

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

Job #4016571

District: Fort St. John, B.C	Skid No. 16539
Facility: Gutah Compressor Station	Location (LSD): a-98-L /94-H-10
Vessel Name Equipment Number: Flare Knockout Drum	
Orientation: Horizontal	
Status: In Service	Regulatory Inspection

PRESSURE VESSEL NAMEPLATE DATA

"A" or "G" or "S" (Sask.) or BC Registration Number. A0535758		CRN Number: T 5422.21	
Vessel serial number: 05.328KO		Size: 48 in x 96 in	
Shell thickness: 9.5 mm		Shell material: SA 516 70N	
Head thickness: 7.9 mm		Head material: SA 516 70N	
Tube wall thickness:		Tube material:	
Tube diameter:		Tube length:	
Channel thickness:		Channel material:	
Design pressure	Shell: 345 kPa	Operating pressure	Shell:
	Tubes:		Tubes:
Design Temp.	Shell: 54°C	Operating temperature	Shell:
	Tubes:		Tubes:
X-ray: RT-4		Heat treatment: Nil	
Code parameters: ASME VIII Div. 1		Coated: Nil	
Manufacturer: Orban Industries		Year built: 2006	
Corrosion allowance: 1.6 mm		Manway: Yes	

PRESSURE SAFETY VALVE NAMEPLATE DATA

PSV Tag #	Manufacturer /Model / Serial number	Set Pressure (PSI / kPa)	Capacity (Scfm/ usgpm)	Size	Block Valve	Location	Serv by / Date
No PSV required							

SERVICE CONDITIONS-INDICATE ALL THAT APPLY

Sweet X	Sour	Oil X	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 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.				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 corrosion or damage
Leakage Record any leakage at flanges, threaded joints, weep holes on repads, etc.	X				No leakage.
Saddle/Skirt 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				Saddle: No buckling or dents. No corrosion at saddle to shell area – no leaks. Ground wire attached to skid
Anchor Bolts Hammer tap to ensure secure. Look for cracking in treads or signs of deformation.	X				All bolts in place – secure – no cracking or deformation noted
Concrete foundation Check for cracks, spalling, etc.				X	
Ladder / Platform Describe general condition, ensure support is secure to vessel, describe any hazards.				X	No ladder or platform
Nozzle Assess paint, look for leakage, and ensure stud threads are fully engaged. Record any damage, deflection, etc. Are nozzles gusseted?	X				Threaded and flanged connections fully engaged. No deflection – no leaks. No gussets.
Gauges Ensure gauges are visible, working, no leakage, and suitable for range of MAWP/ Temp.	X				0 – 1380 kPa pressure gauge - working, no leakage, and suitable for range of MAWP -20 – 120 deg C temp gauge - working, no leakage, and suitable for range of temp
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; no deflection, all clamps and supports are in place. Paint is in good condition – no corrosion.
Valving Ensure no leaks are visible. Valves are properly supported and chained if necessary.	X				Well supported – no visible leaks.
PSV Ensure PSV is set at pressure at or below that of vessel.				X	No PSV required – vessel vents to atmosphere
NDE methods Was UT/ MPI done on vessel (MI coordinator to review results)	X				Ultrasonic corrosion survey carried out – no metal thickness detected below nominal minus corrosion allowance.
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)					
See internal portion of report for summary and recommendations.					

Inspected By: Carey Menzies API 510 47162 
IPV 000878. CGSB Level II MT/UT.

Date: March 6, 2020

Internal Inspection Items	G	F	P	N/A	Comments
Coating Assess coating. Describe area coated, general condition of coating.				X	Vessel is not coated
Anodes. How many, type, condition. % consumed. Are they being replaced?				X	No anodes
Internal Piping Is there any? If so, carbon or stainless steel. Describe condition, dents, corrosion, erosion, etc. Ensure supports are secure and any bolts are suitable for future use.	X				2 inch heat medium piping located in vessel – good condition with no dents or corrosion All supports are secure Mounting hardware in good condition
Trays How many? Type of material. Are valves in place? Check for erosion/ corrosion; wear on tray valve legs. Cleanliness?				X	No trays
Baffles, deflector plates, etc. If present, describe condition. Look closely at welds attached to vessel wall.	X				Inlet deflector located on the top shell – good condition – welds in good condition with no cracking noted
West Head Note all corrosion, erosion or mechanical damage. (If vessel is horizontal identify direction of this head)	X				No corrosion or erosion – no mechanical damage Head is in good condition
East Head Note all corrosion, erosion or mechanical damage. (If vessel is horizontal identify direction of this head)	X				No corrosion or erosion – no mechanical damage Head is in good condition
Shell Sections Record number of shell sections. Record location, size and depth of all erosion, corrosion or mechanical damage. Describe general condition. If any corrosion greater than corrosion allowance is observed in either shell or head, discuss with Chief Inspector before closing vessel.	X				1 shell section No corrosion or erosion – no mechanical damage Shell is in good condition
Demister pad Is it in place? Is it clean? If any corrosion is apparent in vessel, lift pad and check top head for corrosion.				X	No demister pad
Welds Inspect all welds, including attachment welds. Record all service-related damages and if there is any discuss with Chief Inspector before closing.	X				All welds in good condition – no service related damage
Repairs Required. If yes, ensure procedure and copy of AB 40 is on file, and one sent to local ABSA, and Chief Inspector	X				No repairs required
NDE Was any NDE done. (MI coordinator to review results)	X				MT examination performed on nozzles and T intersections – no cracking detected
Other					
<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) Recommendations: No Recommendations at this time. Summary: This vessel is in good condition, visual external, internal and ultrasonic thickness inspection carried out – no metal thickness detected below nominal minus corrosion allowance. Corrosion rate based on greatest thickness loss (head) 0.015mm per year. Retirement Date to “T” min is year 2449. Vessel is fit for service.</p>					

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LSD



Data plate



Vessel overview



Mounting



Mounting



Pressure gauge



Temp gauge



Manway

INTERNAL PHOTOS



Bottom head at the inlet



Head at the inlet



Inlet deflector



Upper shell



Upper shell



Bottom shell view



Side shell



Side shell



Coil



Coil nozzles



Coil support to shell weld



Side shell



Outlet nozzle

