Canadian Natural Resources Limited GENERAL PRESSURE VESSEL INFORMATION Job # 10.110674									
District: Grande Pr	Skid No.:								
Facility: Saddle Hills Gas Gathering				Location (LSD)	: 04-23-75	-07 w6m			
Vessel Name Equipment Number: Separator									
Orientation: Vertical									
Status: In Serv	ice	Regulatory Inspection							
PRESSURE VESSEL NAMEPLATE DATA									
"A" or "G" o	r "S" (Sask.) or BC R	CRN Number:							
	A0465860	P 5726.23							
Vessel serial number	r: 2001 6760 01A	Size: 16 in x 96 in							
Shell thickness: 21.4	4 mm			Shell material: SA 106 B					
Head thickness: 22.	2 mm			Head material: SA 516-70N					
Tube wall thickness:				Tube material:					
Tube diameter:				Tube length:					
Channel thickness:				Channel material:					
Design pressure	Operating pressure		Shell: 0 to 13790 kPa						
	Tubes:					Tubes:			
	Shell: 53°C		Operating temperature		G1 11 40 5 500 G				
Design Temp.	Tubes:				Shell: -40 to 70°C				
		Tubes:							
X-ray: RT-1		Heat treatment: HT							
Code parameters: A		Coated: No							
	Gas & Oil Production	Year built: 2002							
Corrosion allowance		Manway: No							
	P	RESSURE SAFETY	VALV	E NAMEPLATE	DATA				
PSV Tag #	Manufacturer Model #		Serial #		Set Pressure		Capacity	Service	
					(PSI)		(scfm)	Date	
G31724	Consolidated	1912HC-SG	В	140731X-1-3	1440		22898	08/2011	
CRN#	Service By	Block Valve		Location	Size		Code Stamp		
0G5530.52	Тусо	No	ı	U pper shell	2" x 3"		UV/NB		
	SERV	VICE CONDITIONS	L S-INDI	CATE ALL TH	T APPL:	V		<u> </u>	
	SER	TEL COMBITTORS	11 (D1	CITIE REE III	11 /11 1 1				
Sweet	Sour X O			Oil		Gas X		Water X	
Amine	LPG C			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 CoordinatorDate									

External Inspection Items	G	F	P	N/A	Comments
Insulation Verify sealed around manways, nozzles, no damage present, and there is no				X	Vessel is not insulated.
egress of moisture. External Condition Assess paint condition, areas peeling, record any corrosion, damage, etc (record location, size and depth of corrosion or damage)	X				Vessel is surface corroded to 10% exposed metal. No damage.
Leakage Record any leakage at flanges, threaded joints, weep holes on repads, etc.	X				No leaks observed.
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				Vessel skirt is bolted to skid floor. No evidence of corrosion at shell to skirt weld – no leaks. Skirt is surface corroded to 10% exposed metal. No distortion. No buckles. Skid package is mounted to pilings above ground level. Skid package has ground wire attached.
Anchor Bolts Hammer tap to ensure secure. Look for cracking in treads or signs of deformation.	X				Anchor bolts are securely fastened.
Concrete foundation Check for cracks, spalling, etc.				X	Steel skid.
Ladder / Platform Describe general condition, ensure support is secure to vessel, describe any hazards.				X	No ladder or platform attached.
Nozzle Assess paint, look for leakage, and ensure stud threads are fully engaged. Record any damage, deflection, etc. Are nozzles gusseted?	X				Threaded nozzle joints are fully engaged. Studs are fully engaged to nuts – no short bolts. PSV nozzle is gusseted. Remainder of nozzles no gussets. No damage. No deflections. Paint chipped to 5% exposed metal with surface corrosion.
Gauges Ensure gauges are visible, working, no leakage, and suitable for range of MAWP/ Temp.	X				Pressure, temperature and liquid level gauges attached. Clean, clear and in working condition. No leaks. Pressure gauge: 0 to 13790 kPa. Within range of MAWP. Temperature gauge: -40 to 70°C. Within range of MAWT
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 and shoes are in place. No structural overloads or deflections noted. Paint chipped to 5% exposed metal with minor surface corrosion.
Valving Ensure no leaks are visible. Valves are properly supported and chained if necessary.	X				Valves are properly supported. No leak detected.
PSV Ensure PSV is set at pressure at or below that of vessel.	X				Located on upper shell – set at MAWP of vessel. Discharge piping is same size as valve outlet. Valve is properly supported and routed. PSV seal in place. No block valve between PSV valve and vessel.

NDE methods Was UT/ MPI done on vessel		Ultrasonic thickness survey carried out – pipe metal
(MI coordinator to review results)		thickness detected below nominal minus corrosion
		allowance. Ultrasonic corrosion survey carried out – pipe
	X	metal thickness detected below nominal minus corrosion
		allowance. Thickness calculations carried out:
		2" Elbow – nominal thickness is 11.1mm / min thickness is
		8.4mm / T min thickness is 2.8mm.

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: None at this time.

Summary: Vessel is in overall good condition, visual external inspection and ultrasonic corrosion survey performed – pipe metal thickness detected below nominal minus corrosion allowance. Thickness calculations carried out to ensure sufficient metal exists for safe operation.

Vessel is fit for service.

Inspected By: Chris Maxsom

Date: October 18, 2011







Overview - Vessel upper shell and PSV location



Overview - Vessel lower shell



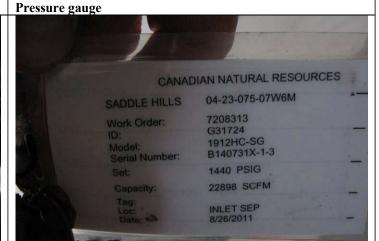
Data plate Liquid level





Temperature gauge





PSV service tag PSV service tag