Canadian Natural Resources Limited GENERAL PRESSURE VESSEL INFORMATION	
District: Grande Prairie	Skid No.
Facility: **G&D Oilfield Services Yard in Fort St. John**	Location (LSD):
Vessel Name Equipment Number: Separator	
Orientation: Vertical	
Status: Out of Service	Regulatory Inspection

PRESSURE VESSEL NAMEPLATE DATA			
"A" or "G" or "S" (Sask.) or BC Registration Number. **A 113114**		CRN Number: **B7123.2**	
Vessel serial number: PT 674		Size: 42"x 142"	
Shell thickness: 0.375"		Shell material: A-515-70	
Floor thickness: 0.500"		Head material: A-515-70	
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: 250 psi	Operating pressure	Shell:
	Tubes:		Tubes:
Design Temp.	Shell: 100 ^{0}F	Operating temperature	Shell:
	Tubes:		Tubes:
X-ray: 100%		Heat treatment: no	
Code parameters: ASME IIIV Div.1		Coated: no	
Manufacturer: Porta Test		Year built: 1972	
Corrosion allowance: 1.6mm		Manway: no	

PRESSURE SAFETY VALVE NAMEPLATE DATA						
PSV Tag #	Manufacture	Model #	Serial #	Set Pressure	Capacity (scfm)	Set Date
CRN #	Service By	Block Valve	Location	Size	Code Stamp	

SERVICE CONDITIONS-INDICATE ALL THAT APPLY				
Sweet X	Sour	Oil	Gas X	Water
Amine	LPG	Condensate	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**	
External Condition Assess paint condition, areas peeling, record any corrosion, damage, etc (record location, size and depth of corrosion or damage)	**X**				**Some paint loss at upper shell and bottom head with minor surface rust**
Leakage Record any leakage at flanges, threaded joints, weep holes on repads, etc.				**X**	
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 is in good condition** **No buckling or damage**
Anchor Bolts Hammer tap to ensure secure. Look for cracking in treads or signs of deformation.				**X**	
Foundation				**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**				**Paint in good condition, no damage deflection** **No corrosion present**
Gauges Ensure gauges are visible, working, no leakage, and suitable for range of MAWP/ Temp.				**X**	
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**	
Valving Ensure no leaks are visible. Valves are properly supported and chained if necessary.				**X**	
PSV Ensure PSV is set at pressure at or below that of vessel.				**X**	
NDE methods Was UT/ MPI done on vessel (MI coordinator to review results)	**X**				**UT every 12" at four quadrants on the shell and heads** **Thickness is higher than nominal**
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) Fit for service

No recommendations at this time

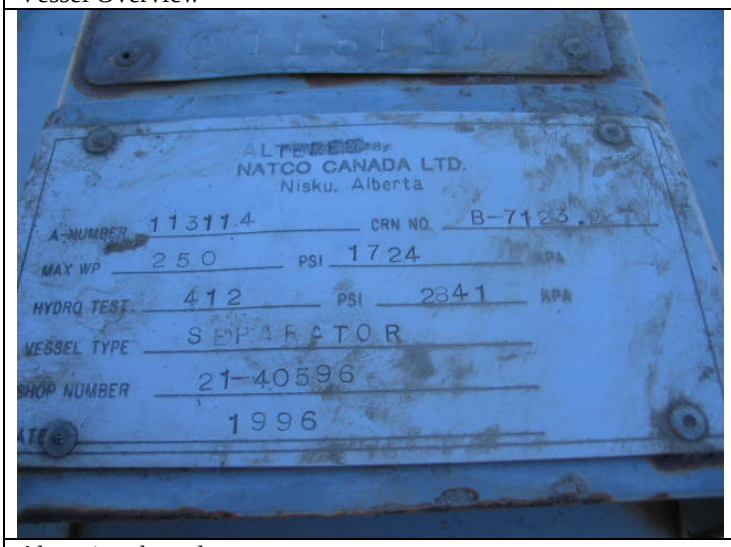
Internal Inspection Items	G	F	P	N/A	Comments
Coating Assess coating. Describe area coated, general condition of coating. Look at nozzles, coupling, and areas of most severe corrosion to ensure coating is intact. If coating is in poor condition make decision now if re-coating necessary? If so, when?				X	
Anodes. How many, type, condition. % consumed. Are they being replaced?				X	
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	
Trays How many? Type of material. Are valves in place. Check for erosion/ corrosion; wear on tray valve legs. Cleanliness?				X	
Baffles, deflector plates, etc. If present, describe condition. Look closely at welds attached to vessel wall.	X				Deflector plate looks new No corrosion evident
Top Head Note all corrosion, erosion or mechanical damage. (If vessel is horizontal identify direction of this head)				X	
Bottom head Note all corrosion, erosion or mechanical damage. (If vessel is horizontal identify direction of this head)	X				Minor scale buildup No pitting noted
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				Two shell sections No corrosion or pitting noted
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				Intact, in place and clean
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 corrosion or damage
Repairs Required. If yes, ensure procedure and copy of AB is on file, and one sent to local ABSA, and Chief Inspector				X	
NDE Was any NDE done. (MI coordinator to review results)				X	

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)
No recommendations at this time
Vessel is fit for service
NOTE: Internal inspection was performed from 12" opening.

Inspected By:__Ross Hodge_____**Date**:___Oct. 27/05_____

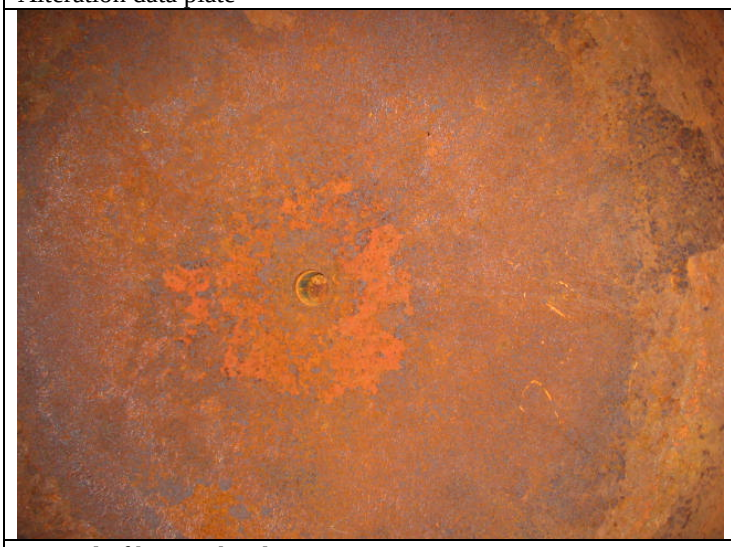
Vessel Overview

Data plate



Alteration data plate

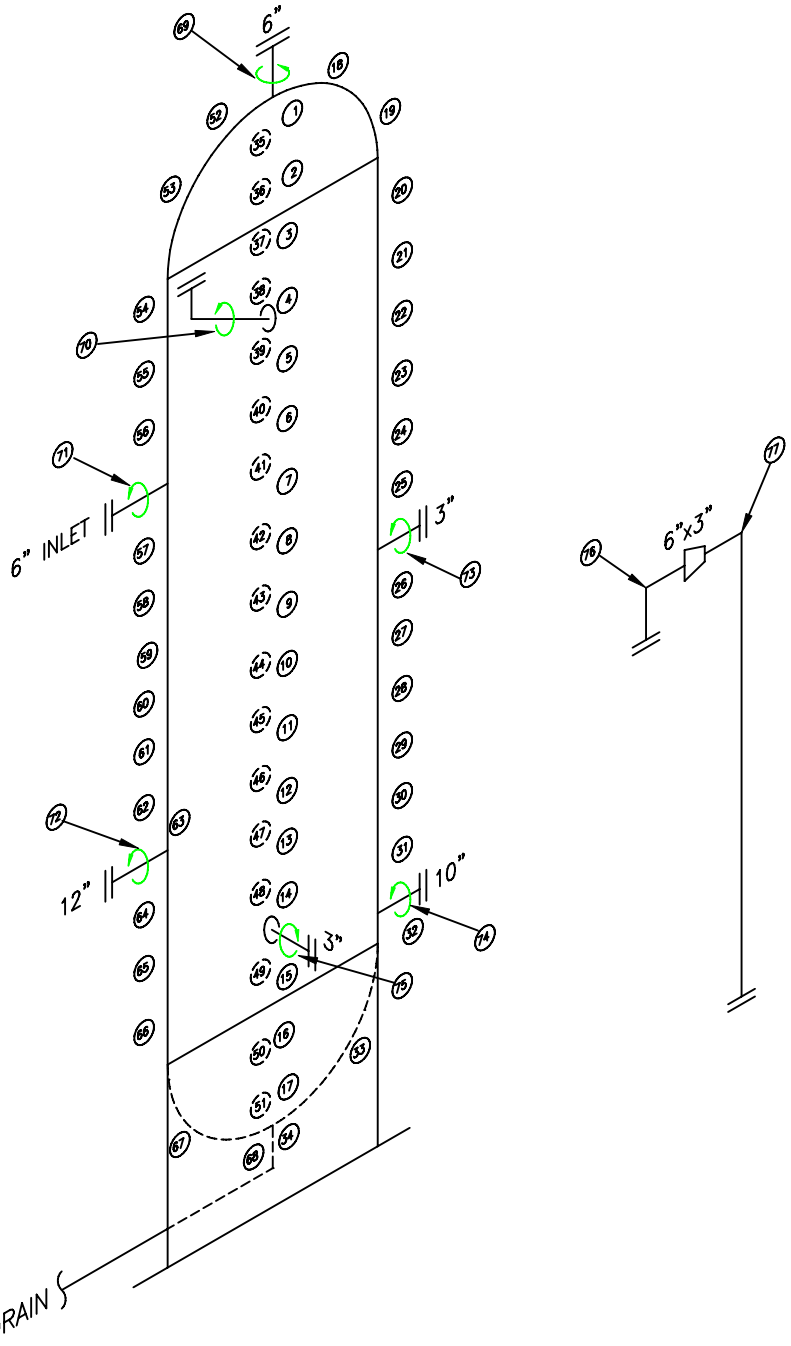
External of bottom head



Internal of bottom head

Inlet diffuser plate

	
Internal of shell	Inlet nozzle showing deflector plate
	
Demister pad	



Equip. No. _____ Prov. Reg. No. Ⓐ 113114 C.R.N. B-7123.2 Serial No. PT 674 Yr. Inst. _____

Code/Div. ASME VIII,Div 1 Size: 42in. x 142in. Manufacturer: PORTA TEST Yr. Blt. 1972

C. Stamp: U Service: SWEET PWHT: NO Radiography: RT-1 Insulated: NO

Design & Materials Data

HEAD:
Top Mat'l. SA 515 70 Top Nom. 12.7mm Top C.A. 1.6mm
Btm. Mat'l. _____ Btm. Nom. _____ Btm. C.A. _____

CHANNEL:
Material: _____ Nominal: _____ C.A. _____

BOOT
Head Mat'l. _____ Head Nom. _____ Head C.A. _____
Shell Mat'l. _____ Shell Nom. _____ Shell C.A. _____

SHELL
Material: SA 515 70 Nominal: 9.5mm C.A. 1.6mm

MAWP Shell Side: 1724 kPa @ Temp. 38°C

MAWP Tube Side: _____ @ Temp. _____

CLIENT: CANADIAN NATURAL RESOURCES LTD

FACILITY: G&D OILFIELD SERVICES YARD(FORT ST JOHN)

ITEM: VERTICAL SEPARATOR

BY: CS | DATE: 10/2005 | DWG.# 1

Canadian Natural Resources
G&D Oilfield Services Yard (Fort St John)
Vertical Separator, A 113114

Shell

Point#	Thickness (mm)	Point#	Thickness (mm)	Point#	Thickness (mm)	Point#	Thickness (mm)
3	**9.9**	20	**10.1**	37	**9.8**	54	**9.8**
4	**10.0**	21	**9.9**	38	**9.9**	55	**9.9**
5	**10.1**	22	**9.9**	39	**10.0**	56	**10.0**
6	**10.0**	23	**9.8**	40	**10.0**	57	**10.0**
7	**10.0**	24	**9.9**	41	**10.0**	58	**10.0**
8	**10.0**	25	**9.8**	42	**9.9**	59	**10.0**
9	**9.9**	26	**9.9**	43	**10.0**	60	**10.0**
10	**10.0**	27	**9.6**	44	**10.0**	61	**9.9**
11	**10.1**	28	**9.6**	45	**9.7**	62	**10.1**
12	**10.0**	29	**9.7**	46	**9.8**	63	**10.1**
13	**9.7**	30	**9.6**	47	**9.6**	64	**9.6**
14	**9.7**	31	**9.9**	48	**9.8**	65	**9.6**
15	**9.9**	32	**10.1**	49	**9.8**	66	**9.7**

Top Head

Point#	Thickness (mm)	Point#	Thickness (mm)	Point#	Thickness (mm)	Point#	Thickness (mm)
1	**14.7**	18	**14.5**	35	**14.6**	52	**14.8**
2	**14.5**	19	**14.5**	36	**14.4**	53	**14.8**

Bottom Head

Point#	Thickness (mm)	Point#	Thickness (mm)	Point#	Thickness (mm)	Point#	Thickness (mm)
16	**14.2**	33	**14.6**	50	**n/s**	67	**14.6**
17	**14.6**	34	**14.1**	51	**n/s**	68	**14.3**

Nozzles

Point	Min	Avg	Point	Min	Avg
69	**11.1**	**11.4**	74	**11.5**	**12.6**
70	**10.8**	**11.4**	75	**11.0**	**11.5**
71	**17.6**	**18.4**	76	**7.0**	**7.2**
72	**12.4**	**12.9**	77	**5.3**	**5.5**
73	**7.5**	**7.7**			