Canadian Natural Resources Limited
GENERAL PRESSURE VESSEL INFORMATION Job # 105.01649

District: **Fort St John, B.C.**	Skid No.
Facility: **Pee Jay Unit #1**	Location (LSD): **d-39-E / 94-A-16**
Vessel Name Equipment Number: **Instrument Air Receiver**	
Orientation: **Vertical**	
Status: **In Service**	**Regulatory Inspection**

PRESSURE VESSEL NAMEPLATE DATA

"A" or "G" or "S" (Sask.) or BC Registration Number. **A 169335**	CRN Number: **C-7228.1234567890T**
Vessel serial number: 5511053	Size: 24in x 72in
Shell thickness: 4.6 mm	Shell material: SA 414 G
Head thickness: 4.0 mm	Head material: SA 455
Tube wall thickness:	Tube material:
Tube diameter:	Tube length:
Channel thickness:	Channel material:

Design pressure	Shell: 200 Psi	Operating pressure	Shell:
	Tubes:		Tubes:
Design Temp.	Shell: 650 Deg F	Operating temperature	Shell:
	Tubes:		Tubes:

X-ray: N/S	Heat treatment: N/S
Code parameters: ASME VIII, DIV 1	Coated: No
Manufacturer: Steel fabrication and welding limited	Year built: 1980
Corrosion allowance: N/S	Manway: No

PRESSURE SAFETY VALVE NAMEPLATE DATA

PSV Tag #	Manufacture	Model #	Serial #	Set Pressure (kPa)	Capacity (scfm)	Service Date
4810F	**Mercer**	**81-17151V09G11**	**A 82705**	**165 Psi**	**608**	**07/08**
CRN #	Service By	Block Valve	Location	Size	Code Stamp	
OG2606.5C	**Unified valve**	**NO**	**Top head**	**1" x 1"**	**UV/NB**	

SERVICE CONDITIONS-INDICATE ALL THAT APPLY

Sweet	Sour	Oil	Gas	Water
Amine	LPG	Condensate	Air X	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. <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**	**None.**
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 with the top layer peeling on approx. 30% of vessel.** **No exposed metal or external corrosion observed.**
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, and 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**				**Support legs:** **This vessel support legs are in good condition, no signs of damage or leakage to attachment welds.** **Ground firmly secured through skid unit.**
Anchor Bolts Hammer tap to ensure secure. Look for cracking in treads or signs of deformation.	**X**				**Firmly bolted to skid deck, no signs of deformation.**
Concrete foundation Check for cracks, spalling, etc.				**X**	**None.**
Ladder / Platform Describe general condition, ensure support is secure to vessel, and describe any hazards.				**X**	**None.**
Nozzle Assess paint, look for leakage, and ensure stud threads are fully engaged. Record any damage, deflection, etc. Are nozzles gusseted?	**X**				**Threaded nozzles with threads properly engaged.** **No damage or deflections observed – no leaks.** **Paint in good condition with no surface corrosion.** **Nozzles are not gusseted.**
Gauges Ensure gauges are visible, working, no leakage, and suitable for range of MAWP/ Temp.			**X**		**No gauges noted.**
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, supports, and shoes are in place.** **No structural overloads or deflections noted.** **Paint in good condition – no exposed metal.**
Valving Ensure no leaks are visible. Valves are properly supported and chained if necessary.	**X**				**Valves are properly supported with no visual leakage noted.**
PSV Ensure PSV is set at pressure at or below that of vessel.					**Location: Top head - set below MAWP of vessel.** **Discharge piping is same size as outlet of valve.** **PSV seal in place.** **No block valve.** **PSV is properly supported.**

NDE methods Was UT/ MPI done on vessel (MI coordinator to review results)			X		**Ultrasonic thickness survey carried out - head metal thickness detected below nominal. Thickness calculations carried out: Head: Nominal thickness is 4.0 mm / min thickness is 3.3 mm / T min thickness is 3.5 mm using current PSV set pressure of 150 PSI. Using 125 PSI – T min is 2.5 mm.**

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: 1. Drop PSV set pressure to 125 PSI to ensure sufficient metal thickness exists for safe operation, or Replace vessel – built in 1980, general corrosion throughout bottom head – maybe it's just time. 2. Install a pressure gauge.

Summary: This vessel is in fair condition, visual external and ultrasonic thickness inspection carried out- head metal thickness detected below nominal. The bottom head thickness has dropped from 4.9 mm to 3.3 mm in 3 years. Retirement date is based on most aggressive corrosion rate – 4.9 mm minus 3.3 mm = 1.6 mm divided by 3 years = .53 mm per year. T min at 125 PSI is 2.5 mm so 3.3 mm minus 2.5 mm = .8 mm divided by .53 mm = 1.5 years plus 2011 = Retirement date of yr 2012.

Vessel is not fit for service at current PSV set pressure and should be replaced.

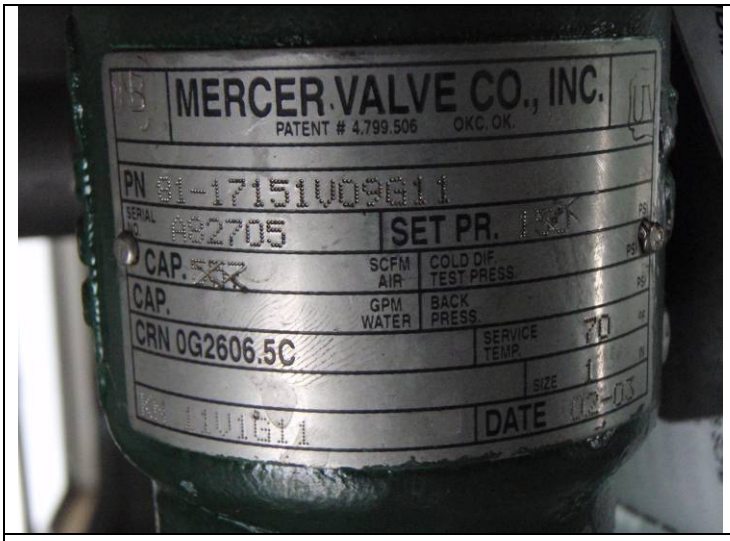
Inspected By: Brent Agrey **Date:** March 9, 2011

LSD

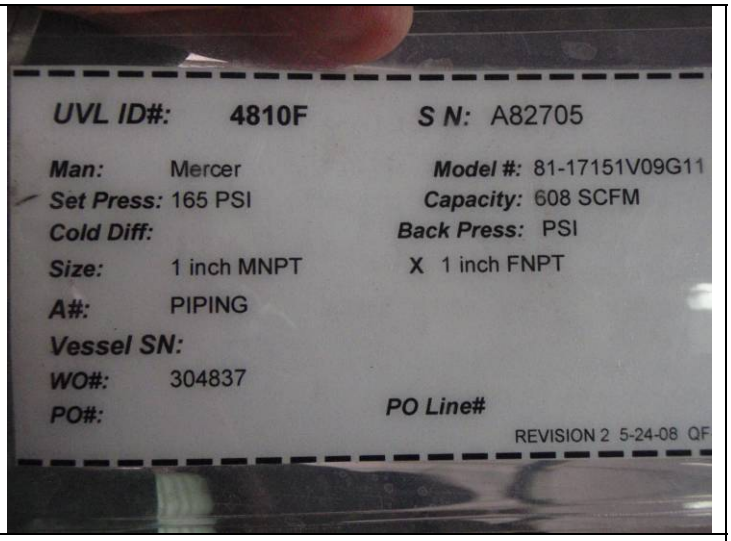
Data plate

Overview

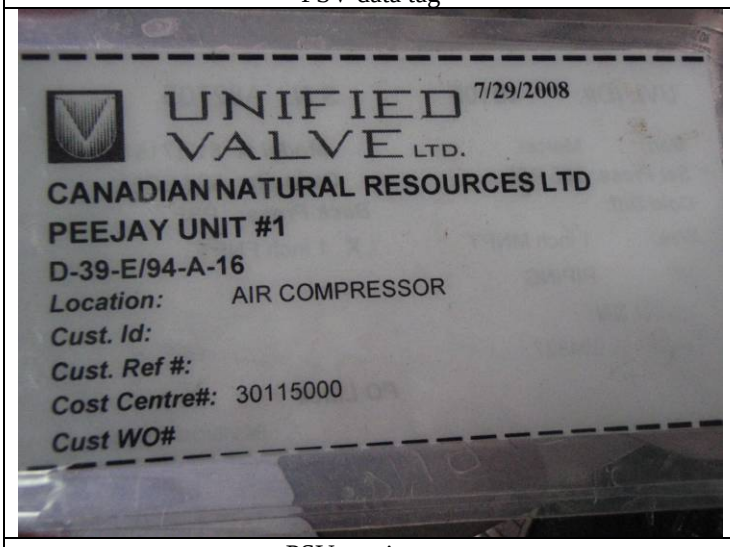
Top layer of paint peeling



PSV data tag



PSV service tag



PSV service tag