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A 602814

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. 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 Husky Oil Operations Ltd c/o Excelsior Engineering Ltd - 400, 1110 Centre Street NE Calgary AB T2E 2R2  
(Name and address of Purchaser)
3. Location of installation MINEHEAD COMPRESSOR STATION (LSD: 03-06-049-18 W5M)  
(Name and address)
4. Type: HORIZONTAL 192 NEN RAW CONDENSATE PRE HEATER 2011-8169-01  
(Horiz., vert., or sphere) (Tank, separator, jkt. vessel, heat ex., etc.) (Manufacturer's serial number)
- V-3989.2 D-2011-8169-01-001/001 R0 N/A 2011  
(CRN) (Drawing number) (National Board number) (Year built)
5. ASME Code, Section VIII, Div. 1 2010 EDITION 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): 1 (b) Overall length (ft & in.): 15'-9 3/8" SEAM/SEAM

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	8.625"OD	15'-9 3/8"	SA-106 GrB		0.322"	1/16"	S	N/A	100%	7	NONE	100%	N/A	N/A

7. Heads: (a) SEE TUBESHEET (b) SEE TUBESHEET  
(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)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
(b)	N/A	N/A	N/A	N/A	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  
(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 400 PSI 0 PSI at max. temp. 300°F 300°F Min. design metal temp. -20°F at 400 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 N/A  
(Indicate yes or no and the component(s) impact tested)

11. Hydro., pneu., or comb. test press. Hydrostatic 520 PSIG Proof test N/A  
Items 12 and 13 to be completed for tube sections.

12. Tubesheet: SA-516Gr.70MT 7 7/8" 1.420 TS/SS 1/16" Welded  
(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: SA-179 3/4" 14 BWG 44 Straight  
(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): 2 (b) Overall length 1'-9 1/2" SM/SM

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
2	8.625"OD	0'-10 3/4"	SA-106 GrB		0.322"	1/16"	S	N/A	100%	1	SPOT	70%	N/A	N/A

15. Heads: (a) SA-105N NPS 8 CL300 RF BLIND (b) SA-105N NPS 8 CL300 RF BLIND  
(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	1.625"	1/16"	N/A	N/A	N/A	N/A	N/A	13"BCD	N/A	N/A	N/A	N/A	N/A
(b)	END	1.625"	1/16"	N/A	N/A	N/A	N/A	N/A	13"BCD	N/A	N/A	N/A	N/A	N/A

If removable, bolts used (describe other fastening) 24pc-7/8"DIA X 5 1/2"LG UNC-2A SA-193-B7 STUDS c/w 2 SA-194-2H HEX NUTS EACH  
(Mat'l Spec. No., Grade, size, No.)

## FORM U-1 (Back)

16. MAWP 400 PSI 0 PSI at max. temp. 300°F 300°F Min. design metal temp. -20°F at 400 PSI  
 (internal) (external) (internal) (external)

17. Impact test EXEMPT Shells & Tubesheets Per UG-20(f) & Flanges UCS-66(c) at test temperature of N/A  
 (Indicate yes or no and the component(s) impact tested)

18. Hydro., pneu., or comb. test press. Hydrostatic 520 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	
Channel Cover	2	8"	CL300RFWN	N/A	SA105N	0.322"	1/16"	N/A	N/A	TYPE 1	Channel
COND INLET	1	4"	CL300RFWN	SA-106B	SA105N	0.337"	1/16"	N/A	UW16.1(c)	TYPE 1	SHELL
COND OUT	1	4"	CL300RFWN	SA-106B	SA105N	0.337"	1/16"	N/A	UW16.1(c)	TYPE 1	SHELL
PROD INLET	1	2"	CL300RFWN	SA-106B	SA105N	0.218"	1/16"	N/A	UW16.1(c)	TYPE 1	Tube Side
PROD OUT	1	2"	CL300RFWN	SA-106B	SA105N	0.218"	1/16"	N/A	UW16.1(c)	TYPE 1	Tube Side
VENT/DRAIN	2	3/4"	COUPLING	SA105N	N/A	CL3000	1/16"	N/A	UW16.1(c)	N/A	SHELL
VENT/DRAIN	2	3/4"	COUPLING	SA105N	N/A	CL3000	1/16"	N/A	UW16.1(c)	N/A	Tube Side

20. Supports: Skirt No Lugs NO Legs NO Others SADDLES Attached WELDED TO SHELL  
 (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: IMPACT TEST EXEMPT STUDS & NUTS PER UCS-66 NOTE(c), TUBES EXEMPT PER UCS-66(d)  
HEATING SURFACE 136.4 FT<sup>2</sup> / VOLUME 5.58 FT<sup>3</sup> / MPI TUBESHEETS PER UG-93(d)  
AS BUILT DRAWING D-2011-8169-01-001/001 R1 / PSV LOCATED IN PIPING  
INSPECTION OPENING OMITTED PER UG 46(a) / RT TUBESIDE PER UW-11(a)5(b), RT SHELLSIDE - NONE

## 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 3/30/2011

Name Alco Gas & Oil Production Equipment LTD.

Signed

(Manufacturer)

(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 MARCH 30, 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 03-30-11

Signed

(Authorized Inspector)

Commissions

NB12897 A/B

A3245

(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.)