Canadian Natural Resources Limited
GENERAL PRESSURE VESSEL INFORMATION **Job# 05.001890**

District: **Fort St. John BC**	Skid No.
Facility: **Dahl West Compressor Station**	Location (LSD): **b-89-H/94-H-7**
Vessel Name Equipment Number: **Inlet Separator**	
Orientation: **Horizontal**	
Status: **In Service**	**Regulatory Inspection**

PRESSURE VESSEL NAMEPLATE DATA

"A" or "G" or "S" (Sask.) or BC Registration Number. **A 144700**		CRN Number: **E-9625.1**	
Vessel serial number: 78168.E		Size: 36in x 120in	
Shell thickness: 19.1 mm		Shell material: SA 516 70N	
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	Shell: 4964 kPa	Operating pressure	Shell:
	Tubes:		Tubes:
Design Temp.	Shell: 38° C	Operating temperature	Shell:
	Tubes:		Tubes:
X-ray: RT-1		Heat treatment: HT	
Code parameters: ASME VIII, Div 1		Coated: No	
Manufacturer: Propack System Ltd.		Year built: 1978	
Corrosion allowance: 1.6 mm		Manway: No	

PRESSURE SAFETY VALVE NAMEPLATE DATA

PSV Tag #	Manufacture	Model #	Serial #	Set Pressure (kPa)	Capacity (scfm)	Service Date
Removed for Servicing						
CRN #	Service By	Block Valve	Location	Size	Code Stamp	

SERVICE CONDITIONS-INDICATE ALL THAT APPLY

Sweet X	Sour	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's Owner-User Inspection Program)

Reports reviewed and accepted by:

Mechanical Integrity Coordinator_____ **Date**_____

Fill out all forms as completely as possible. <u>All information</u> 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 is in Fair condition. Paint is starting to fail in areas where rust was painted over. Isolated areas of external corrosion present. Max depth 0.015 inches.
Leakage Record any leakage at flanges, threaded joints, weep holes on repads, etc.	**X**				No leakage at flanges or threaded joints.
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**				Skirt is Bolted to skid deck – no Buckling or dents present. No leaks at saddle to shell welds. Paint in good condition – no exposed metal. Ground is connected to skid.
Anchor Bolts Hammer tap to ensure secure. Look for cracking in treads or signs of deformation.	**X**				Tight-studs fully engaged.
Concrete foundation Check for cracks, spalling, etc.				**X**	
Ladder / Platform Describe general condition, ensure support is secure to vessel, describe any hazards.				**X**	
Nozzle Assess paint, look for leakage, and ensure stud threads are fully engaged. Record any damage, deflection, etc. Are nozzles gusseted?	**X**				Stud threads are fully engaged to nuts. No leaks-damage or deflections. Nozzles are not gusseted Paint in good condition.
Gauges Ensure gauges are visible, working, no leakage, and suitable for range of MAWP/ Temp.	**X**				Clear and clean No leakage Suitable for range of MAWP/temperature of vessel
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 and supports are in place. No structural overloads or deflections. Paint is starting to fail on piping from moisture damage.
Valving Ensure no leaks are visible. Valves are properly supported and chained if necessary.	**X**				No leaks are visible. Valves are supported properly.
PSV Ensure PSV is set at pressure at or below that of vessel.				**X**	Location: Upper Shell Removed for Servicing
NDE methods Was UT/ MPI done on vessel (MI coordinator to review results)	**X**				Ultrasonic thickness inspection carried out, Head metal thickness found below nominal minus corrosion allowance. Calculations performed to ensure sufficient metal exits for safe operation
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)
Recommendations: See Internal
Summary: See Internal
Vessel is fit for service.

Inspected By: Keith Kowal **Date:** June 8, 2008
API 510 # 26812

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 in vessel
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				Internals are covered in a thick-tightly adhering calcium scale. High pressure wash was completed on the accessible internals from the hand-holes. No corrosion or pitting under the scale.
Trays How many? Type of material. Are valves in place. Check for erosion/ corrosion; wear on tray valve legs. Cleanliness?				X	No trays in vessel
Baffles, deflector plates, etc. If present, describe condition. Look closely at welds attached to vessel wall.	X				Condensate weir in place.
North Head Note all corrosion, erosion or mechanical damage. (If vessel is horizontal identify direction of this head)	X				Limited access. Inlet diffuser appears to be in good condition with no corrosion or erosion.
South Head Note all corrosion, erosion or mechanical damage. (If vessel is horizontal identify direction of this head)	X				Good condition with no pitting.
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				Internals are covered in a thick-tightly adhering calcium scale. High pressure wash was completed on the accessible internals from the hand-holes. No corrosion or pitting under the scale. Boot is in good condition with no corrosion or pitting to the shell or head.
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				There is a vain pack in place – clean and not obstructed.
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 apparent welding defects or preferential attack
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				Internal inspection was completed via bore scope through hand-holes in both heads.

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, head metal thickness found below nominal minus corrosion allowance. Calculations performed to ensure sufficient metal exits for safe operation.

Vessel if fit for service

Inspected By: Keith Kowal **Date:** June 8, 2008
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Photo Table

Vessel overview

Data plate

Pitting and corrosion to flange face.

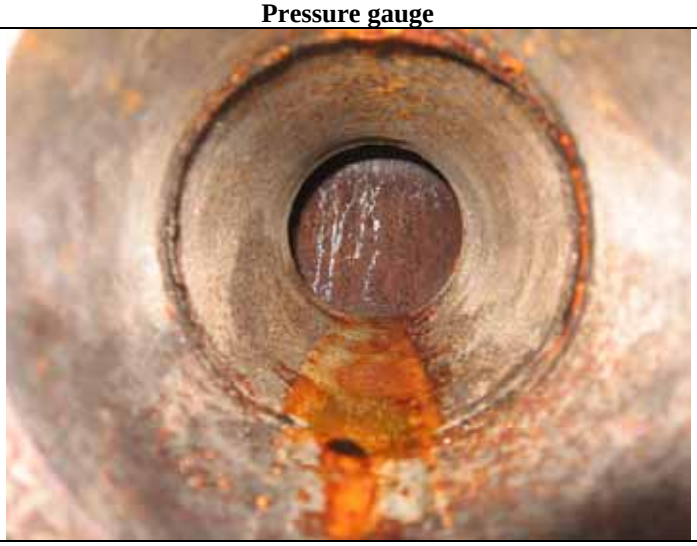
Minor pitting in areas of paint failure on shell and head.

Saddle is in good condition and well supporting

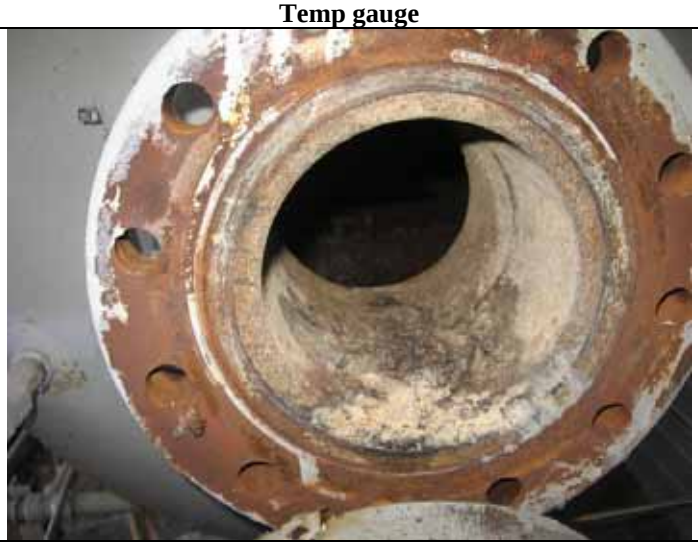
No internal or external corrosion on boot.

Pressure gauge

Temp gauge



Outlet nozzle with diffuser in place



Inlet nozzle

Weir and vain pack

Water dump nozzle