tubes:
Design Temp.	Shell: 129 Deg F.	Operating temperature	Shell: 0 – 250 Deg F.
	Tubes:		Tubes:
X-ray: RT 1		Heat treatment: HT	
Code parameters: ASME VIII, Div 1		Coated: no	
Manufacturer: Rushton		Year built: 2002	
Corrosion allowance: 3.2 mm		Manway: no	

PRESSURE SAFETY VALVE NAMEPLATE DATA

PSV Tag #	Manufacture	Model #	Serial #	Set Pressure (kPa)	Capacity (scfm)	Service Date
	Mercer	**8100-1M**	**133143**	**1422 PSI**	**4991**	**08, 2008**
CRN #	Service By	Block Valve	Location	Size	Code Stamp	
OG8841.5C	**IPV**	**no**	**Upper shell**	**1"x 1"**	**UV/NB**	

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. <u>All information</u> 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

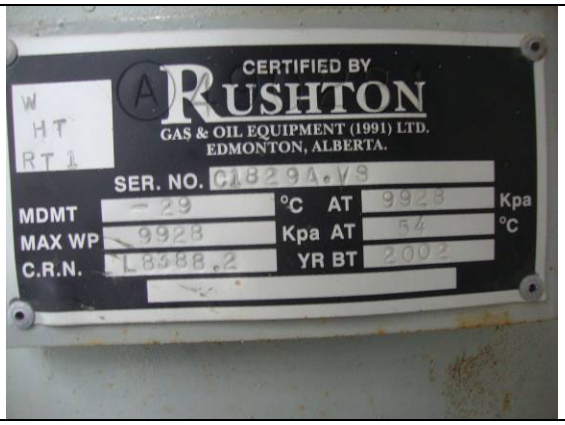
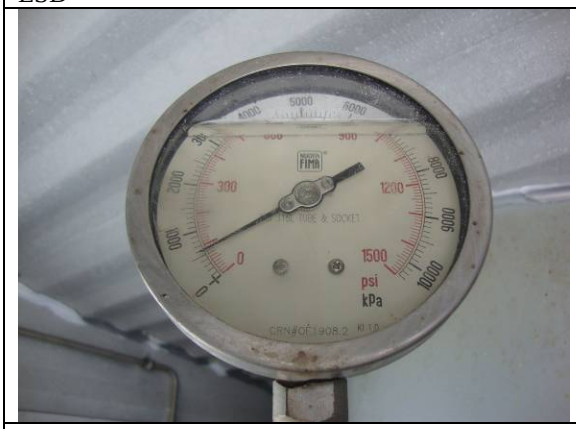
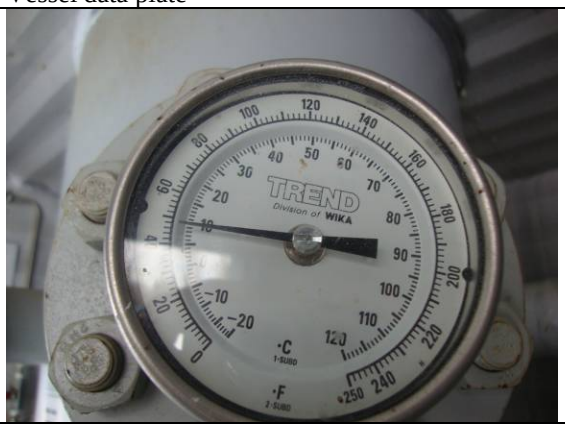
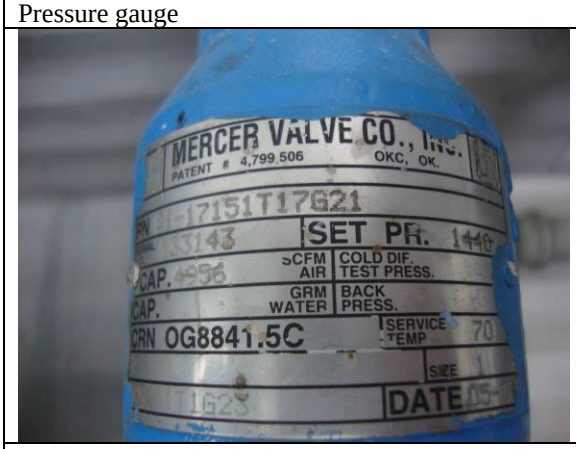
External Inspection Items	G	F	P	N/A	Comments
Insulation Verify sealed around manways, nozzles, no damage present, and there is no egress of moisture.				**X**	**Vessel not insulated.**
External Condition Assess paint condition, areas peeling, record any corrosion, damage, etc (record location, size and depth of corrosion or damage)	**X**				**Paint in good overall 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**				**Skirt: bolted directly to skid floor.** **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**				**Anchor bolts are securely fastened.** **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 short bolts.** **No damage or deflections – no leaks.** **Nozzles are not gusseted.**
Gauges Ensure gauges are visible, working, no leakage, and suitable for range of MAWP/ Temp.	**X**				**Clear and clean – no leakage.** **Within operational range for service – pressure gauge 0 – 1500 PSI//temperature gauge 0 – 250 Deg F.**
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; no deflection, all clamps and supports are in place.** **Paint in good condition – no exposed metal.**
Valve: Ensure no leaks are visible. Valves are properly supported and chained if necessary.	**X**				**Valves are supported properly – no leaks.**
PSV Ensure PSV is set at pressure at or below that of vessel.	**X**				**Location: On upper shell- Set below MAWP of vessel.** **No block valve between vessel and PSV.** **Discharge piping is same size as valve out let.** **Seal in place.**
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					

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.
Summary: Vessel is in overall good condition, visual external inspection and ultrasonic corrosion survey performed – no metal thickness detected below nominal minus corrosion allowance.
Long term corrosion rate based on greatest thickness loss (head) 0.170mm per year. Retirement Date to "T"min is year 2043.

Vessel is fit for service.

Inspected By: Gerry Avery / D. Wiedman **Date:** February 29, 2012

Photo Table

	
LSD	Vessel data plate
	
Pressure gauge	Temperature gauge
	
PSV data plate	PSV data tag

	
PSV	Vessel overview