

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

**Job# 10.118768**

District: <b>Grande Prairie, AB</b>	Skid No.
Facility: <b>Knopcik Compressor Station</b>	Location (LSD): <b>11-28-74-10-W6M</b>
Vessel Name Equipment Number: <b>Inlet Separator</b>	
Orientation: <b>Horizontal</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>A0433615</b>		CRN Number: <b>N 7408.2</b>	
Vessel serial number: V2699A		Size: 48 in x 24 ft	
Shell thickness: 63.5 mm		Shell material: SA 516 70N	
Head thickness: 61.6 mm		Head material: SA 516 70N	
Tube wall thickness:		Tube material:	
Tube diameter:		Tube length:	
Channel thickness:		Channel material:	
Design pressure	Shell: 1435 PSI	Operating pressure	Shell: 0 to 1400 kPa
	Tubes:		Tubes:
Design Temp.	Shell: 130 deg F	Operating temperature	Shell:
	Tubes:		Tubes:
X-ray: RT 1		Heat treatment: Yes	
Code parameters: ASME VIII Div 1		Coated: No	
Manufacturer: Opsco		Year built: 1997	
Corrosion allowance: 3.2 mm		Manway: Yes	

**PRESSURE SAFETY VALVE NAMEPLATE DATA**

PSV Tag #	Manufacture / Model / Serial	Set Pressure (Kpa / PSI)	Capacity (Scfm / usgpm)	Size	Block Valve	Location	Service by / Date
N/S	Crosby / JOS-45-A / SE 15739-2	1435 PSI	8745 scfm	1.5 in x 2 in	No	Top Shell	King's 05/22/2014

**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 Canadian Natural Resources Limited'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

External Inspection Items	G	F	P	N/A	Comments
<b>Insulation</b> Verify sealed around manways, nozzles, no damage present, and there is no egress of moisture.	X				<b>Vessel is 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 is in good condition – no oxidization or corrosion.</b>
<b>Leakage</b> Record any leakage at flanges, threaded joints, weep holes on repads, etc.	X				<b>No leaks found.</b>
<b>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>Saddles: No distortion or buckles – no corrosion at attachment welds to shell – no leaks.</b> <b>Vessel has ground cable attached to saddle and skid.</b>
<b>Anchor Bolts</b> Hammer tap to ensure secure. Look for cracking in treads or signs of deformation.	X				<b>Firmly bolted to skid deck.</b>
<b>Concrete foundation</b> Check for cracks, spalling, etc.				X	<b>No concrete.</b>
<b>Ladder / Platform</b> Describe general condition, ensure support is secure to vessel, 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 studs are fully engaged to nuts – no short bolts.</b> <b>Nozzles are not gusseted.</b> <b>Paint in good condition – no exposed metal.</b>
<b>Gauges</b> Ensure gauges are visible, working, no leakage, and suitable for range of MAWP/ Temp.	X				<b>Pressure gauge attached.</b> <b>Pressure gauge: 0 to 1000 PSI.</b> <b>Temp gauge: 0 to 250 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, all clamps, supports and shoes are in place.</b> <b>No structural overloads or deflections noted.</b> <b>Most of the immediate piping is attached – to and from skid is not tied in yet.</b>
<b>Valving</b> Ensure no leaks are visible. Valves are properly supported and chained if necessary.	X				<b>Valves are well supported – no evidence of leaking.</b>
<b>PSV</b> Ensure PSV is set at pressure at or below that of vessel.	X				<b>Located on top shell – set at MAWP of vessel.</b> <b>Discharge piping is same size as valve outlet.</b> <b>Valve is properly supported and routed. No block valve.</b> <b>PSV seal in place.</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:</b> <b>UT point 190 (6” Elbow) – nominal thickness is 11.0mm / min thickness is 9.2mm / T min thickness is 5.9mm.</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)</p> <p><b>Recommendations:</b> 1. No Recommendation at this time.</p> <p><b>Summary:</b> Vessel is in overall good condition, visual external inspection and ultrasonic corrosion survey carried out – pipe metal thickness detected below nominal minus corrosion allowance. Thickness calculations carried out to ensure sufficient metal exists for safe operation.</p> <p><b>Corrosion rate based on greatest thickness loss (nozzle) 0.025mm per year. Retirement Date to “T”min is year 2245.</b></p> <p><b>Vessel is Fit for Service</b></p>					

 API 57166  
Inspected By: Tariq Malik

Date: June 27, 2017

Photo Table



LSD

Data plate



Vessel overview

Anchor bolts



Pressure gauge

Temperature gauge



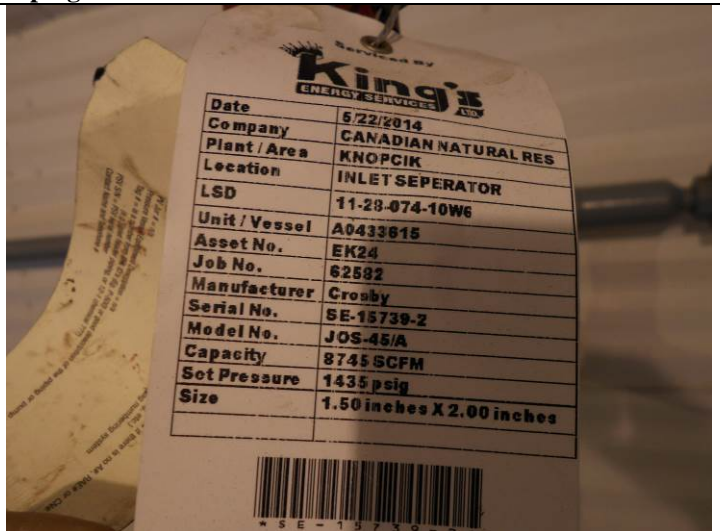
Sight glass

Boot



Man way access

Piping



PSV

PSV service tag