

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

0664805

1. Manufactured and certified by EXCHANGER INDUSTRIES (A Division of Premetalco Inc.) 5505 - 52 Street S.E., Calgary, AB T2A 6A8  
 (Name and address of Manufacturer)

Manufactured for TITAN PROJECTS LTD., 8th FLR. 703 - 6 AVE S.W. CALGARY AB T2P0T9  
 (Name and address of Purchaser)

3. Location of installation MURPHY OIL , CACTUS LAKE , SASKATCHEWAN  
 (Name and address)

4. Type HORIZONTAL HEAT EXCHANGER 97 - 1691B  
 (Horiz., vert., or sphere) (Tank, separator, jkt. vessel, heat exh., etc.) (Mfg's serial No.)

A-3575.32 97 - 1691A/B N/A 1998  
 (CRN) (Drawing No.) (Nat'l. Bd No.) (Year Built)

5. ASME Code, Section VIII, Div 1 1995 - 1996 N/A N/A  
 Edition and Addenda (date) Code Case No. Special Service per UG-120(d)

Items 6-11 to be completed for single wall vessel, jacket of jacketed vessel, shells of heat exchanger, or chamber of multi-chambered vessel.

6. Shell (a) No. of Course(s): 2 (b) Overall length (ft & in.): 19' 8 9/16"

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	2'10 1/4"	10'x 0"	SA-516-70N		.625"	1/8"	1	SPOT	.85	1	SPOT	.85	N/A	N/A
1	2'10 1/4"	9'x8 9/16"	SA-516-70N		.625"	1/8"	1	SPOT	.85	1	SPOT	.85	N/A	N/A

7. Heads: (a) N/A (b) Mat'l SA-516-70N  
 (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	Conical	Hemishperical	Flat	Side to Pressure		Category A		
		Min.	Corr.	Crown	Knuckle	Ratio	Apex Angle	Radius	Diameter	Convex	Concave	Type	Full,Spot,None	Eff.
(a)														
(b)	END	.588"	1/8"			2:1					x			

if removable, bolts used (describe other fasteners) N/A  
 (Mat'l Spec. No. Grade, size No.)

8. Type of Jacket N/A Jacket Closure N/A  
 (Describe as Ogee & weld, bar, etc)

N/A if bolted, describe or sketch.

9. M.A.W.P.: 348 - psi at max. temp. 428 - °F Min. design metal temp. 32 °F at 348 psi.  
 (internal) (external) (internal) (external)

10. Impact test SHELLSIDE & TUBES EXEMPT PER UG-20(f). PLATE EXEMPT PER UCS-66(a). REQ'D ON CHANNEL TEMA FLG & NOZ STUB MAT'L ONLY.  
 (Indicate yes or no and the component(s) tested)

11. Hydro.pneu.or comb.test press. press. 522 PSI Proof test N/A

Items 12-13 to be completed tube sections.

12. Tubesheet: SA-266-4N&IT 35 1/8" 9 1/4" 3/16" BOLTED  
 Stationary (Mat'l Spec. No.) Dia., in. (subject to press.) Nom. thk. in. Corr. Allow., in. Attachment (welded or bolted)

Floating (Mat'l Spec. No.) Dia., in. (subject to press.) Nom. thk. in. Corr. Allow., in. Attachment (welded or bolted)

13. Tubes: SA-179 3/4" 12 BWG M/W 338 U  
 Mat'l Spec. No., Grade or Type O.D., in. Nom. thk., in. or gauge Number Type (Straight or U)

Items 14-17 incl. to be completed for inner chamber of jacketed vessels or channels of heat exchangers.

14. Shell (a)No. of Course(s): 1 (b) Overall length (ft & in.): 1' - 4"

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	38"	1' 4"	SA-516-70N		2 1/2"	1/16"	1	FULL	1.0	1	FULL	1.0	1150	150MINS

15. Heads: (a) Mat'l SA-516-70N (b) Mat'l N/A  
 (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	Conical	Hemishperical	Flat	Side to Pressure		Category A		
		Min.	Corr.	Crown	Knuckle	Ratio	Apex Angle	Radius	Diameter	Convex	Concave	Type	Full,Spot,None	Eff.
(a)	END	2.434"	1/16"			2:1					x			

if removable, bolts used (describe other fasteners) N/A  
 (Mat'l Spec. No. Grade, size No.)

FORM U-1 (Back)

16. M.A.W.P.: 2167 (internal) - psi at max. temp. 428 (internal) - °F Min. design metal temp. 32 °F at 2167 psi. (external) (external)

17. Impact test **YES REQ'D ON CHAN. TEMA FLG & NOZ. STUB MAT'L ONLY. PLATE EXEMPT PER UCS-66(a) SHELLSIDE & TUBES EXEMPT PER UG-20(f).**  
(Indicate yes or no and the component(s) tested)

18. Hydro.pneu.or comb.test press. press. 3251 PSI Proof test N/A

19. Nozzles, inspection, and safety valve openings:

Purpose (Inlet, Outlet, Dm)	No.	Diameter or Size	Flange Type	Material		Nozzle Thickness		Reinforcement Material	How attached		Location (Insp. Open.)
				Nozzle	Flange	Nom.	Corr.		Nozzle	Flange	
CHANNEL INLET	1	4" 1500#	RTJWN	SA-266-4NIT	SA-350LF2	1 7/16"	1/16"	NONE	UW16.1c	WELDED	CHANNEL BOTTOM
CHANNEL OUTLET	1	4" 1500#	RTJWN	SA-266-4NIT	SA-350LF2	1 7/16"	1/16"	NONE	UW16.1c	WELDED	CHANNEL TOP
SHELL INLET	1	8" 300#	RFWN	SA-106 B	SA-105N	.500"	1/8"	SA-516-70N	UW16.1c	WELDED	SHELL TOP
SHELL OUTLET	1	8" 300#	RFWN	SA-106 B	SA-105N	.500"	1/8"	SA-516-70N	UW16.1c	WELDED	SHELL BOTTOM

20. Supports: Skirt N/A Lugs N/A Legs N/A Other SADDLE Attached WELDED TO SHELL  
Yes/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)

22. Remarks: **STRESS RELIEVE: "U" BENDS @ 1100 F FOR 30 MINS.**  
SAFETY VALVES: PSV ON PIPING CUBIC CAPACITY: 136.4 CU. FT.  
SURFACE AREA: 2743.4 SQ. FT.  
SERVICE: THERMAL EMULSION / BFW EXCHANGER  
ITEM #: E - 301B

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. 5983 Expires March 30 1999, 19 99  
Date 21 JAN 98 Name Exchanger Industries (A Division of Premetalco Inc.) Signed M.V. Boelter  
(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 ALBERTA BOILERS SAFETY ASSOCIATION of CALGARY, ALBERTA have inspected the pressure vessel described in the Manufacturer's Data Report on Jan 21, 19 98 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 the 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 Jan 21/98 Signed [Signature] Commissions ALTA #58  
(Authorized Inspector) (Nat'l Brd(incl.endorsements), State, Prov. and No.)

CERTIFICATE OF FIELD ASSEMBLY 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. \_\_\_\_\_ Expires \_\_\_\_\_, 19 \_\_\_\_\_  
Date \_\_\_\_\_ Name \_\_\_\_\_ Signed \_\_\_\_\_  
(Manufacturer) (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 inspected the pressure vessel described in the Manufacturer's Data Report on \_\_\_\_\_, 19 \_\_\_\_\_, 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 the 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 \_\_\_\_\_ Commissions \_\_\_\_\_  
(Authorized Inspector) (Nat'l Brd(incl.endorsements), State, Prov. and No.)