

**Canadian Natural Resources Ltd.
GENERAL PRESSURE VESSEL INFORMATION**

Job # 10.113812

District: Karr Creek	Area: Oil Treating.
Facility: Sturgeon Lake Battery	LSD: 10-29-71-23-W5
Vessel Name Equipment Number: Oil Treater	
Orientation: Horizontal	
Status: Not operating.	Regulatory Inspection

TANK NAMEPLATE DATA

"A" or "G" or "S" (Sask.) or BC Registration Number. 2648783		CRN Number: H-8265.2	
Vessel serial number: L-8-322		Size: 64 in x 20 ft.	
Shell thickness: .3125 in.		Shell material: SA 516-70	
Head thickness: .593 in / .391 in.		Head material: SA 516-70	
Tube wall thickness: N/A		Tube material: N/A	
Tube diameter: N/A		Tube length: N/A	
Channel thickness: N/A		Channel material: N/A	
Design pressure	Shell: 50 psi	Operating pressure	Shell:
	Tubes:		Tubes:
Design Temp.	Shell: 200 F	Operating temperature	Shell:
	Tubes:		Tubes:
X-ray: RT-1		Heat treatment: Yes	
Code parameters: ASME VIII /Div. 1		Coated: Nil	
Manufacturer: Natco Canada		Year built: 1990	
Corrosion allowance: .125 in.		Manway: Yes	

PRESSURE SAFETY VALVE NAMEPLATE DATA

PSV Tag #	Manufacture	Model #	Serial #	Set Pressure (psi)	Capacity (scfm)	Service Date
N-13	Crosby	2J3 JOS-15-A	SE-4785-1	50	1594	08/28/2007
CRN #	Service By	Block Valve	Location	Size	Code Stamp	
-	United Valve.	Nil	Top shell	2 in x 3 in.	UV/NB	-

SERVICE CONDITIONS-INDICATE ALL THAT APPLY

Sweet	<u>Sour</u>	<u>Oil</u>	<u>Gas</u>	Water
Amine	LPG	<u>Condensate</u>	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

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 throughout vessel
Leakage Record any leakage at flanges, threaded joints, weep holes on repads, etc.	x				No evidence of leakage noted.
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				Paint in good condition. No corrosion or mechanical damage. No leakage at attachment welds. Ground wire attached.
Anchor Bolts Hammer tap to ensure secure. Look for cracking in treads or signs of deformation.	x				Secure. No cracking in treads or signs of deformation.
Concrete foundation Check for cracks, spalling, etc.	x				No cracks or spalling.
Ladder / Platform Describe general condition, ensure support is secure to vessel, describe any hazards.				x	No platform
Nozzle Assess paint, look for leakage, and ensure stud threads are fully engaged. Record any damage, deflection, etc. Are nozzles gusseted?	x				No leakage, stud threads are fully engaged. No damage, deflection, etc. No gussets.
Gauges Ensure gauges are visible, working, no leakage, and suitable for range of MAWP/ Temp.	x				All gauges within parameters of pressure and temperature stated on the data plate.
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. All clamps, supports, shoes, etc. in place. No evidence of structural overload, deflection, etc.
Valving Ensure no leaks are visible. Valves are properly supported and chained if necessary.			x		No leaks or evidence visible although vessel is not operating at this time.
PSV Ensure PSV is set at pressure at or below that of vessel.	x				PSV is not installed at this time.
NDE methods Was UT/ MPI done on vessel (MI coordinator to review results)	x				MT performed on the fire tubes, no cracking detected.
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) Service the PSV prior to operating vessel					

Inspected By Carey Menzies

Date: October 7, 2013

Internal Inspection Items	G	F	P	N/A	Comments
Coating Assess coating. Describe area coated, general condition of coating.				x	No coating
Anodes. How many, type, condition. % consumed. Are they being replaced?			x		4 anodes. 2 are completely consumed.
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	No internal piping.
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				Baffles at the oil end, mounted securely and in good condition.
Shell: Note all corrosion, erosion or mechanical damage.	x				No corrosion or mechanical damage.
Head Note all corrosion, erosion or mechanical damage. (x				No corrosion or mechanical damage.
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				2 shell sections. No corrosion or damage. Good condition with deposits present. Shell shows no damage below deposits.
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				In place, clean. No corrosion present.
Welds Inspect all welds, including attachment welds. Record all service-related damages and if there is any discuss with Chief Inspector before closing.	x				No service-related damages.
Repairs Required. If yes, ensure procedure and copy of is sent to Chief Inspector					No repairs required.
NDE Was any NDE done. (MI coordinator to review results)	x				Nil.
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: Replace all anodes. Summary: Vessel is fit for service.					

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Data plate.



Treater overview.



Bottom shell at oil end.



Baffles at the top shell at oil end.



Float at the oil end



Float at the oil end.



100% Consumed anode at the oil end of Treater.



Shell at oil end of Treater.



View of the bottom shell emulsion end.



View of the bottom shell emulsion end.



Attachment hardware intact.



30% consumed anode at emulsion end.



Demister



100% Consumed anode at the emulsion end of Treater.



View of the scaling on the fire tube.



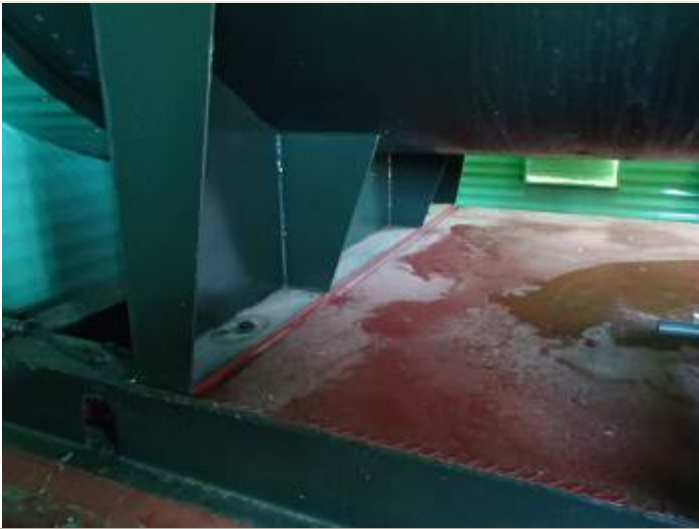
View of the scaling on the fire tube.



View of the scaling on the fire tube.



View of the scaling on the fire tube.



Vessel mounting.



Vessel grounding



Temp gauge.



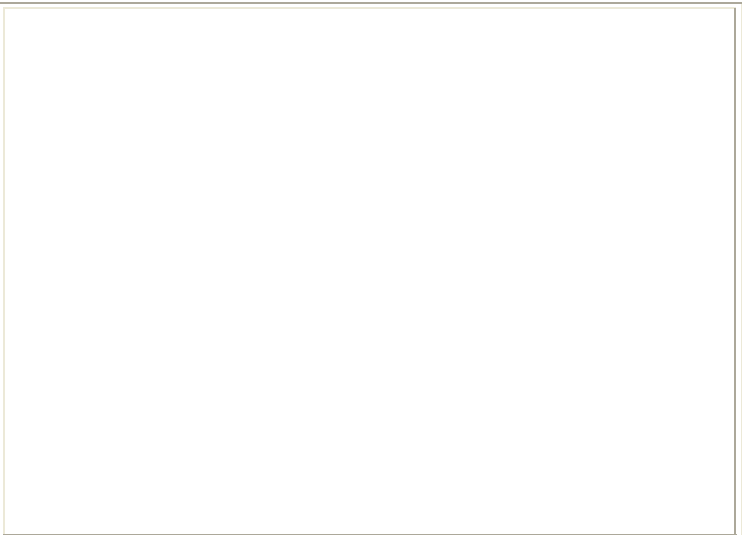
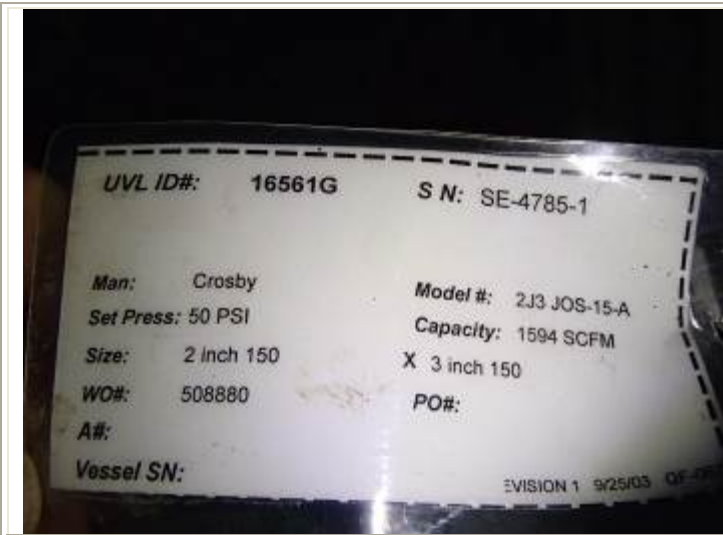
Pressure gauge.



View of the PSV.



PSV service tag.



PSV service tag

No Photo.