

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

RTD 10.116029

District: Fort St. John, BC		Skid No.					
Facility: Flatrock Compressor Station		Location (LSD): 15-20-85-17 W6M					
Vessel Name & Equipment Number: Flare Knockout							
Orientation: Horizontal							
Status: In Service		Regulatory Inspection					
PRESSURE VESSEL NAMEPLATE DATA							
"A" or "G" or "S" (Sask.) or BC Registration Number. C45029		CRN Number Non Code					
Vessel serial number: SWT-0175		Size: 48 in x 10 ft					
Shell thickness: 0.375 in		Shell material: SA 516 70					
Head thickness: 0.375 in		Head material: SA 516 70					
Tube wall thickness:		Tube material:					
Tube diameter:		Tube length:					
Channel thickness:		Channel material:					
MAWP	Shell: 14.9 PSI	Operating pressure	Shell:				
	Tubes:		Tubes:				
Design Temp.	Shell: 100 ° F	Operating temperature	Shell:				
	Tubes:		Tubes:				
X-ray: Not Stated		Heat treatment: Not Stated					
Code parameters: ASME Section VIII Div 1		Joint efficiency (if on nameplate):					
Manufacturer: Swatech Industries Ltd.		Year built: 2002					
Corrosion allowance: Not Stated		Manway: Yes					
PRESSURE SAFETY VALVE NAMEPLATE DATA							
Tag Number(s)	Manufacturer /Model / Serial# and Code Stamp	Set Pressure (PSI)	Capacity (Scfm)	Size	Block Valve	Location	Serv by / Date
No PSV							
SERVICE CONDITONS-INDICATE ALL THAT APPLY							
Sweet	Sour X	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 Canadian Natural Resources Limited Owner-User Inspection Program)

Reports reviewed and accepted by:

Mechanical Integrity Coordinator _____ **Date** _____

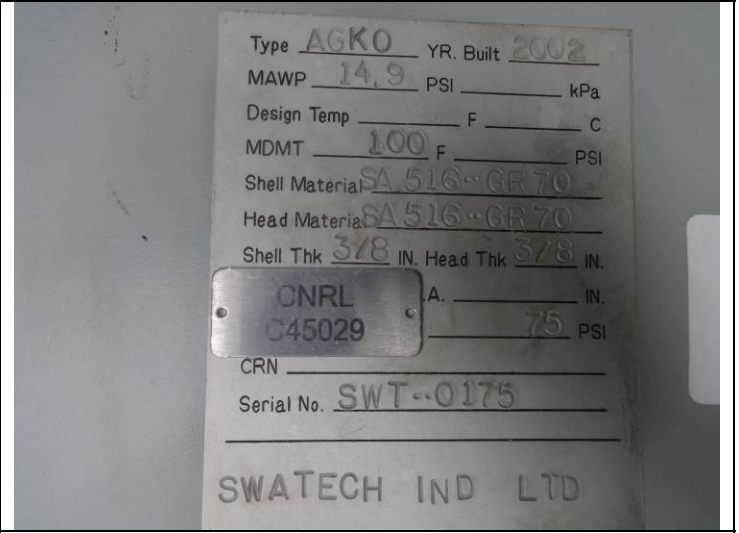
Fill out all forms as completely as possible. All information is important! Use back of sheets to record additional information or sketch if required.
Copy of report to be filed by MIC at site, and copy sent to Chief Inspector

External Inspection Items	G	F	P	N/A	Comments
Insulation Verify sealed around manways, nozzles, no damage present, and there is no egress of moisture. Are straps secured?				X	
External Condition Assess paint condition, areas peeling, record any corrosion, damage, distortion etc (record location, size and depth of corrosion or damage)	X				Paint is in good condition. Surface corrosion present on bottom shell, no pitting. Heat damage to paint on east facing head due to close proximity to cata-dyne heater.
Leakage Record any leakage at flanges, threaded joints, weep holes on repads, etc.	X				No leaks observed.
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. Is ground wire attached?	X				Saddle: Paint is in good condition. No exposed metal – no corrosion. No buckling or dents present. No sign of leakage at attachment welds. Ground wire attached to skid.
Anchor Bolts Hammer tap to ensure secure. Look for corrosion, cracking in threads or signs of deformation.	X				Vessel is firmly welded to skid.
Concrete foundation Check for cracks, spalling, 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? Inspect gussets for cracking.	X				Stud threads are fully engaged to nuts – no short bolts. No damage or deflections observed – no leaks. No gussets.
Gauges Ensure gauges are visible, working, no leakage, and suitable for range of MAWP/ Temp.				X	No gauges.
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				All piping is well supported; all clamps in place. No structural overloads or deflections noted. Paint is in good condition. No exposed metal – no corrosion.
Valving Ensure no leaks are visible. Valves are properly supported and chained if necessary.	X				Well supported – no leaking.
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 is that they are locked/sealed open.				X	No PSV.
NDE methods Was UT/ MPI done on vessel (MI coordinator to review results)	X				Ultrasonic corrosion survey carried out – nozzle metal thickness detected below nominal minus corrosion allowance. Thickness calculations carried out: UT point 1705(6" nozzle) – nominal thickness is 7.1mm / min thickness is 5.0mm / T min thickness is 1.6mm
<p>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)</p> <p>Recommendations: Grit blast and repaint bottom shell of vessel where corrosion present.</p> <p>Summary: Vessel is in overall good condition, visual external inspection and ultrasonic corrosion survey performed - nozzle metal thickness detected below nominal minus corrosion allowance. Thickness calculations carried out to ensure sufficient metal exists for safe operation.</p> <p>Corrosion rate based on greatest thickness loss (nozzle) 0.400mm per year. Retirement Date to "T"min is year 2024.</p> <p>Vessel is fit for service.</p>					

Photo Table



LSD Sign



Vessel Data Plate



Vessel Overview



Vessel Overview



Saddle



Heat damage to paint on east facing head



Corrosion bottom shell



Overview