A0475230 - SEPARATOR DATA REPORT - OCT 2001

1060-04

**Canadian Natural Resources Limited**

**Production - Facilities Engineering**
**A0475230 Horizontal Separator Manufacturers Data Report**

Content Date Range: 10/9/2001 to 10/9/2001

**Vessel Integrity**

Inspection Data

Open: 1/23/2007 Close:

Vital: Yes
Original: Yes
Confidential No

CC+2 0P P

00758585

FB-658

# FORM U-1A MANUFACTURER'S DATA REPORT FOR PRESSURE VESSELS

(Alternative Form for Single Chamber, Completely Shop-Fabricated Vessels Only)
As Required by the Provisions of the ASME Code Rules, Section VIII, Division 1

(A) 475230

1. Manufactured and certified by Black, Sivalls & Bryson (Canada) Ltd., 2314 – 8 Street, Nisku, Alberta T9E 7Z2

2. Manufactured for: Tundra Engineering Ltd. 18th flr, 250-6th Ave. S.W. Calg., AB. T2P 3H7

3. Location of Installation LSD 4-03-57-23 W5M

4. Type: Horizontal Sep. (Horiz. or vert. tank) | 011055-V100 (Mfg's Serial No.) | P6409.2 (CRN) | 30-CL-12351A Rev.0 (Drawing No.) | _____ (National Bd. No.) | 2001 (Year Built)

5. The chemical and physical properties of all parts meet the requirements of material specifications of the ASME BOILER AND PRESSURE VESSEL CODE. The design, construction and workmanship conform to ASME Rules, SectionVIII, Division 1, 1998 (year) to 2000 (Addenda (Date)) | _____ (Code Case No.) | _____ (Special service per UG 120(d))

6. Shell: SA-516-70N (Matl. (Spec. No., Grade)) | 1" (Nom.Thk. (in.)) | 0.0625" (Corr. Allow. (in.)) | 48" OD (Diam. I.D. (ft. & in.)) | 20'-0" S/S (Length (overall)(ft. & in.))

7. Seams: Type 1 (Long (Welded. Dbl., Snlg., Lap. Butt)) | full (RT (Spot or full)) | 100 (Eff. (%)) | N/A (H.T. Temp. (° F)) | N/A (Time (hr.)) | Type 1 (Girth (Welded. Dbl. Snlg., Lap. Butt)) | full (RT (Spot Partial or Full)) | 2 (No. of Courses)

8. Heads: (a) Matl. SA-516-70N (Spec. No., Grade) (b) Matl. SA-516-70N (Spec. No., Grade)

| | Location (Top, Bottom, Ends) | Minimum Thickness | Corrosion Allow. | Crown Radius | Knucle Radius | Elliptical Ratio | Conical Apex Angle | Hemispherical Radius | Flat Diameter | Side to Pressure (Convex or Concave) |
|---|---|---|---|---|---|---|---|---|---|---|
| (a) | end | 1.0625" | 0.0625" | | | 2:1 | | | | concave |
| (b) | end | 1.0625" | 0.0625" | | | 2:1 | | | | concave |

If removable, bolts used (describe other fastenings) _____ (Matl., Spec. No., Gr., Size, No.)

9. MAWP 720 psi at max. temp. 130 °F
Min. design metal temp. -20 °F at 720 psi. **Hydro.**, pneu., or comb. test pressure 936 psi.

10. Nozzles, inspection and safety valve openings:

| Purpose (Inlet, Outlet, Drain) | No. | Diam. Or Size | Type | Material | Nominal Thickness | Reinforcement Material | How Attached | Location |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |
| | | | | See attached | | | | |
| | | | | form U-4 | | | | |
| | | | | | | | | |

11. Supports: Skirt No (Yes or No) Lugs _____ (No.) Legs _____ (No.) Other: Saddles (Describe) Attached Welded to shell (Where and how)

12. Remarks: Manufacturer's Partial Data Reports properly identified and signed by Commissioned Inspectors have been furnished for the following items of the report:

(Name of part, item number, Mfg's name and identifying stamp)
Constructed to drawing # 30-CL-12351 Rev. 4. Impact exempt per UG-20(f) & UCS-66(a). Volume: 250 CU.FT.
Boot Shell: SA-106-B; 20"OD X 1.031"THK NOM. X 2'-3-5/16" LG.
Boot Head: SA-516-70N; 20"OD X 1.0" THK(MIN); 2:1 SE

## CERTIFICATE OF SHOP COMPLIANCE

We certify that the statements made in this report are correct and that all details of design, material, construction, and workmanship of this vessel conform to the ASME Code for Pressure Vessels, Section VIII, Division 1, "U" Certificate of Authorization No. 27894 expires August 8, 2003.

Date: Oct 9/01 Co. name Black, Sivalls & Bryson (Canada) Ltd. (Manufacturer) Signed Scott Koss (Representative)

## CERTIFICATE OF SHOP INSPECTION

Vessel constructed by Black, Sivalls & Bryson (Canada) Ltd. at Nisku, Alberta. I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State or Province of Alberta and employed by Alberta Boilers Safety Association have inspected the component described in this Manufacturer's Data Report on OCT 09, 2001 and state that, to the best of my knowledge and belief, the Manufacturer has constructed this pressure vessel in accordance with ASME Code, Section VIII, Division 1. By signing this certificate neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the pressure vessel described in this Manufacturer's Data Report. Furthermore, neither the Inspector nor his employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.

Date: 2001-10-09 Signed: M Kemp Commissions Alberta #132

## FORM U-4 MANUFACTURER'S DATA REPORT SUPPLEMENTARY SHEET
## As Required by the Provisions of the ASME Code Rules, Section VIII, Division 1

(A) 475230

1. Manufactured and certified by: Black, Sivalls & Bryson (Canada) Ltd., 2314 – 8 Street, Nisku, Alberta T9E 7Z2

2. Manufactured for: Tundra Engineering Ltd. 18th flr, 250-6th Ave. S.W. Calg., AB. T2P 3H7

3. Location of Installation: LSD 4-03-57-23 W5M

4. Type: Horizontal (Horizontal, vert., or sphere) | Separator (Tank, separator, heat exch. Etc.) | 011055-V100 (Mfg's serial No.)

P6409.2 (CRN) | 30-CL-12351A Rev.0 (Drawing No.) | (National Bd. No.) | 2001 (Year built)

10. Nozzles, inspection and safety valve openings:

| Purpose | No. | Size | Type | Material | Thickness. | Reinf. Mat. | How Attach | Location |
|---|---|---|---|---|---|---|---|---|
| INLET | 1 | 10" | 300#RFWN | SA-105N/SA-106-B | 1.125" | SA-516-70N | UW-16.1(c) | SHELL |
| GAS OUT | 1 | 10" | 300#RFWN | SA-105N/SA-106-B | 1.125" | SA-516-70N | UW-16.1(c) | SHELL |
| WATER OUT | 1 | 2" | 300#RFWN | SA-105N/SA-106-B | 0.343" | | UW-16.1(c) | SHELL |
| OIL OUT | 1 | 3" | 300#RFWN | SA-105N/SA-106-B | 0.600" | | UW-16.1(c) | SHELL |
| WATER LC CAGE | 2 | 2" | 300#RFWN | SA-105N/SA-106-B | 0.343" | | UW-16.1(c) | SHELL |
| OIL LC | 2 | 2" | 300#RFWN | SA-105N/SA-106-B | 0.343" | | UW-16.1(c) | SHELL |
| PSV | 1 | 3" | 300#RFWN | SA-105N/SA-106-B | 0.600" | | UW-16.1(c) | SHELL |
| MANWAY | 1 | 18" | 300#RFWN | SA-105N/SA-106-B | 0.750" | SA-516-70N | UW-16.1(c) | HEAD |
| TI | 1 | ¾" | CPLG | SA-105N | 6000# | | UW-16.1(c) | SHELL |
| | 1 | ¾" | CPLG | SA-105N | 6000# | | UW-16.1(c) | SHELL |
| ATER BOOT | 1 | 20" | PIPE | SA-106-B | 1.031" | SA-516-70N | UW-16.1(c) | SHELL |

Certificate of Authorization: Type U No. 27894 Expires August 8, 2003

Date Oct 9/01 Co. name Black, Sivalls & Bryson (Canada) Ltd. (Manufacturer) Signed Scott Koss (Representative)

Date 2001-10-09 Name: [illegible] Authorized Inspector Commission Alberta #132 (Nat'l Board (include. endorsements), State, Prov. and No.)


011055-V100
2001
P6409.2
0.0625"
720 PSIG
130 F
SA-516-70N
70000
SA-516-70N
70000
1" NOM
1.0625" MIN
-20 F AT 720 PSIG
48" OD X 20'-0" S/S HOR. SEP.
U
W
RT-1
A475230

# FORM U-3 MANUFACTURER'S CERTIFICATE OF COMPLIANCE
## COVERING PRESSURE VESSELS TO BE STAMPED WITH THE UM SYMBOL, SEE U-1(j)
### As Required by the Provisions of the ASME Code Rules, Section VIII, Division 1

1. Manufactured and certified by BLACK, SIVALLS & BRYSON (CANADA) LTD. 2314-8 ST., NISKU, AB T9E 7Z2 (Name and address of Manufacturer)

2. Manufactured for SAME AS ABOVE (Name and address of Purchaser)

3. Location of installation UNKNOWN - BUILT FOR STOCK (Name and address)

4. Type: VERTICAL (Horiz., vert., or sphere) SCRUBBER (Tank, separator, etc.) 1.1 CU.FT. (Capacity) 018102-001 V1-V13 (Mfg's. serial No.)

L8158.21 (CRN) 67-CM11502 (Drawing No.) 2001 (Year built)

5. ASME Code, Section VIII, Div. 1 1998 EDITION 2000 ADD. (Edition and Addenda (date)) (Code Case No.)

6. Shell (a) No. of course(s): (b) Overall length (ft & in.):

| Course(s) | | | Material | Thickness | | Long. Joint (Cat. A) | | | Circum. Joint (Cat. A, B, & C) | | | Heat Treatment | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No. | Diameter, in. | Length, ft & in. | Spec./Grade or Type | Nom. | Corr. | Type | Full, Spot, None | Eff. | Type | Full, Spot, None | Eff. | Temp. | Time |
| 1 | 8.625"OD | 3'-0" | SA-106-B | 0.322" | 0.0625" | -- | -- | -- | CORNER | NONE | 70% | -- | -- |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

7. Heads: (a) SA-516-70N (Mat'l Spec. No., Grade or Type) H.T. – Time & Temp. (b) SA-516-70N (Mat'l Spec. No., Grade or Type) H.T. – Time & Temp.

| | Location (Top, Bottom, Ends) | Thickness Min. | Thickness Corr. | Radius Crown | Radius Knuckle | Elliptical Ratio | Conical Apex Angle | Hemispherical Radius | Flat Diameter | Side to Pressure Convex | Side to Pressure Concave | Category A Type | Category A Full, Spot, None | Category A Eff. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (a) | TOP | 0.500" | 0.0625" | -- | -- | -- | -- | -- | 9.5" | -- | -- | -- | -- | -- |
| (b) | BOTTOM | 0.500" | 0.0625" | -- | -- | -- | -- | -- | 9.5" | -- | -- | -- | -- | -- |

If removable, bolts used (describe other fastening) -- (Mat'l Spec. No., Grade, Size, No.) --

8. Type of Jacket -- Jacket Closure -- (Describe as ogee & weld, bar, etc.)

If bar, give dimensions, if bolted describe or sketch --

9. MAWP 150 (internal) -- (external) psi at max. temp. 200 (internal) -- (external) °F. Min. design metal temp. -20 °F at 150 psi.

10. Impact test EXEMPT PER UG-20 (f)(1)to(5) (Indicate yes or no and the component(s) impact tested)

11. Hydro., pneu., or comb. test press. 195 PSIG Proof test --

12. Nozzles, inspection, and safety valve openings:

| Purpose (Inlet, Outlet, Drain, etc.) | No. | Diameter or Size | Flange Type | Material Nozzle | Material Flange | Nozzle Thickness Nom. | Nozzle Thickness Corr. | Reinforcement Material | How Attached Nozzle | How Attached Flange | Location (Insp. Open.) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| OUTLET | 1 | 2" | COUP. | SA-105N | -- | 3000# | 0.0625" | -- | UM-16.1(a) | -- | HEAD |
| INLET | 1 | 1" | T.O.L. | SA-105N | -- | 3000# | 0.0625" | -- | UM-16.1(a) | -- | SHELL |
| DRAIN | 1 | 3/4" | T.O.L. | SA-105N | -- | 3000# | 0.0625" | -- | UM-16.1(a) | -- | SHELL |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

13. Supports: Skirt NO (Yes or no) Lugs -- (No.) Legs -- (No.) Others -- (Describe) Attached -- (Where and how)

14. Manufacturer's Partial Data Reports properly identified and signed by Commissioned Inspectors have been furnished for the following items of the report:
(List the name of part, item number, mfg's. name and identifying number)

15. Remarks:
RELIEF VALVE TO BE INSTALLED BY OTHERS
CONSTRUCTION DRAWING NUMBER 67-CM-12089 REV-0

### CERTIFICATE OF SHOP COMPLIANCE

We certify that the statements made in this report are correct and that all details of design, material, construction, and workmanship of this vessel conform to the ASME Code for Pressure Vessels, Section VIII, Division 1.

UM Certificate of Authorization No. 28566 Expires AUGUST 8/02

Date Oct 13/01 Name BLACK, SIVALLS & BRYSON (CANADA) LTD. (Manufacturer) Signed Scott Kass (Representative)


BSB
018102-001V10
2001
0.25
200 F
AT 150 PSIG
RUBBER