

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

**Job # 10.112596**

District: <b>Fort St. John BC.</b>	Skid No.
Facility: <b>Cypress Gas Plant</b>	Location (LSD): <b>b-99-C/94-B-16</b>
Vessel Name Equipment Number: <b>Inlet Separator</b>	
Orientation: <b>Horizontal</b>	
Status: <b>In Service</b>	<b>Regulatory Inspection</b>

**PRESSURE VESSEL NAMEPLATE DATA**

"A" or "G" or "S" (Sask.) or BC Registration Number. <b>A2564852</b>		CRN Number: <b>H 7272.21</b>	
Vessel serial number: TW 89J022		Size: 54 in. x 12 ft.	
Shell thickness: 57.0 mm		Shell material: SA 516-70N	
Head thickness: 56.4 mm		Head material: SA 516-70N	
Tube wall thickness:		Tube material:	
Tube diameter:		Tube length:	
Channel thickness:		Channel material:	
Design pressure	Shell: 1350 PSI	Operating pressure	Shell:
	Tubes:		Tubes:
Design Temp.	Shell: 151 Deg F	Operating temperature	Shell: 0 – 200 Deg F
	Tubes:		Tubes:
X-ray: RT 1		Heat treatment: HT	
Code parameters: ASME VIII, Div 1		Coated: no	
Manufacturer: Tyson's Welding		Year built: 1989	
Corrosion allowance: 3.2mm		Manway: yes	

**PRESSURE SAFETY VALVE NAMEPLATE DATA**

PSV Tag #	Manufacture	Model #	Serial #	Set Pressure	Capacity	Service Date
<b>14836F</b>	<b>Consolidated</b>	<b>1912JC-2-XSG11</b>	<b>TH70200</b>	<b>1350 PSI</b>	<b>35044</b>	<b>07/09</b>
CRN #	Service By	Block Valve	Location	Size	Code Stamp	
<b>O1832.52</b>	<b>Unified</b>	<b>yes</b>	<b>outlet piping</b>	<b>2.5"x4"</b>	<b>UV</b>	

**SERVICE CONDITIONS-INDICATE ALL THAT APPLY**

Sweet	Sour X	Oil	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 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

<b>External Inspection Items</b>	G	F	P	N/A	<b>Comments</b>
<b>Insulation</b> Verify sealed around manways, nozzles, no damage present, and there is no egress of moisture.				X	<b>Vessel not insulated.</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>Isolated external pitting present on the shell and heads. No active corrosion noticed.</b>
<b>Leakage</b> Record any leakage at flanges, threaded joints, weep holes on repads, etc.	X				<b>No leaks observed.</b>
<b>Saddle/Skirt</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>Saddles: bolted directly to Support base. No buckling or dents. No corrosion at attachment welds to vessel. Ground wire attached to saddle.</b>
<b>Anchor Bolts</b> Hammer tap to ensure secure. Look for cracking in treads or signs of deformation.	X				<b>Anchor bolts are securely fastened. No deformation.</b>
<b>Concrete foundation</b> Check for cracks, spalling, etc.				X	
<b>Ladder / Platform</b> Describe general condition, ensure support is secure to vessel, describe any hazards.				X	
<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>Stud threads are fully engaged to nuts. No leaks observed. 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/Temperature. Temperature gauge 0 – 200 Deg F. Pressure gauge 0-10000kp</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>Piping is well supported – all clamps and supports are in place. No structural overloads or deflections. Piping was repainted 3 years prior during turn-around of 2009.</b>
<b>Valving</b> Ensure no leaks are visible. Valves are properly supported and chained if necessary.	X				<b>No leaks are visible. Valves are supported properly.</b>
<b>PSV</b> Ensure PSV is set at pressure at or below that of vessel.	X				<b>Location: Outlet piping – set at MAWP of vessel. Block valve between vessel and PSV- locked in open position. Discharge piping is same size as valve outlet.</b>
<b>NDE methods</b> Was UT/ MPI done on vessel (MI coordinator to review results)	X				<b>Ultrasonic corrosion survey carried out – pipe metal thickness detected below nominal minus corrosion allowance. Thickness calculations carried out: UT point 255 (2" elbow) – nominal thickness is 5.5mm / min thickness is 4.0mm / T min thickness is 2.8mm.</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: 1. Clean up external of vessel and paint.</b>					
<b>Summary: Vessel is in overall good condition, visual external and internal inspection and ultrasonic corrosion survey performed— pipe metal thickness detected below nominal minus corrosion allowance. Critical thickness calculations carried out to ensure sufficient metal exists for safe operation.</b>					
<b>Long term corrosion rate based on greatest thickness loss (head) 0.213mm per year. Retirement Date to “T”min is year 2041. Vessel is fit for service.</b>					

**Inspected By:** Matt Wood (API 510 # 42758)

**Date:** Jan 8<sup>th</sup>, 2013

Photo Table



LSD

vessel data plate



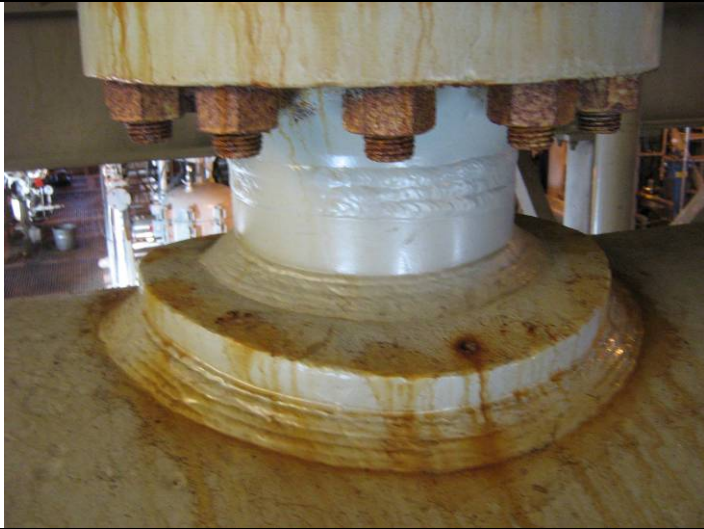
vessel pressure gauge

vessel overview

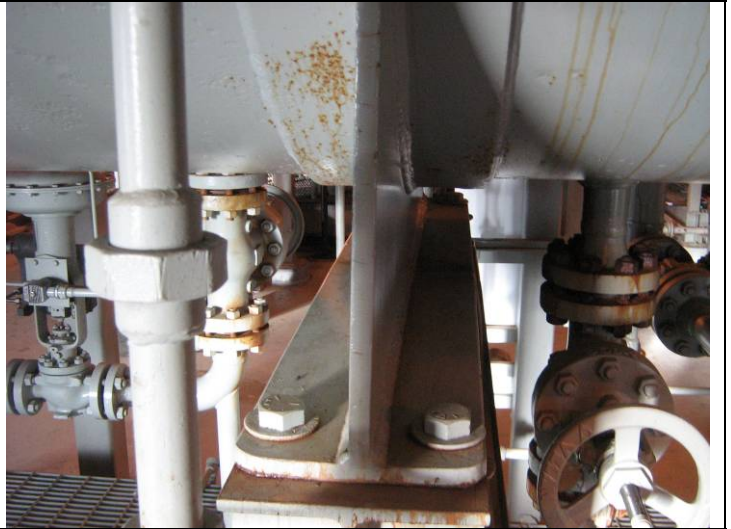


West head pitting coated over (not active)

Bottom side nozzle minor rust and scale developing



Top shell nozzle



Saddle support



PSV location



PSV service tag

<b>UVL ID#:</b> 14836F	<b>S N:</b> TH70200
<b>Man:</b> Consolidated	<b>Model #:</b> 1912JC-2-XSG11
<b>Set Press:</b> 1350 PSI	<b>Capacity:</b> 35044 SCFM
<b>Cold Diff:</b> PSI	<b>Back Press:</b>
<b>Size:</b> 2.5 " 600 RF	<b>X</b> 4 " 150 RF
<b>A#:</b> A2564852	
<b>Vessel SN:</b> N/A	
<b>WO#:</b> 305595	
<b>PO#:</b>	<b>PO Line#</b>

REVISION 2 5-24-08 QF-067