

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

**Job # 105.01652**

District: <b>Fort St John, B.C.</b>	Skid No.
Facility: <b>South Bulrush Compressor Station</b>	Location (LSD): <b>b-88-F / 94-A-16</b>
Vessel Name Equipment Number: <b>Inlet Separator</b>	
Orientation: <b>Vertical</b>	
Status: <b>In Service</b>	<b>Regulatory Inspection</b>

**PRESSURE VESSEL NAMEPLATE DATA**

"A" or "G" or "S" (Sask.) or BC Registration Number. <b>A 3098523</b>		CRN Number: M-2318.213	
Vessel serial number: 95-7975-0		Size: 36 in x 10ft	
Shell thickness: 22.2 mm		Shell material: SA 516 70MT	
Head thickness: 27.8 mm		Head material: SA 516 70MT	
Tube wall thickness:		Tube material:	
Tube diameter:		Tube length:	
Channel thickness:		Channel material:	
Design pressure	Shell: 4964 Kpa	Operating pressure	Shell: 0 PSI
	Tubes:		Tubes:
Design Temp.	Shell: 38 deg C	Operating temperature	Shell:
	Tubes:		Tubes:
X-ray: RT-1		Heat treatment: Yes	
Code parameters: ASME Sec VIII, Div 1		Coated: No	
Manufacturer: Wells Hall Fab.		Year built: 1995	
Corrosion allowance: 3.2mm		Manway: No	

**PRESSURE SAFETY VALVE NAMEPLATE DATA**

PSV Tag #	Manufacture	Model #	Serial #	Set Pressure (kPa)	Capacity (scfm)	Service Date
<b>1225F</b>	<b>Farris</b>	<b>26GA12-120/S7</b>	<b>CE-41879-A10</b>	<b>4964</b>	<b>7081</b>	<b>08/2008</b>
CRN #	Service By	Block Valve	Location	Size	Code Stamp	
<b>OG2369.5C</b>	<b>Unified Valve</b>	<b>No</b>	<b>Outlet piping</b>	<b>1.5" X 2.5"</b>	<b>UV/NB</b>	

**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's 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

<b>External Inspection Items</b>	G	F	P	N/A	<b>Comments</b>
<b>Insulation</b> Verify sealed around manways, nozzles, no damage present, and there is no egress of moisture.	X				<b>Vessel is not insulation.</b>
<b>External Condition</b> Assess paint condition, areas peeling, record any corrosion, damage, etc (record location, size and depth of corrosion or damage)		X			<b>Paint is in fair overall condition – Surface corrosion to approx 10% of the vessel. As best effort pitting to approx 0.005” deep.</b>
<b>Leakage</b> Record any leakage at flanges, threaded joints, weep holes on repads, etc.	X				<b>No leaking detected.</b>
<b>Saddle</b> 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				<b>Saddle: bolted directly to support frame. Support frame bolted to skid floor. No visible buckling or dents. No corrosion at attachment welds to vessel. Ground wire attached to skid</b>
<b>Anchor Bolts</b> Hammer tap to ensure secure. Look for cracking in treads or signs of deformation.	X				<b>Vessel is firmly bolted to skid floor - no signs of deformation.</b>
<b>Concrete foundation</b> Check for cracks, spalling, etc.				X	<b>None.</b>
<b>Ladder / Platform</b> Describe general condition, ensure support is secure to vessel, and describe any hazards.				X	<b>None.</b>
<b>Nozzle</b> Assess paint, look for leakage, and ensure stud threads are fully engaged. Record any damage, deflection, etc. Are nozzles gusseted?	X				<b>All threads connections fully engaged. No deflection – no leaks. No gussets.</b>
<b>Gauges</b> Ensure gauges are visible, working, no leakage, and suitable for range of MAWP/ Temp.		X			<b>Gauges are visible, appears to be functional, no leaks but the pressure gauge is not suitable for range. Temp gauge: -40 to 50 deg C / 5 deg C @ gauge. Pressure gauge: 0-600 Kpa / 50 Kpa @ gauge.</b>
<b>External Piping</b> 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			<b>Well supported – no deflection – all clamps and shoes in place. Piping is painted and in fair overall condition – Surface corrosion found through out 20% of the piping – As best effort pitting to approx 0.010” deep.</b>
<b>Valving</b> Ensure no leaks are visible. Valves are properly supported and chained if necessary.	X				<b>Well supported – no leaks.</b>
<b>PSV:</b> 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.	X				<b>Located on upper shell - set at the vessels MAWP. Discharge piping is the same size as the outlet to PSV. No block valve present. Seal is intact. PSV vents to flare.</b>
<b>NDE methods</b> Was UT/ MPI done on vessel (MI coordinator to review results)	X				<b>Ultrasonic corrosion survey carried out – pipe metal thickness detected below nominal minus corrosion allowance. Thickness calculations carried out: UT point 210 (6” Elbow) – nominal thickness is 11.0mm / min thickness is 10.0mm / T min thickness is 4.0mm.</b>
<b>Recommendations or corrective actions :</b> 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) <b>Recommendations: 1. Grit blast and repaint the vessel &amp; all of the corroded inlet &amp; outlet piping.</b> <b>Summary:</b> This vessel is in good over all condition, visual external and ultrasonic thickness survey carried out-pipe metal thickness detected below nominal minus corrosion allowance. Thickness calculations carried out to ensure sufficient metal exists. Long term corrosion rate based on greatest thickness loss (head) 0.125mm per year. Retirement Date to “T”min is year 2074.  <b>Vessel is fit for service.</b>					

Inspected By: Joseph Holdstock

Date: March-15-2011.



**LSD Location**



**Site overview**



**Data plate**



**Vessel overview**



**Base anchored securely**



**Vessel overview**





External corrosion



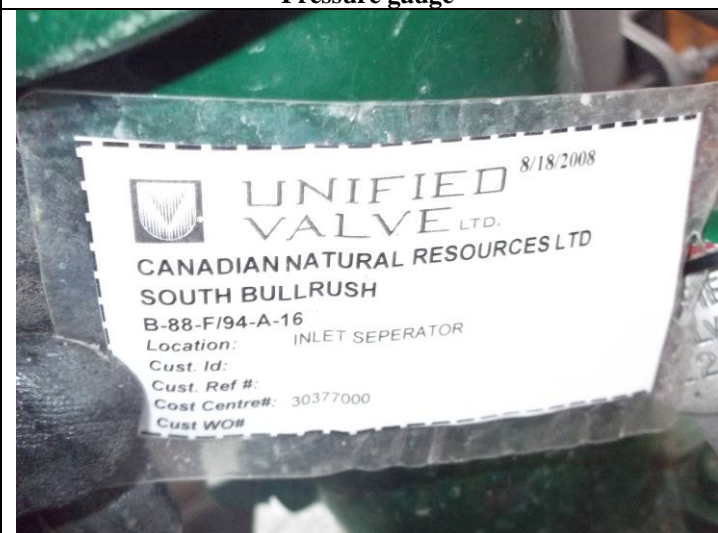
External corrosion



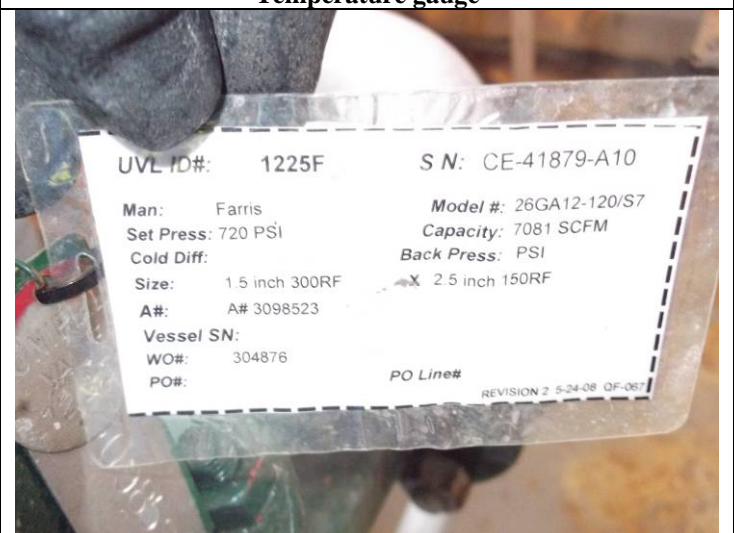
Pressure gauge



Temperature gauge



PSV service tag



PSV service tag



**PSV Data plate**