

FORM U-1 MANUFACTURER'S DATA REPORT FOR PRESSURE VESSELS
As Required by the Provisions of the ASME Code Rules, Section VIII, Division 1

① 602749

1. Manufactured and certified by Alco Gas & Oil Production Equipment LTD. 5203 75th St., Edmonton, Alberta T6E 5S5 Canada
(Name and address of Manufacturer)
2. Manufactured for Canadian Natural Resources Ltd. 2500. 855 - 2 St SW Calgary, AB T2P 4J8
(Name and address of Purchaser)
3. Location of installation BEG. BC (LSD: a-3-K / 94-g-1)
(Name and address)
4. Type: VERTICAL 3PH GLYCOL CONTACTOR 2009-8009-01
(Horiz., vert., or sphere) (Tank, separator, jkt. vessel, heat exh., etc.) (Manufacturer's serial number)
- U-6638.231 D-2008-7860-01-001/002 R1 N/A 2011
(CRN) (Drawing number) (National Board number) (Year built)
5. ASME Code, Section VIII, Div. 1 2007 EDITION 2008 ADDENDA N/A N/A
[Edition and Addenda (date)] (Code Case No.) [Special Service per UG-120(d)]
- Items 6 - 11 incl. to be completed for single wall vessels, jackets of jacketed vessels, shell of heat exchangers, or chamber of multi-chamber vessels.
6. Shell (a) Number of course(s): 2 (b) Overall length (ft & in.): 28'-0" SM/SM

Course(s)			Material		Thickness		Long. Joint (Cat. A)			Circum. Joint (Cat. A, B, & C)			Heat Treatment	
No.	Diameter, in.	Length	Spec./Grade or Type		Nom.	Corr.	Type	Full, Spot, None	Eff.	Type	Full, Spot, None	Eff.	Temp.	Time
1	16"OD	7'-6"	SA-106B		0.843"	1/8"	S	N/A	100%	1	FULL	100%	1150°F	1 HOUR
1	16"OD	20'-6"	SA-106B		0.843"	1/8"	S	N/A	100%	1	FULL	100%	1150°F	1 HOUR

7. Heads: (a) SA-516Gr.70MT (1150°F FOR 1 HOUR) (b) SA-516Gr.70MT (1150°F FOR 1 HOUR)
(Material spec. number, grade or type) (H.T. — time and temp.) (Material spec. number, grade or type) (H.T. — time and temp.)

	Location (Top, Bottom, Ends)	Thickness		Radius		Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure		Category A		
		Min.	Corr.	Crown	Knuckle					Convex	Concave	Type	Full, Spot, None	Eff.
(a)	TOP	0.803"	1/8"	N/A	N/A	2:1	N/A	N/A	N/A	N/A	Concave	N/A	N/A	N/A
(b)	BOTTOM	0.803"	1/8"	N/A	N/A	2:1	N/A	N/A	N/A	N/A	Concave	N/A	N/A	N/A

- If removable, bolts used (describe other fastening) N/A
(Material spec. number, grade, size, number)

8. Type of jacket N/A Jacket closure N/A
(Describe as ogee & weld, bar, etc.)

If bar, give dimensions N/A If bolted, describe or sketch.

9. MAWP 1350 PSI 0 PSI at max. temp. 150°F 150°F Min. design metal temp. -20°F at 1350 PSI
(internal) (external) (internal) (external)

10. Impact test NO. CHARPY IMPACT TEST EXEMPT PER UG-20(f). FLANGES PER UCS-66(c) at test temperature of _____
(Indicate yes or no and the component(s) impact tested)

11. Hydro., pneu., or comb. test press. Hydrostatic 1755 PSIG Proof test N/A
Items 12 and 13 to be completed for tube sections.

12. Tubesheet: N/A N/A N/A N/A N/A
(Stationary (Mat'l Spec. No.)) (Diameter (subject to press.)) (Nominal thickness) (Corr. allow.) (Attachment (welded or bolted))
- N/A N/A N/A N/A N/A
(Floating (Mat'l Spec. No.)) (Diameter) (Nominal thickness) (Corr. allow.) (Attachment)

13. Tubes: N/A N/A N/A N/A N/A
(Mat'l Spec. No., Grade or Type) (O.D.) (Nominal thickness) (Number) [Type (Straight or U)]

Items 14 - 18 Incl. to be completed for inner chambers of jacketed vessels or channels of heat exchangers.

14. Shell (a) No. of course(s): 1 (COIL) (b) Overall length 3'-0"

Course(s)			Material		Thickness		Long. Joint (Cat. A)			Circum. Joint (Cat. A, B, & C)			Heat Treatment	
No.	Diameter	Length	Spec./Grade or Type		Nom.	Corr.	Type	Full, Spot, None	Eff.	Type	Full, Spot, None	Eff.	Temp.	Time
1	1.050"OD	3'-0"	SA-312Tp.304		0.154"	0	S	N/A	100	N/A	----	N/A	1150F	1HR

15. Heads: (a) SA-105N CL6000 COUPLING (1150°F FOR 1 HOUR) (b) SA-105N CL6000 COUPLING (1150°F FOR 1 HOUR)
(Mat'l Spec. No., Grade or Type) (H.T.-Time & Temp.) (Mat'l Spec. No., Grade or Type) (H.T.-Time & Temp.)

	Location (Top, Bottom, Ends)	Thickness		Radius		Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure		Category A		
		Min.	Corr.	Crown	Knuckle					Convex	Concave	Type	Full, Spot, None	Eff.
(a)	END	CL6000	1/8"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	----	N/A	N/A	N/A
(b)	END	CL6000	1/8"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	----	N/A	N/A	N/A

- If removable, bolts used (describe other fastening) N/A
(Mat'l Spec. No., Grade, size, No.)

FORM U-1 (Back)

16. MAWP 1350 PSI 1350 PSI at max. temp. 150°F 150°F Min. design metal temp. -20°F at 1350 PSI
 (internal) (external) (internal) (external)

17. Impact test NO-EXEMPT PER UHA-51(d)(1) at test temperature of _____
 (Indicate yes or no and the component(s) Impact tested)

18. Hydro., pneu., or comb. test press. Hydrostatic 1755 PSIG Proof test N/A

19. Nozzles, inspection, and safety valve openings:

Purpose (Inlet, Outlet, Drain, etc.)	No.	Diameter or Size	Flange Type	Material		Nozzle Thickness		Reinforcement Material	How Attached		Location (Insp. Open)
				Nozzle	Flange	Nom.	Corr.		Nozzle	Flange	
GAS INLET	1	3"	CL900 RFWN	SA-106B	SA-105N	0.600"	1/8"	N/A	UW 16.1(c)	TYPE1	SHELL
GAS OUTLET	1	3"	CL900 RFWN	SA333 Gr6	SA-105N	0.438"	1/8"	N/A	UW 16.1(c)	TYPE1	Top Head
PSV	1	1"	TOL	SA-105N	N/A	CL6000	1/8"	N/A	UW 16.1(a)	N/A	SHELL
OIL OUTLET	1	1"	TOL	SA-105N	N/A	CL6000	1/8"	N/A	UW 16.1(a)	N/A	SHELL
GLYCOL OUT	1	1"	TOL	SA-105N	N/A	CL6000	1/8"	N/A	UW 16.1(a)	N/A	SHELL
TEMP IND	1	3/4"	TOL	SA-105N	N/A	CL6000	1/8"	N/A	UW 16.1(a)	N/A	SHELL
PRESS IND	1	1/2"	TOL	SA-105N	N/A	CL6000	1/8"	N/A	UW 16.1(a)	N/A	SHELL

20. Supports: Skirt Yes Lugs NO Legs NO Others --- Attached Welded to Bottom Head
 (Yes or No) (No.) (No.) (Describe) (Where and how)

21. 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):
N/A

22. Remarks: RT PER UW-11(a) / NO RT ON COIL / HYDROTESTED IN HORIZONTAL POSITION
PSV ON VESSEL / VOLUME 32 FT³ / AS BUILT DRAWING D-2011-8165-01-001/001 R0
SOLD TO 2011-8165-01 / SEE ATTACHED U4 DATA REPORT

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. 14259 Expires OCTOBER 7, 2013

Date FEB 16, 2011 Name Alco Gas & Oil Production Equipment LTD.

(Manufacturer)

Signed

(Representative)

CERTIFICATE OF SHOP INSPECTION

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 ABSA of ALBERTA have inspected

the pressure vessel described in this Manufacturer's Data Report on FEB. 16, 2011, 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 02-16-11

Signed

(Authorized Inspector)

Commissions

(Nat'l Board Incl. endorsement, State, Province and No.)

CERTIFICATE OF FIELD ASSEMBLY COMPLIANCE

We certify that the statements on this report are correct and that the field assembly construction of all parts of this vessel conforms with the requirements of ASME Code, Section VIII, Division 1.

U Certificate of Authorization No. _____ Expires _____

Date _____ Name _____

(Assembler)

Signed

(Representative)

CERTIFICATE OF FIELD ASSEMBLY INSPECTION

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 _____ and employed by _____ of _____

have compared the statements in this Manufacturer's Data Report with the described pressure vessel and state that parts referred to as data items _____, not included in the certificate of shop inspection, have been inspected by me and to the best of my knowledge and belief, the Manufacturer has constructed and assembled this pressure vessel in accordance with ASME Code, Section VIII, Division 1. The described vessel was inspected and subjected to a hydrostatic test of _____ psi. 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 _____ Signed

(Authorized Inspector)

Commissions

(Nat'l Board Incl. endorsement, State, Province and No.)

(A) 602749

- **Nozzles, inspection, and safety valve openings:**

Data Report
Item Number

Remarks

Type U No. 14259 Expires OCTOBER 7 2013

Date 02-16-11 Name  Commission AB245
(Authorized Inspector) (Nat'l. Board incl. endorsement, state, province and no.)