

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

Job 10.115180

District: Grande Prairie, AB	Skid No.
Facility: Wapiti Compressor	Location (LSD): 07-01-69-09 W6M
Vessel Name Equipment Number: Inlet Separator	
Orientation: Horizontal	
Status: In Service	Regulatory Inspection

PRESSURE VESSEL NAMEPLATE DATA

"A" or "G" or "S" (Sask.) or BC Registration Number. A0517032		CRN Number: R 3592.21	
Vessel serial number: HS-12510		Size: 52 in x 16 ft	
Shell thickness: 50.8 mm		Shell material: SA 516-70 N	
Head thickness: 47.8 mm		Head material: SA 516-70 N	
Tube wall thickness:		Tube material:	
Tube diameter:		Tube length:	
Channel thickness:		Channel material:	
Design pressure	Shell: 9929 kPa (1440 psi)	Operating pressure	Shell:
	Tubes:		Tubes:
Design Temp.	Shell: 54°C	Operating temperature	Shell:
	Tubes:		Tubes:
X-ray: RT 1		Heat treatment: HT	
Code parameters: ASME VIII, Div 1		Coated: N/S	
Manufacturer: Larsen & D'Amico Manufacturing Ltd.		Year built: 2005	
Corrosion allowance: 3.2 mm		Manway: Yes	

PRESSURE SAFETY VALVE NAMEPLATE DATA

PSV Tag #	Manufacture / Model / Serial	Set Pressure (PSI)	Capacity (scfm)	Size	Block Valve	Location	Service by / Date
21059G	Farris // 26 JA13-120 // 4741120-1-A10	740	18640	2.5 x 4	No	Top shell	United 03/2006

SERVICE CONDITIONS-INDICATE ALL THAT APPLY

Sweet <input checked="" type="checkbox"/>	Sour	Oil	Gas <input checked="" type="checkbox"/>	Water <input checked="" type="checkbox"/>
Amine	LPG	Condensate <input checked="" type="checkbox"/>	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	Vessel is not insulated.
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 – no exposed metal. No corrosion. No damage.
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				Vessel saddle is bolted to skid floor. No buckling or dents. No corrosion at attachment welds to vessel. Ground wire attached to compressor skid.
Anchor Bolts Hammer tap to ensure secure. Look for cracking in treads or signs of deformation.	X				Secure.
Concrete foundation Check for cracks, spalling, etc.				X	Steel
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				Stud threads are fully engaged to nuts. Threaded nozzles are fully engaged No leaks observed. No damage or deflections. No gussets on nozzles
Gauges Ensure gauges are visible, working, no leakage, and suitable for range of MAWP/Temp.	X				Pressure gauge: 0 to 1500 psi. Within range of MAWP. Temp gauge: -40 to 70°C. Within range of MAWT Liquid sight glass attached. Clean and clear. No leaks.
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. 2 missing pipe clamps – see photos below. No structural overloads or deflections. Paint chipped to 5% exposed metal. No corrosion.
Valving Ensure no leaks are visible. Valves are properly supported and chained if necessary.	X				Well supported, no leaks.
PSV Ensure PSV is set at pressure at or below that of vessel. Discharge piping is same size as valve outlet and is properly supported and routed. Are psv seals in place? Ensure no block valves between psv and vessel, or if there are that they are locked/sealed open.	X				Located on top shell – set below MAWP of vessel. Discharge piping is same size as valve outlet. PSV seal in place. No block valve between vessel and PSV inlet.

<p>NDE methods Was UT/ MPI done on vessel (MI coordinator to review results)</p>	X			<p>Ultrasonic corrosion survey carried out pipe metal thickness detected below nominal minus corrosion allowance. Thickness calculations carried out: UT point 460 (2" elbow) – nominal thickness is 5.5mm / min thickness is 4.3mm / T min thickness is 2.1mm. UT point 3" elbow – nominal thickness is 7.6mm / min thickness is 6.2mm / T min thickness is 3.1mm.</p>
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Other

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. Service PSV – last serviced in 2006. 2 Replace missing pipe clamp.
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 IPV #0539

Date: December 17, 2014



LSD

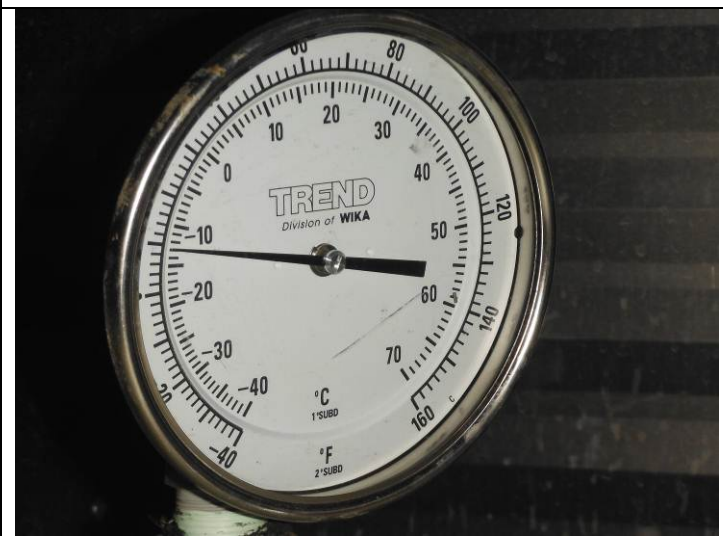
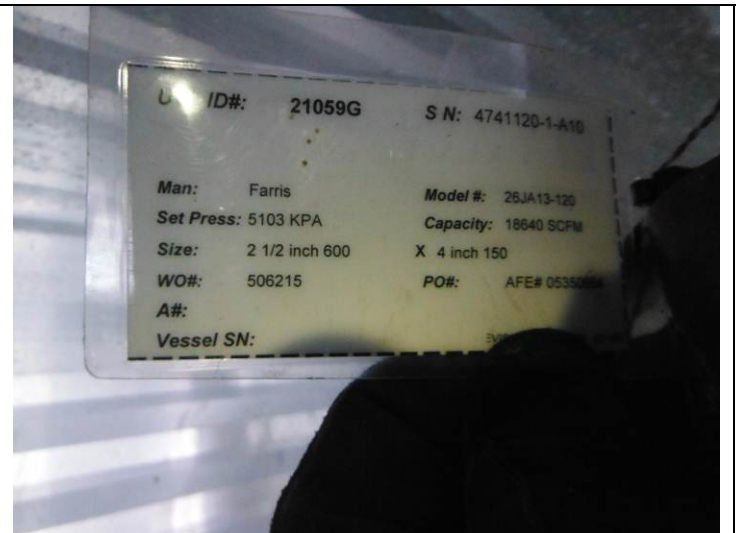


Data plate



Overview





Temperature gauge



Pressure gauge



Missing pipe clamp



Missing pipe clamp