

1060-04

Canadian Natural Resources Limited  
Production - Facilities Engineering  
A0434584 Vertical 3 Phase Separator Vessel Data Sheet

Content Date Range: 2/25/2006 to 2/25/2006

**Vessel Integrity**

Inspection Data

Open: 4/4/2007 Close:

Vital: Yes  
Original: Yes  
Confidential: No

CC+2 0P P



00782687

A0434584-SEPARATOR DATA - FEB 2006

SigNet I.D.: 1574

MAR 27 2006

Sig:

Gary Stefan



CLK ✓

## PRESSURE VESSEL / PSV DATA SHEET

Exhibit #1600  
Revision 2, August 30, 2000

## GENERAL INFORMATION

AREA: Knopcik / Sinclair	LOCATION (LSD): 4-17-73-12 W6	
FACILITY: Single Well Tie-in	DATE: 02/25/2006	
VESSEL NAME: Verticle 3 Phase Separator		
"A" NUMBER: 434584	CRN Number: M-7382.231	
INTERNALLY COATED: YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		
STATUS: OPERATING <input type="checkbox"/> SHUT IN <input checked="" type="checkbox"/> SURPLUS <input type="checkbox"/> JUNK <input type="checkbox"/>		
MANWAY: YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		
OPERATING PRESSURE:	SHELL:	
	TUBES:	
DESIGN PRESSURE	SHELL: 1480 psi	
	TUBES:	
MANUFACTURER: Mar-Quinn	SERIAL NUMBER: 118-11-9711	YEAR BUILT: 1997
SIZE: (ID X LENGTH): 609mm x 3226mm	HEAT TREATED: YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	

## PSV DATA

MANUFACTURER: Taylor	SIZE: 2"x 2"
MODEL #: 8200 MG	CRN #: 0G1316.2C
SERIAL #: 20175-827	CAPACITY: 8330 scfm
SET DATE: 02/23/2006	SET PRESSURE: 1100 psi
TAG #: 2072	

## SERVICE CONDITIONS (CHECK ALL THAT APPLY)

STEAM <input type="checkbox"/>	SWEET GLYCOL <input type="checkbox"/>	SOUR GLYCOL <input type="checkbox"/>
AIR <input type="checkbox"/>	SWEET GAS <input checked="" type="checkbox"/>	SOUR GAS <input type="checkbox"/>
LEAN AMINE <input type="checkbox"/>	SWEET CONDENSATE <input type="checkbox"/>	SOUR CONDENSATE <input type="checkbox"/>
RICH AMINE <input type="checkbox"/>	SWEET OIL <input type="checkbox"/>	SOUR OIL <input type="checkbox"/>
NITROGEN <input type="checkbox"/>	LPG <input type="checkbox"/>	CARBON DIOXIDE <input type="checkbox"/>

## METER RUN DATA

METER RUN	METER
MODEL: North Star	MODEL:
SERIAL#: EM05933	SERIAL #:
I.D. U/S: 4.026	DIFFERENTIAL PRESSURE:
I.D. D/S 4.026	STATIC PRESSURE:



## PRESSURE VESSEL / PSV DATA SHEET

Exhibit #1600  
Revision 2, August 30, 2000

GENERAL INFORMATION		
AREA: <i>Knopcik / Sinclair</i>	LOCATION (LSD): <i>4-17-73-12 W6</i>	
FACILITY: <i>Single Well Tie-in</i>	DATE: <i>02/25/2006</i>	
VESSEL NAME: <i>FG Scrubber</i>		
"A" NUMBER: <i>None visible</i> <i>0439589B</i>	CRN Number: <i>0H-1531.231</i>	
INTERNALLY COATED:     YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		
STATUS:     OPERATING <input type="checkbox"/> SHUT IN <input checked="" type="checkbox"/> SURPLUS <input type="checkbox"/> JUNK <input type="checkbox"/>		
MANWAY:     YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		
OPERATING PRESSURE:	SHELL:	
	TUBES:	
DESIGN PRESSURE	SHELL: <i>250 psi</i>	
	TUBES:	
MANUFACTURER: <i>Mar-Quinn</i>	SERIAL NUMBER: <i>118-36-97</i>	YEAR BUILT: <i>1997</i>
SIZE: (ID X LENGTH): <i>219mm x 1235mm</i>	HEAT TREATED:     YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	
PSV DATA		
MANUFACTURER: <i>Taylor</i>	SIZE: <i>1" x 1"</i>	
MODEL #: <i>T 8200-1</i>	CRN #: <i>0G1316.2C</i>	
SERIAL #: <i>20175-896</i>	CAPACITY: <i>300 scfm</i>	
SET DATE: <i>02/23/2006</i>	SET PRESSURE: <i>125 psi</i>	
TAG #: <i>2071</i>		
SERVICE CONDITIONS (CHECK ALL THAT APPLY)		
STEAM <input type="checkbox"/>	SWEET GLYCOL <input type="checkbox"/>	SOUR GLYCOL <input type="checkbox"/>
AIR <input type="checkbox"/>	SWEET GAS <input checked="" type="checkbox"/>	SOUR GAS <input type="checkbox"/>
LEAN AMINE <input type="checkbox"/>	SWEET CONDENSATE <input type="checkbox"/>	SOUR CONDENSATE <input type="checkbox"/>
RICH AMINE <input type="checkbox"/>	SWEET OIL <input type="checkbox"/>	SOUR OIL <input type="checkbox"/>
NITROGEN <input type="checkbox"/>	LPG <input type="checkbox"/>	CARBON DIOXIDE <input type="checkbox"/>
METER RUN DATA		
METER RUN	METER	
MODEL:	MODEL:	
SERIAL#:	SERIAL #:	
I.D. U/S:	DIFFERENTIAL PRESSURE:	
I.D. D/S	STATIC PRESSURE:	

**INSTALLATION OR EXTERNAL INSPECTION CHECKLIST  
EXHIBIT #400**

Project Description Single well Tie-in			Project Location 4-17-73-12 W6	
Task	Sub Task	Date	Checked by	Comments
<b>PV Nameplate Requirements</b> (All items to be legibly stamped on the Pressure Vessel Nameplate) The pressure vessel detail sheet must be completed and attached to this report	A Number, S Number or BC Number	02/25/2006	SR	
	Proper CRN for the provincial jurisdiction the equipment is installed in (Alberta .2, Saskatchewan .1, B.C. .3)	02/25/2006	SR	
	Design Pressure	02/25/2006	SR	All data included in Pressure Vessels PSV Form
	Minimum Design Temperature	02/25/2006	SR	
	Name of Manufacturer	02/25/2006	SR	
	Year Built	02/25/2006	SR	
	Serial Number	02/25/2006	SR	
<b>External Coating</b>	Piping and pressure vessel coated -with no evidence of disbondment or flaking	02/25/2006	SR	PAINT STARTING TO FLAKE
<b>Vessel Supports</b>	Vessel bolted down	02/25/2006	SR	
	Inspection hole in skirt	02/25/2006	SR	N/A
<b>Bulges, dents or blisters on vessel</b>	No evidence of external deformities on the vessel or piping system	02/25/2006	SR	
<b>External Corrosion</b>	No evidence of external corrosion on the studs, bolts, external surface of the pressure vessel or piping	02/25/2006	SR	SOME RUST FORMING ON EXTERIOR OF VESSEL
<b>External Cracks</b>	No evidence of external cracking on the welds, paying special attention to the weld toe	02/25/2006	SR	



**INSTALLATION OR EXTERNAL INSPECTION CHECKLIST  
EXHIBIT #400**

Project Description Single well Tie-in			Project Location 4-17-73-12 W6		
Task	Sub Task	Date	Checked by	Comments	
Pressure Gauge	Gauge accuracy verified	02/25/2006	SR	SHUT IN	
Temperature Gauge	Temperature gauge properly installed in a thermowell and in good condition	02/25/2006	SR		
PSV Nameplate Requirements (All information must be clearly stamped on the nameplate)	Stamped with a UV symbol	02/25/2006	SR	ALL DATA INCLUDED IN PSV DATA FORM	
	CRN#	02/25/2006	SR		
	Model Number	02/25/2006	SR		
	Manufacturer	02/25/2006	SR		
	Serial Number	02/25/2006	SR		
	Capacity	02/25/2006	SR		
PSV Condition	Sealed with a lead seal	02/25/2006	SR		
	Set pressure not to exceed MAWP of Pressure Vessel	02/25/2006	SR	RE-SET TO 1100 PSI <i>set to MOP of pipeline. J.S.</i>	
	Installed in a vertical position	02/25/2006	SR		
	Evidence of leakage	02/25/2006	SR		
	Block valves locked open	02/25/2006	SR	NO BLOCK VALVES	
	Drain hole is visible and not plugged		SR	N/A	
	Discharge pipe size not smaller than inlet of valve	02/25/2006	SR	2"	
	Excessive stress on discharge piping	02/25/2006	SR		

**INSTALLATION OR EXTERNAL INSPECTION CHECKLIST  
EXHIBIT #400**

Project Description Single well Tie-in			Project Location 4-17-73-12 W6	
Task	Sub Task	Date	Checked by	Comments
	Valve discharge not in an area that may be dangerous to personnel	02/25/2006	SR	EAVE HEIGHT
	Block valves not permitted on power boilers or heaters	02/25/2006	SR	
	Service Date not to exceed 5 years (state last service date)	02/25/2006	SR	SET FEB23/06
<b>Rupture Discs</b>	Nameplate data checked			N/A
	Direction of flow checked			N/A
	Space between rupture disc and PSV supplied with a pressure gauge			N/A
<b>Insulation</b>	Cladding in good condition		SR	N/A
<b>Bolts and Studs</b>	Tight and with a minimum of 2 threads showing on either side	03/05/2006	SR	
<b>Gaskets</b>	Installed in all flanged connections	03/05/2006	SR	
<b>Leak Testing</b>	No evidence of leakage on vessel piping, or instrumentation tubing		SR	Instrumentation to check on startup
<b>Hydrotesting</b>	Pressure test on all piping not previously tested in the shop	03/07/2006	SR	
<b>Piping Inspection</b>	Provision for adequate support	03/07/2006	SR	
	Provision for expansion	03/07/2006	SR	
	No evidence of leakage	03/07/2006	SR	
	Proper alignment to ensure no undue strain on the system	03/05/2006	SR	
	Proper rating for service conditions	03/05/2006	SR	



**INSTALLATION OR EXTERNAL INSPECTION CHECKLIST**  
**EXHIBIT #400**

Project Description Single well Tie-in			Project Location 4-17-73-12 W6	
Task	Sub Task	Date	Checked by	Comments
Drawings	Pressure vessel drawings reviewed and correct			
	P & ID drawings reviewed and correct	02/22/2006	SR	
Material Check	All material grades and specifications as per the approved drawings	02/22/2006	SR	
	Valve positions and type checked against drawing	03/03/2006	SR	
	Check valves installed in the proper direction	03/03/2006	SR	
	Instrumentation checked against approved drawings	03/03/2006	SR	Ward Marked up as built
Function Test Completed	All controllers, ESDV's, SCADA systems and meters functional	03/03/2006	WM	Instrumentation
Data Package (each item to be included)	Vessel Drawings	03/08/2006	SR	
	ABSA Manufacturers Data Report for Pressure Vessels			
	ABSA AB-81 - Completion of Construction Report for all Piping systems	03/08/2006	SR	Data in QC Package
	ABSA AB-83 - Construction Data Report for Piping systems	03/08/2006	SR	Data in QC Package
	ABSA AB-96 - General Engineering Requirements for Design & Construction of Pressure Piping Systems			
	Non Destructive Examination Reports	03/08/2006	SR	Data in QC package
	Welder Qualification Records	03/08/2006	SR	Data in QC package
	Hydrotest Reports	03/08/2006	SR	Data in QC package



**INSTALLATION OR EXTERNAL INSPECTION CHECKLIST  
EXHIBIT #400**

Project Description Single well Tie-in			Project Location 4-17-73-12 W6	
Task	Sub Task	Date	Checked by	Comments
	Hydrotest gauge calibration records	03/08/2006	SR	Data in QC package
	Stress Relieving Charts			N/A
	P & I.D.'s - As built		SR	Will forward to Engineering
	Material Test Records (required for all pressure vessels - optional for piping systems)		SR	Available on request from Supplier
	Weld Procedures	03/08/2006	SR	Data in QC package