

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

**Job # 05.001952**

District: <b>Ft St John B.C.</b>		Skid No.				
Facility: <b>West Blueberry Battery</b>		Location (LSD): <b>12 – 29 – 88 – 25 – W6M</b>				
Vessel Name & Equipment Number: <b>Heat Medium Heater</b>						
Orientation: <b>Horizontal</b>						
Status: <b>Operating</b>		<b>Regulatory Inspection</b>				
<b>PRESSURE VESSEL NAMEPLATE DATA</b>						
Registration Number <b>A 403525</b>		CRN Number <b>N 5217.21</b>				
Vessel serial number: <b>C 756A.0B</b>		Size: <b>48 in. x 16 ft. S/S</b>				
Shell thickness: <b>9.5 mm</b>		Shell material: <b>SA 36</b>				
Head thickness: <b>9.5 mm</b>		Head material: <b>SA 36</b>				
Tube wall thickness:		Tube material:				
Tube diameter:		Tube length:				
Channel thickness:		Channel material:				
Design pressure	Shell: <b>21609 Kpa</b>	Operating pressure	Shell: <b>0 – 30000 Kpa</b>			
	Tubes:		Tubes:			
Design Temp.	Shell: <b>93 deg C</b>	Operating temperature	Shell:			
	Tubes:		Tubes:			
X-ray: <b>RT 1</b>		Heat treatment: <b>HT</b>				
Code parameters: <b>ASME B31.3</b>		Coated: <b>No</b>				
Manufacturer: <b>Rushton</b>		Built: <b>1998</b>				
Corrosion allowance:		Manway: <b>No</b>				
<b>PRESSURE SAFETY VALVE NAMEPLATE DATA</b>						
<b>PSV Tag no.</b>	Manufacture	Model	Serial number	Set Pressure	Capacity	Size
<b>Service By</b>	Date	Block Valve	CRN number	Code Stamp	Location	
<b>SERVICE CONDITONS-INDICATE ALL THAT APPLY</b>						
Sweet	Sour X	Oil X	Gas X	Water X		
Amine	LPG	Condensate	Air	Glycol X		
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** \_\_\_\_\_

<b>External Inspection Items</b>	<b>G</b>	<b>F</b>	<b>P</b>	<b>N/A</b>	<b>Comments</b>
<b>Insulation:</b> Verify sealed around manways, nozzles, no damage present, and there is no egress of moisture.	X				<b>Good condition, no open or torn cladding – no wet insulation.</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>Good, no loose or missing paint. No exposed metal</b>
<b>Leakage:</b> Record any leakage at flanges, threaded joints, weep holes on repads, etc.	X				<b>No leaks observed</b>
<b>Saddles:</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>Saddle: bolted directly to skid frame No buckling or dents No corrosion at attachment welds to vessel. Paint in good condition – no expose metal  Ground wire attached to vessel</b>
<b>Anchor Bolts:</b> Hammer tap to ensure secure. Look for cracking in treads or signs of deformation.	X				<b>Securely bolted. – no deformation</b>
<b>Concrete foundation:</b> check for cracks, spalling, etc.				X	<b>Skid package sits level on pilings.</b>
<b>Ladder / Platform</b> Describe general condition, ensure support is secure to vessel, describe any hazards.				X	<b>No ladder.</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>Threaded nozzles are fully engaged – no leaks – no damage or deflections Nozzles are not gusseted.</b>
<b>Gauges</b> Ensure gauges are visible, working, no leakage, and suitable for range of MAWP/ Temp.	X				<b>Clear and clean – no leakage Suitable for range of MAWP of vessel Pressure gauge 0 – 5000 PSI</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>Well supported – no deflection.</b>
<b>Valving:</b> Ensure no leaks are visible. Valves are properly supported and chained if necessary.	X				<b>No leaks detected.</b>
<b>PSV</b> Ensure PSV is set at pressure at or below that of vessel. Discharge piping is same size as inlet to valve and is properly supported and routed. Ensure no block valves between psv and vessel or if there are they are locked open.				X	<b>No PSV protection for this vessel.</b>
<b>NDE methods</b> Was UT/ MPI done on vessel (MI coordinator to review results)	X				<b>None</b>
<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) <b>Recommendations:</b> No recommendations at this time. <b>Summary:</b> This line heater is in good overall condition, external inspection <b>Line Heater is fit for service.</b>					

<b>Internal Inspection Items</b>	<b>G</b>	<b>F</b>	<b>P</b>	<b>N/A</b>	<b>Comments</b>
<b>Coating</b> Assess coating. Describe area coated, general condition of coating.	X				None.
<b>Anodes.</b> How many, type, condition. % consumed. Are they being replaced?				X	None
<b>Internal Piping</b> 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	None.
<b>Trays</b> How many? Type of material. Are valves in place? Check for erosion/ corrosion; wear on tray valve legs. Cleanliness?				X	None.
<b>Baffles, deflector plates, etc.</b> If present, describe condition. Look closely at welds attached to vessel wall.	X				None.
<b>West Head</b> Note all corrosion, erosion or mechanical damage. (If vessel is horizontal identify direction of this head)	X				Little to no mechanical damage, corrosion or erosion was found. Good overall condition.
<b>East Head</b> Note all corrosion, erosion or mechanical damage. (If vessel is horizontal identify direction of this head)	X				Little to no mechanical damage, corrosion or erosion was found. Good overall condition.
<b>Shell Sections</b> 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				One shell sections were found to form the reboiler. Good overall condition. Little to no mechanical damage, corrosion or erosion was found inside.
<b>Demister pad</b> Is it in place? Is it clean? If any corrosion is apparent in vessel, lift pad and check top head for corrosion.				X	None.
<b>Welds</b> Inspect all welds, including attachment welds. Record all service-related damages and if there is any discuss with Chief Inspector before closing.	X				All visible welds appear to be in good overall condition.
<b>Repairs Required.</b> If yes, ensure procedure and copy of AB 40 is on file, and one sent to local ABSA, and Chief Inspector				X	None.
<b>NDE</b> Was any NDE done. (MI coordinator to review results)	X				None.
<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)  <b>Recommendations:</b> 1. None at this time.  <b>Summary:</b> This vessel is in good over all condition, visual internal / external carried out.  <b>Reboiler is fit for service.</b></p>					
<b>Inspected By:</b> Joe Holdstock					<b>Date:</b> June 21, 2008



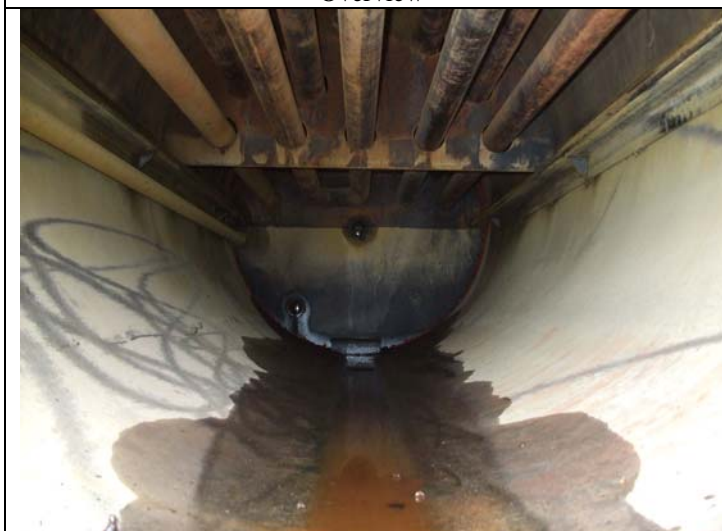
Data plate



Overview



Overview



Internal overview



Heater coil overview