

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

**Job # 10.110056**

<b>District: Grande Prairie AB.</b>	Skid No.
<b>Facility: Knopcik Gas Gathering</b>	<b>Location (LSD): 06-02-74-11 W6M</b>
<b>Vessel Name Equipment Number: 3 Phase Separator</b>	
<b>Orientation: Vertical</b>	
<b>Status: In Service</b>	<b>Regulatory Inspection</b>

**PRESSURE VESSEL NAMEPLATE DATA**

"A" or "G" or "S" (Sask.) or BC Registration Number. <b>A0226947</b>		CRN Number: <b>H 0873.2</b>	
Vessel serial number: VS-5355		Size: 16 in. X 9 ft.	
Shell thickness: 26.0 mm		Shell material: SA 106-B	
Head thickness: 21.0 mm		Head material: SA 516-70	
Tube wall thickness:		Tube material:	
Tube diameter:		Tube length:	
Channel thickness:		Channel material:	
Design pressure	Shell: 1440 PSI	Operating pressure	Shell: 0 – 300 PSI
	Tubes:		Tubes:
Design Temp.	Shell: 100 Deg F	Operating temperature	Shell: -40 – 120 Deg F.
	Tubes:		Tubes:
X-ray: RT 4		Heat treatment: Nil	
Code parameters: ASME VIII, Div 1		Coated: no	
Manufacturer: Larsen & D'Amico		Year built: 1987	
Corrosion allowance: 1.6 mm		Manway: no	

**PRESSURE SAFETY VALVE NAMEPLATE DATA**

PSV Tag #	Manufacture	Model #	Serial #	Set Pressure (PSI)	Capacity (scfm)	Service Date
<b>1902</b>	<b>Mercer</b>	<b>9117D511714E</b>	<b>83792</b>	<b>1440 PSI</b>	<b>2927</b>	<b>05/2010</b>
CRN #	Service By	Block Valve	Location	Size	Code Stamp	
<b>OG2606.5C</b>	<b>Kings Energy</b>	<b>no</b>	<b>Upper shell</b>	<b>1"x 1"</b>	<b>UV/NB</b>	

**SERVICE CONDITIONS-INDICATE ALL THAT APPLY**

Sweet	Sour <b>X</b>	Oil	Gas <b>X</b>	Water <b>X</b>
Amine	LPG	Condensate <b>X</b>	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** \_\_\_\_\_

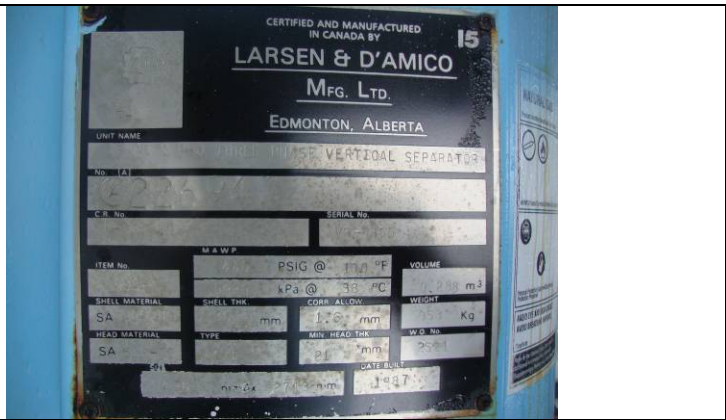
Fill out all forms as completely as possible. All information is important! Use back of sheets to record additional information or sketch if required.  
Copy of report to be filed by MIC at site, and copy sent to Chief Inspector

<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 not insulated.</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 in good overall condition – No exposed metal.</b>
<b>Leakage</b> Record any leakage at flanges, threaded joints, weep holes on repads, etc.	X				<b>No leaks observed.</b>
<b>Saddle/Skirt</b> 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				<b>Skirt: bolted directly to skid floor. No 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>Anchor bolts are securely fastened. No deformation.</b>
<b>Concrete foundation</b> Check for cracks, spalling, etc.				X	
<b>Ladder / Platform</b> Describe general condition, ensure support is secure to vessel, describe any hazards.				X	
<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>Stud threads are fully engaged to nuts – no short bolts. No damage or deflections – no leaks. Nozzles are not gusseted.</b>
<b>Gauges</b> Ensure gauges are visible, working, no leakage, and suitable for range of MAWP/ Temp.		X			<b>Clear and clean – no leakage. Pressure gauge not suitable for operational range of vessel. Pressure gauge 0 – 300 PSI/ temperature gauge -40 – 120 Deg F.</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>Piping is well supported, no deflection, all clamps and supports are in place. Paint in good condition – no exposed metal.</b>
<b>Valve:</b> Ensure no leaks are visible. Valves are properly supported and chained if necessary.	X				<b>Valves are supported properly – no leaks.</b>
<b>PSV</b> Ensure PSV is set at pressure at or below that of vessel.	X				<b>Location: Upper shell of vessel – set at MAWP of vessel. No block valve between vessel and PSV. Discharge piping is same size as valve out let. Seal in place.</b>
<b>NDE methods</b> Was UT/ MPI done on vessel (MI coordinator to review results)	X				<b>Ultrasonic thickness survey carried out – no metal thickness detected below nominal.</b>
<p><b>Recommendations or corrective actions : Vessel is Fit for Service or describe corrective actions required)</b>  (MIC to review corrective actions with Operations, discuss with Chief Inspector where necessary, and get remedial action implemented)  <b>Recommendations: Replace pressure gauge to operational range of vessel.</b>  <b>Summary:</b> Vessel is in overall good condition, visual external inspection and ultrasonic corrosion survey performed – no metal thickness detected below nominal.  Long term corrosion rate based on greatest thickness loss – no corrosion rate to assess.</p> <p><b>Vessel is fit for service.</b></p>					

Inspected By: Gerry Avery

Date: March 4, 2011

Photo Table



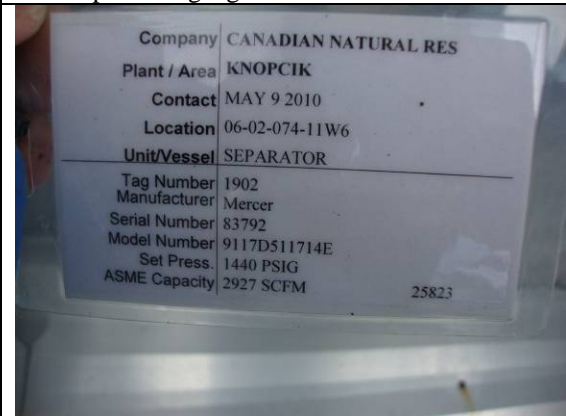
LSD

Vessel data plate



Vessel pressure gauge

Vessel temperature gauge



PSV data tag

Vessel PSV



Vessel overview