Canadian Natural Resources Limited
GENERAL PRESSURE VESSEL INFORMATION **Job # 10.113190**

District: Hamburg Oil – GP South	**Skid No. 15137**
Facility: Hamburg Battery	**Location (LSD): 15-21-96-10 W6M**
Vessel Name & Equipment Number: Fuel Gas Scrubber	
Orientation: Vertical	
Status: In Service	**Regulatory Inspection**

PRESSURE VESSEL NAMEPLATE DATA

"A" or "G" or "S" (Sask.) or BC Registration Number. **A0401369**	CRN Number **L 5492.2**
Vessel serial number: 6362-20	Size: 24 in x 71in
Shell thickness: 9.5mm	Shell material: SA 516 70N
Head thickness: 7.9mm	Head material: SA 516 70N
Tube wall thickness:	Tube material:
Tube diameter:	Tube length:
Channel thickness:	Channel material:

Design pressure	Shell: 1896 kPa (275 psi)	Operating pressure	Shell:
	Tubes:		Tubes:
Design Temp.	Shell: 60°C	Operating temperature	Shell:
	Tubes:		Tubes:

X-ray: RT-3	Heat treatment: Nil
Code parameters: ASME VIII, DIV 1	Joint efficiency (if on nameplate):
Manufacturer: Presson Manufacturing Ltd.	Year built: 1999
Corrosion allowance: 1.6 mm	Manway No

PRESSURE SAFETY VALVE NAMEPLATE DATA

Tag Number(s)	Manufacture	Model	Serial Number	Set Pressure	Capacity	Set Date
UVL 5801V	**Farris**	**26HA10-120**	**CE407383-2-A10**	**275 psi**	**4360 scfm**	**09/02/2009**
CRN#	Serviced by	Block valve	Location	Size	Code Stamp	
0G2369.5C	**Unified Valve**	**No**	**Mid shell**	**1.5" x 3"**	**UV**	

SERVICE CONDTIONS-INDICATE ALL THAT APPLY

Sweet X	Sour	Oil	Gas X	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** _____

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 Condition Assess paint condition, areas peeling, record any corrosion, damage, etc (record location, size and depth of corrosion or damage)	X				**Paint is in good condition, no exposed metal. No damage.**
Leakage Record any leakage at flanges, threaded joints, weep holes on repads, etc.	X				**No leaks found.**
Skirt/ Saddle 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				**Vessel skirt is bolt to skid floor.** **No evidence of corrosion at skirt to shell – no leaks.** **Paint is in good condition-no exposed metal.** **No distortion. No buckles.** **Skid is welded to pilings above ground level.** **Vessel has ground wire attached.**
Anchor Bolts Hammer tap to ensure secure. Look for cracking in threads or signs of deformation.	X				**Anchor bolts are tight and secure to floor of skid.**
Concrete foundation Check for cracks etc.				X	
Ladder / Platform Describe general condition, ensure support is secure to vessel, and 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				**Threaded nozzle joints are fully engaged.** **Studs fully engaged to nuts – no short bolts.** **Nozzles are not gusseted. No damage. No deflections.** **Paint in good condition – no exposed metal.**
Gauges Ensure gauges are visible, working, no leakage, and suitable for range of MAWP/ Temp.	X				**Gauges are visible and working. No signs of leaks.** **Suitable for range of MAWP and temperature**
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 and clamps are in place.** **Paint is in good condition.** **No evidence of structural overload or deflection.**
Valving Ensure no leaks are visible. Valves are properly supported and chained if necessary.	X				**No leaks found. Valving is properly supported**
PSV Ensure PSV is set at pressure at or below that of vessel. Discharge piping is same size as inlet to valve and is properly supported and routed. Ensure no block valves between psv and vessel or if there are they are locked open.	X				**Located on upper shell– set at MAWP of vessel.** **PSV seal in place.** **Discharge piping is same size as valve outlet.** **No block valve between vessel and PSV**
NDE methods Was UT/ MPI done on vessel (MI coordinator to review results)	X				**Ultrasonic corrosion survey carried out – pipe metal thickness detected below nominal minus corrosion allowance. Thickness calculations carried out:** **UT point 1-1240 (2" Elbow) – nominal thickness is 5.5mm / min thickness is 4.0mm / T min thickness is 1.6mm.**

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 – pipe metal thickness detected below nominal minus corrosion allowance. Thickness calculations carried out to ensure sufficient metal exists for safe operation.
Corrosion rate based on greatest thickness loss – no corrosion rate to assess.

Vessel is fit for service.

Inspected By: Chris Maxsom **Date:** June 24, 2013

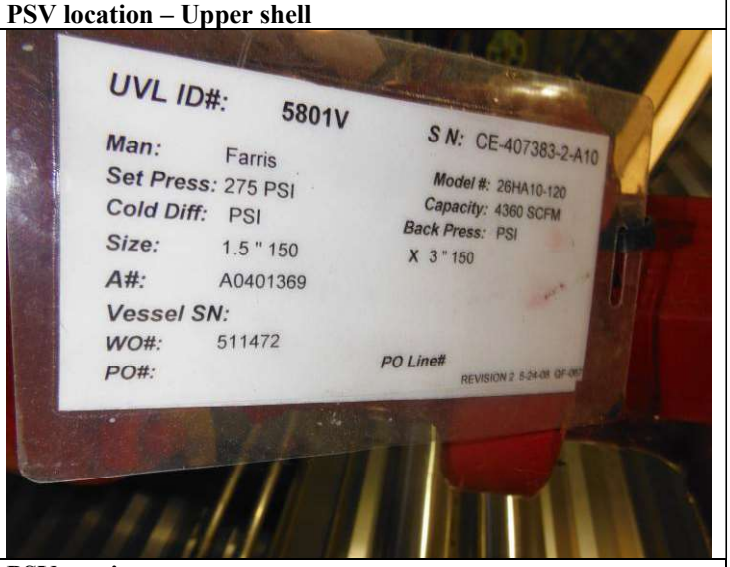
LSD

Overview -Vessel

Data plate

PSV location – Upper shell

PSV service tag



PSV service tag

	
Pressure gauge	**Temperature gauge**