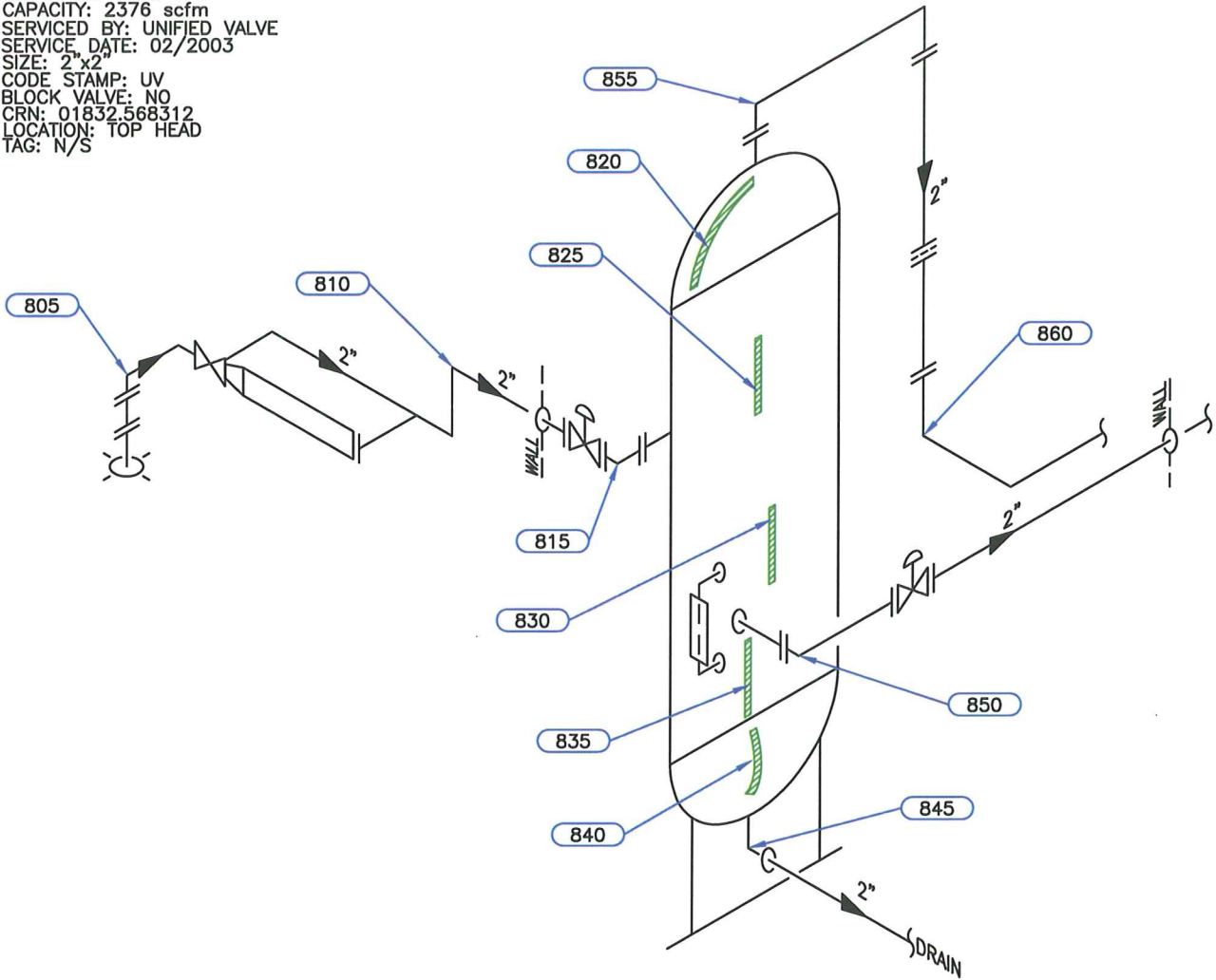


**PSV DATA**

MFG: CONSOLIDATED  
 MODEL: 1970C2  
 SERIAL: 70C725  
 SET PRES: 1793 kPa  
 CAPACITY: 2376 scfm  
 SERVICED BY: UNIFIED VALVE  
 SERVICE DATE: 02/2003  
 SIZE: 2" x 2"  
 CODE STAMP: UV  
 BLOCK VALVE: NO  
 CRN: 01832.568312  
 LOCATION: TOP HEAD  
 TAG: N/S



NOT IN SERVICE

Equip. No. \_\_\_\_\_ Prov. Reg. No. **2713539** C.R.N. **H-3189.213** Serial No. **PE 3440** Yr. Inst. \_\_\_\_\_  
 Code/Div. **ASME VIII, DIV 1** Size: **24in x 60in** Manufacturer: **PENFABCO LTD.** Yr. Blt. **1991**  
 C. Stamp: **U** Service: **SOUR** PWHT: **HT** Radiography: **RT-1** Insulated: **NO**

**Design & Materials Data**

**HEAD:**  
 Top Mat'l. **SA 516 70** Top Nom. **10.9mm** Top C.A. **1.6mm**  
 Btm. Mat'l. **SA 516 70** Btm. Nom. **10.6mm** Btm. C.A. **1.6mm**

**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 106 B** Nominal: **9.5mm** C.A. **1.6mm**

MAWP Shell Side: **1896 kPa** @ Temp. **38°C**  
 MAWP Tube Side: \_\_\_\_\_ @ Temp. \_\_\_\_\_

CLIENT	CANADIAN NATURAL RESOURCES LTD		
FACILITY	CECIL LAKE FIELD LSD a6-08-85-17 W6M		
ITEM	VERTICAL SEPARATOR		
BY: NB	DATE: 2008/06	DWG.# 12	

### UTS DATA

**CLIENT:** CANADIAN NATURAL RESOURCES  
**EQUIPMENT:** VERTICAL SEPARATOR  
**CRN#:** H3189.213  
**PROV REG:** A 2713539  
**TESTED ON STREAM**

**FACILITY:** CECIL LAKE FIELD  
**SERVICE:** SOUR  
**LOCATION:** 8088517 W6M  
**RTD JOB #:** 05.001937  
**REFER TO DRAWING:** 12

Tb Pb	THICKNESS DATA						Sb Ten	Lg Ten	Ag mm/py	Fb Db
		Fb	Ct	C.A.	Nm.					
<b>820</b>										
Dp	<b>TOP HEAD</b>									
	2008 6									
MnTb	9	9.3	4.6	1.6	10.9				L	2008
Ag	9.3					0	0		L	2008
Ap										
<b>825</b>										
Dp	<b>UPPER SHELL</b>									
	2008 6									
MnTb	9.9	7.9		1.6	9.5				L	
Ag	10.2					0	0		L	
Ap										
<b>830</b>										
Dp	<b>MID SHELL</b>									
	2008 6									
MnTb	9	7.9		1.6	9.5				L	
Ag	9.4					0	0		L	
Ap	2008/06 MIN SCAN AT MID BAND									
<b>835</b>										
Dp	<b>LOWER SHELL</b>									
	2008 6									
MnTb	9.3	7.9		1.6	9.5				L	
Ag	9.6					0	0		L	
Ap										
<b>840</b>										
Dp	<b>BOTTOM HEAD</b>									
	2008 6									
MnTb	9.3	9		1.6	10.6				L	
Ag	9.6					0	0		L	
Ap										
<b>845</b>										
Dp	<b>2"90°NOZE</b>									
	2008 6									
MnTb	5.9	3.9		1.6	5.5				L	
Ag	6.2					0	0		L	
Ap										

### UTS DATA

**CLIENT:** CANADIAN NATURAL RESOURCES  
**EQUIPMENT:** VERTICAL SEPARATOR PIPING  
**CRN#:**  
**PROV REG:**  
**TESTED ON STREAM**

**FACILITY:** CECIL LAKE FIELD  
**SERVICE:** SOUR  
**LOCATION:** a6-08-85-17 W6M  
**RTD JOB #:** 05.001937  
**REFER TO DRAWING:** 12

Test Point	THICKNESS DATA				Flag	Crit	C.A.	Nom.	Short Term	Long Term	Ave. mm/py	Flag Date
<b>805</b>												
Description:	4" 45° ELBOW											
	2008 6											
Min. Thick.	5.7	5.25	.8	6								L
Average:	5.9							0	0			L
Analysis:												
<b>810</b>												
Description:	2" 90° ELBOW											
	2008 6											
Min. Thick.	3.3	3.41	1.6	.5	3.9							L 2008
Average:	3.6							0	0			L
Analysis:	2008/06 CRITICAL THICKNESS CALCULATIONS CARRIED OUT TO 0.6mm BUT CODE MINIMUM IS MAINTAINED AT 1.6mm											
<b>815</b>												
Description:	2" 90° ELBOW											
	2008 6											
Min. Thick.	4.9	4.81	.7	5.5								L
Average:	5.2							0	0			L
Analysis:												
<b>850</b>												
Description:	2" 90° ELBOW											
	2008 6											
Min. Thick.	4.8	4.81	1.6	.7	5.5							L 2008
Average:	5							0	0			L
Analysis:	2008/06 CRITICAL THICKNESS CALCULATIONS CARRIED OUT TO 0.6mm BUT CODE MINIMUM IS MAINTAINED AT 1.6mm											
<b>855</b>												
Description:	2" 90° ELBOW											
	2008 6											
Min. Thick.	4.8	4.81	1.6	.7	5.5							L 2008
Average:	5							0	0			L
Analysis:	2008/06 CRITICAL THICKNESS CALCULATIONS CARRIED OUT TO 0.6mm BUT CODE MINIMUM IS MAINTAINED AT 1.6mm											
<b>860</b>												
Description:	2" 90° ELBOW											
	2008 6											
Min. Thick.	4.8	4.81	1.6	.7	5.5							L 2008
Average:	5							0	0			L
Analysis:	2008/06 CRITICAL THICKNESS CALCULATIONS CARRIED OUT TO 0.6mm BUT CODE MINIMUM IS MAINTAINED AT 1.6mm											

GENERAL INSPECTION FORM						
District: Ft St. John, BC			Skid No. Inlet Separator Building			
Facility: Cecil Lake Field			Location (LSD): a6-08-85-17 W6M			
Vessel Name & Equipment Number: Vertical Separator						
Orientation: Vertical						
Status: Not in Service			Regulatory Inspection			
PRESSURE VESSEL NAMEPLATE DATA						
"A" or "G" or "S" (Sask.) or BC Registration Number. A 2713539			CRN Number H-3189.213			
Vessel serial number: PE 3440			Size: 24in x 60in			
Shell thickness: 9.5 mm			Shell material: SA 106 B			
Head thickness: 10.9 mm /10.6 mm			Head material: SA 516 70			
Tube wall thickness:			Tube material:			
Tube diameter:			Tube length:			
Channel thickness:			Channel material:			
MAWP	Shell: 275 psi		Operating pressure	Shell: 0 to 1000 psi		
	Tubes:			Tubes:		
Design Temp.	Shell: 100 °F		Operating temperature	Shell:		
	Tubes:			Tubes:		
X-ray: RT-1			Heat treatment: HT			
Code parameters: ASME VIII, DIV I			Joint efficiency (if on nameplate):			
Manufacturer: Penfabco Ltd.			Year built: 1991			
Corrosion allowance: 1.6mm			Manway: No			
PRESSURE SAFETY VALVE NAMEPLATE DATA						
Tag Number(s)	Set Pressure PSI	CRN #	Manufacturer /Model / Serial# and Code Stamp	Capacity (Scfm)	Size	Set Date
Not Stated	260	01832.568312	Consolidated / 1970C2 / 70C725 / UV,NB	2376	2" M x 2" F	02/03
SERVICE CONDITONS-INDICATE ALL THAT APPLY						
Sweet	Sour X		Oil X	Gas X		Water X
Amine	LPG		Condensate	Air		Glycol
Other (Describe):						

Inspection Interval \_\_\_\_\_ PSV Service Interval \_\_\_\_\_

(Determined by MIC in conjunction with Chief Inspector following guidelines of CNRL Canada Owner-User Inspection Program)






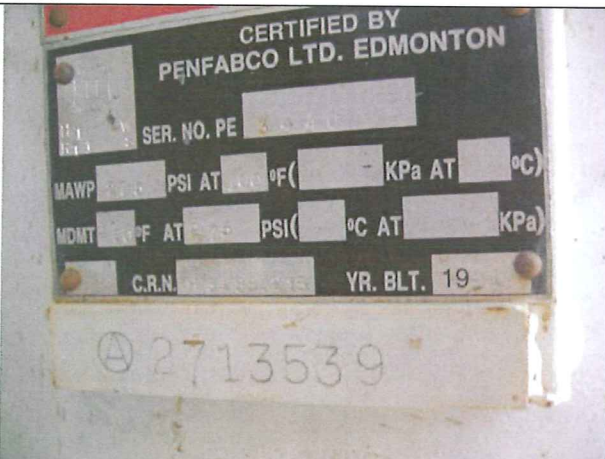
Reports reviewed and accepted by:

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.

External Inspection Items	G	F	P	N/A	Comments
<b>Insulation</b> Verify sealed around manways, nozzles, no damage present, and there is no egress of moisture. Are straps secure?	X				Vessel is not insulated.
<b>External Condition:</b> Assess paint condition, areas peeling, record any corrosion, damage, distortion etc (record location, size and depth of corrosion or damage)	X				Paint in good condition – no exposed metal. No damage, no distortion
<b>Leakage:</b> Record any leakage at flanges, threaded joints, weep holes on repads, etc.	X				No leaks observed.
<b>Base:</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. Is ground wire attached?	X				Vessel skirt is welded to skid floor. Skirt -No distortion or buckles – minor paint oxidation No evidence of leaking or seeping at welds – skirt to shell.  Skid is mounted on pilings with no ground wire attached.
<b>Anchor Bolts:</b> Hammer tap to ensure secure. Look for corrosion, cracking in threads or signs of deformation.				X	Vessel is welded to skid deck.
<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? Inspect gussets for cracking.	X				Studs are fully engaged to nuts – no short bolts. Paint in good condition – no exposed metal No damage or deflections Nozzles are not gusseted
<b>Gauges:</b> Ensure gauges are visible, working, no leakage, and suitable for range of MAWP/ Temp.		X			Pressure and liquid level gauges attached – clean and clear – no leaks. Pressure gauge: 0 to 1000 psi - within range for service.
<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			Paint – minor blistering to < 5% exposed metal Piping is well supported- all clamps and supports are in place. No structural overloads or deflections.
<b>Valving:</b> Ensure no leaks are visible. Valves are properly supported and chained if necessary.	X				Valves are supported – no leaks.
<b>PSV:</b> Ensure PSV is set at pressure at or below that of vessel. Discharge piping is same size as valve outlet and is properly supported and routed. Are psv seals in place? Ensure no block valves between psv and vessel, or if there are that they are locked/sealed open.	X				Located on top head - set below 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.
<b>NDE methods</b> Was UT/ MPI done on vessel (MI coordinator to review results)	X				Ultrasonic thickness survey carried out – head & pipe metal thickness detected below nominal minus corrosion allowance. Thickness calculations carried out to ensure sufficient metal exists for safe operation.
<b>Other Observations:</b> <b>Recommendations: No recommendations at this time.</b> <b>Summary:</b> This vessel is in good overall condition – visual external and ultrasonic thickness inspection carried out – head & pipe metal thickness detected below nominal minus corrosion allowance. Thickness calculations carried out to ensure sufficient metal exists for safe operation. <b>Vessel is fit for service.</b>					

Photo Table

 <p>Canadian Natural <b>CECIL LAKE</b> a6-8-85-17 EMERGENCY PHONE 1-250-785-3085 OR 1-888-878-3700 TRUCKIN</p>	 <p>Overview - Skid</p>
<p>LSD</p>  <p>Over view</p>	 <p>Overview</p>
 <p>Overview</p>	 <p>CERTIFIED BY PENFABCO LTD. EDMONTON</p> <p>SER. NO. PE [ ]</p> <p>MAWP [ ] PSI AT [ ] °F ( [ ] - KPa AT [ ] °C)</p> <p>MDMT [ ] °F AT [ ] PSI ( [ ] °C AT [ ] KPa)</p> <p>C.R.N. [ ] YR. BLT. 19 [ ]</p> <p>ⓐ 2713539</p> <p>Data Plate</p>