

JUL 15 1981

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

PC-423-1/2  
A13/803

1. Manufactured by Dominion Bridge Company Ltd. Edmonton, Alberta  
 (Name and address of manufacturer)

2. Manufactured for Turbo Resources Ltd.  
 (Name and address of purchaser)

3. Location of Installation Turbo - Balzac - Alberta  
 (Name and address)

4. Type Horizontal Butane Vessel No. A5381-A D. 9537.2 # 1-A5381  
 (Horizontal tank) (Mfg. Serial No.) (CRN) (Drawing)

Year Built 1981  
 (Nat'l Bld No.)

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, Section VIII, Division 1 1980 and Addenda to Dec./80 and Code Case no. \_\_\_\_\_  
 (Year) (Date)

Special service per UG-120(d) \_\_\_\_\_

Manufacturers' 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)

Items 6-11 incl. to be completed for single wall vessels, jackets of jacketed vessels, or shells of heat exchangers:

6. Shell Material S-516-70 Nominal Thickness 14mm Corrosion Allowance .063 in. (1.5mm)  
 (Spec. No., Grade)

Diam. 3200mm Length 38600mm T/T \_\_\_\_\_  
 (10'5-15/16") (126'7-11/16")

CERTIFICATE OF 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.

Date June 12/81 Signed Dominion Bridge Co. Ltd. by [Signature]  
 (Manufacturer) (Representative)

"U" Certificate of Authorization No. 10684 expires Dec. 31 19 82

CERTIFICATE OF SHOP INSPECTION

Vessel made by Dominion Bridge Co. Ltd. at Edmonton, 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 Province of Alberta have inspected the pressure vessel described in this Manufacturers' Data Report on June 9 19 81 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 Manufacturers' 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 81-06-16  
 Signed [Signature] Commissions Alberta  
 (Inspector) (Nat'l Board, State, Province and No.)

CERTIFICATE OF COMPLIANCE FOR FIELD WORK

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.

Date \_\_\_\_\_ Signed \_\_\_\_\_ by \_\_\_\_\_  
 (Manufacturer) (Representative)

"U" Certificate of Authorization No. \_\_\_\_\_ expires \_\_\_\_\_ 19 \_\_\_\_\_

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 Manufacturers' 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 that, 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 Manufacturers' 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 Board, State, Province and No.)

A131003

7 Seams: Longitudinal ... B.W. (Welded, Dbl., Sngl. Lap, Butt) R.T. Spot (Spot or Full) Efficiency 55%  
H.T. Temp \_\_\_\_\_ F Time \_\_\_\_\_ Girth \_\_\_\_\_ D.F.W. (Welded, Dbl., Sngl. Lap, Butt)

R.T. Spot (Spot, Partial or Full) No. of Courses 13  
8 Heads: (a) Material SA516-70 (Spec. No., Grade) (b) Material SA516-70 (Spec. No., Grade)

	Location (Top, Bottom, Ends)	Minimum Thickness	Corrosion Allowance	Crown Radius	Knuckle Radius	Elliptical Ratio
(a)	Ends	.5" (12.7mm)	.063" (1.5mm)	1.5mm		2:1
(b)	Ends	.5" (12.7mm)	.063" (1.5mm)	1.5mm		2:1
	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure (Convex or Concave)		
(a)				Concave		
(b)				Concave		

If removable, bolts used (describe other fastenings) \_\_\_\_\_ (Material, Spec. No., Gr., Size, No.) \_\_\_\_\_

9. Type of Jacket \_\_\_\_\_ Proof Test \_\_\_\_\_

10. Jacket Closure \_\_\_\_\_ (Describe as edge & weld, bar, etc.) If bar, give dimensions \_\_\_\_\_

11. Constructed for max. allowable working pressure 100 psi at max temp. 100° F. Min. temp. (when less than -20 F) \_\_\_\_\_ F. Hydrostatic, pneumatic, or combination test pressure 150 psi. (Horiz)

Items 12 and 13 to be completed for tube sections

12. Tubesheets: Stationary - Material \_\_\_\_\_ (Spec. No., Gr.) Diam. \_\_\_\_\_ (Subject to pressure) in.  
Nominal Thickness \_\_\_\_\_ in. Corrosion Allowance \_\_\_\_\_ in. Attachment \_\_\_\_\_ (Welded, Bolted)  
Floating - Material \_\_\_\_\_ Diam. \_\_\_\_\_ in.  
(Spec. No., Gr.)  
Nominal Thickness \_\_\_\_\_ in. Corrosion Allowance \_\_\_\_\_ in.  
Attachment \_\_\_\_\_

13. Tubes: Material \_\_\_\_\_ (Spec. No., Gr.) G.D. \_\_\_\_\_ in. Nominal Thickness \_\_\_\_\_ in. or gauge  
Number \_\_\_\_\_ Type \_\_\_\_\_ (Straight or "U")

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

14. Shell: Material \_\_\_\_\_ (Spec. No., Gr.) Nominal Thickness \_\_\_\_\_ in. Corrosion Allowance \_\_\_\_\_ in.  
Diam. \_\_\_\_\_ ft in. Length \_\_\_\_\_ ft in.

15. Seams: Longitudinal \_\_\_\_\_ (Welded, Dbl., Sngl. Lap, Butt) R.T. \_\_\_\_\_ (Spot or Full) Efficiency \_\_\_\_\_ %  
H.T. Temp \_\_\_\_\_ F Time \_\_\_\_\_ Girth \_\_\_\_\_ (Welded, Dbl., Sngl. Lap, Butt)  
R.T. \_\_\_\_\_ (Spot, Partial or Full) No. of courses \_\_\_\_\_

16. Heads: (a) Material \_\_\_\_\_ (Spec. No., Grade) (b) Material \_\_\_\_\_ (Spec. No., Grade)

	Location (Top, Bottom, Ends)	Minimum Thickness	Corrosion Allowance	Crown Radius	Knuckle Radius	Elliptical Ratio
(a)						
(b)						
	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure (Convex or Concave)		
(a)						
(b)						

If removable, bolts used (describe other fastenings) \_\_\_\_\_ (Material, Spec. No., Gr., Size, No.) \_\_\_\_\_

17. Constructed for max. allowable working pressure \_\_\_\_\_ psi at max temp. \_\_\_\_\_ F. Min. temp. (when less than -20 F) \_\_\_\_\_ F. Hydrostatic, pneumatic, or combination test pressure \_\_\_\_\_ psi.

Items below to be completed for all vessels where applicable

18. Safety Valve Outlets: Number \_\_\_\_\_ Size \_\_\_\_\_ Location By Others \_\_\_\_\_

19. Nozzles:

Purpose (Inlet, Outlet, Drain)	Number	Diam. or Size	Type	Material	Nominal Thickness	Reinforcement Material	How Attached

Various - See Drawing #1-A5881

20. Inspection Openings:  
Manholes No. 2 Size 20" Location Head & Shell  
Handholes No. \_\_\_\_\_ Location \_\_\_\_\_  
Threaded No. \_\_\_\_\_ Location \_\_\_\_\_  
21. Supports: Skirt (Yes or no) \_\_\_\_\_ Lugs (No.) \_\_\_\_\_ Legs (No.) \_\_\_\_\_ Other Saddles (Describe)

Attached \_\_\_\_\_ (Where and how)

22. Remarks: Volume 11046 Cu. Ft. (312.79 cu m)

**U-2 MANUFACTURERS' PARTIAL DATA REPORT**  
**A part of a Pressure Vessel Fabricated by One Manufacturer for Another Manufacturer**  
**As Required by the Provisions of the ASME Code Rules, Section VIII, Division 1**

1(a) Manufactured by C. E. Macpherson Co., Div. of TIW Industries Ltd., 468 Rideau St., Kingston Ont  
(Name and address of manufacturer of part)  
 (b) Manufactured for Dominion Bridge Co. Ltd., 803 - 24th Avenue S. E., Calgary, Alberta  
(Name and address of manufacturer of vessel)  
 2. Manufacturer's Serial No. of Part 34133-80-188, 189, 190 & 191 Drawing No. \_\_\_\_\_ Nat'l Bd. No. \_\_\_\_\_ Year Built 1981  
 3. (a) Drawing Prepared by \_\_\_\_\_  
 (b) Description of Part Inspected \_\_\_\_\_  
 4. The chemical and physical properties of all parts meet the requirements of material specifications of the ASME Boiler and Pressure Vessel Code. The construction, and workmanship conform to ASME Rules, Section VIII, Division 1 1977  
(Year)  
 and Addenda through Jan 30/81 and Code Case No. \_\_\_\_\_  
(Date)

5. Special Service per UG-120(d) \_\_\_\_\_  
 6. Postweld Heat Treatment: Temperature \_\_\_\_\_ F. Time \_\_\_\_\_  
*Items 7-12 incl. to be completed for single wall vessels, jackets of jacketed vessels, or shells of heat exchangers*  
 7. Shell: Material \_\_\_\_\_ Nominal Thickness \_\_\_\_\_ in. Corrosion allowance \_\_\_\_\_ in.  
(Spec. No., Grade)  
 Diam. \_\_\_\_\_ ft \_\_\_\_\_ in. Length \_\_\_\_\_ ft \_\_\_\_\_ in.  
 8. Seams: Longitudinal Welded Butt R.T. UW - 52 Efficiency 80 %  
(Welded, Dbl., Sngl., Lap. Butt)  
 H.T. Temp. \_\_\_\_\_ F Time \_\_\_\_\_ Girth \_\_\_\_\_  
(Welded Dbl., Sngl., Lap. Butt)  
 R.T. \_\_\_\_\_ No. of Courses \_\_\_\_\_  
(Spot, Partial, or Full)

9. Heads (a) Material A516 Gr 70 PVO (b) Material \_\_\_\_\_  
(Spec. No., Grade)

	Location (Top, Bottom, Ends)	Minimum Thickness	Corrosion Allowance	Crown Radius	Knuckle Radius	Elliptical Ratio
(a)	_____	<u>.50</u>	_____	_____	_____	<u>2:1</u>
(b)	_____	_____	_____	_____	_____	_____

	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure (Convex or Concave)
(a)	_____	_____	_____	_____
(b)	_____	_____	_____	_____

If removable, bolts used (describe other fastenings) \_\_\_\_\_  
(Material, Spec. No., Gr., Size, No.)

10. Type of Jacket \_\_\_\_\_ Proof Test \_\_\_\_\_  
 11. Jacket Closure \_\_\_\_\_ If bar, give dimensions \_\_\_\_\_  
(Describe as ogee & we'd, bar, etc.)

If bolted, describe or sketch. \_\_\_\_\_  
 12. Constructed for max. allowable working pressure \_\_\_\_\_ psi at max. temp. \_\_\_\_\_ F Min. temp. \_\_\_\_\_  
 (when less than -20 F) \_\_\_\_\_ F. Hydrostatic, pneumatic, or combination test pressure \_\_\_\_\_ psi.

*Items 13 and 14 to be completed for tube sections*

13. Tubesheets: Stationary — Material \_\_\_\_\_ Diam. \_\_\_\_\_ in.  
(Spec. No., Gr.) (Subject to pressure)  
 Nominal Thickness \_\_\_\_\_ Corrosion Allowance \_\_\_\_\_ in. Attachment \_\_\_\_\_  
(Welded, Bolted)

Floating — Material \_\_\_\_\_ Diam. \_\_\_\_\_ in.  
(Spec. No., Gr.)  
 Nominal Thickness \_\_\_\_\_ in. Corrosion Allowance \_\_\_\_\_ in.  
 Attachment \_\_\_\_\_

14. Tubes: Material \_\_\_\_\_ O.D. \_\_\_\_\_ in. Nominal Thickness \_\_\_\_\_ in. or gauge  
(Spec. No., Gr.)  
 Number \_\_\_\_\_ Type \_\_\_\_\_  
(Straight or "U")

*Items 15-18 incl. to be completed for inner chambers of jacketed vessels or channels of heat exchangers*

15. Shell: Material \_\_\_\_\_ Nominal Thickness \_\_\_\_\_ in. Corrosion Allowance \_\_\_\_\_ in.  
 Diam. \_\_\_\_\_ ft \_\_\_\_\_ in. Length \_\_\_\_\_ ft \_\_\_\_\_ in.

16. Seams: Longitudinal \_\_\_\_\_ R.T. \_\_\_\_\_ Efficiency \_\_\_\_\_ %  
(Welded, Dbl. Sngl. Lap. Butt) (Spot or Full)  
 H.T. Temp. \_\_\_\_\_ F Time \_\_\_\_\_ Girth \_\_\_\_\_ R.T. \_\_\_\_\_ No. of courses \_\_\_\_\_  
(Welded, Dbl., Sngl., Lap. Butt) (Spot, Partial or Full)

A131403

SECTION VIII — DIVISION 1

17. Heads: (a) Material ASTM A516 (b) Material VQ (Spec. No., Grade)

	Location (Top, Bottom, Ends)	Minimum Thickness	Corrosion Allowance	Crown Radius	Knuckle Radius	Elliptical Ratio
(a)		.50				2:1
(b)						

	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure (Convex or Concave)
(a)				
(b)				

If removable, bolts used (describe other fastenings) \_\_\_\_\_ (Material, Spec. No., Gr., Size, No.)

18. Constructed for max. allowable working pressure \_\_\_\_\_ psi at max. temp. \_\_\_\_\_ F. Min. temp. (when less than -20 F) \_\_\_\_\_ F. Hydrostatic, pneumatic, or combination test pressure \_\_\_\_\_ psi.

Items below to be completed for all vessels where applicable

19. Safety Valve Outlets: Number \_\_\_\_\_ Size \_\_\_\_\_ Location \_\_\_\_\_

20. Nozzles:

Purpose (Inlet, Outlet, Drain)	Number	Diam. or Size	Type	Material	Nominal Thickness	Reinforcement Material	How Attached

21. Inspection Openings:

Manholes No. \_\_\_\_\_ Size \_\_\_\_\_ Location \_\_\_\_\_  
 Handholes No. \_\_\_\_\_ Size \_\_\_\_\_ Location \_\_\_\_\_  
 Threaded No. \_\_\_\_\_ Size \_\_\_\_\_ Location \_\_\_\_\_

22. Supports: Skirt \_\_\_\_\_ Lugs \_\_\_\_\_ (Yes or no) \_\_\_\_\_ (No.) \_\_\_\_\_ Legs \_\_\_\_\_ (No.) \_\_\_\_\_ Other \_\_\_\_\_ (Describe) \_\_\_\_\_  
 Attached \_\_\_\_\_ (Where and how)

23. Remarks: \_\_\_\_\_

CERTIFICATE OF COMPLIANCE

We certify that the statements made in this report are correct and that all details of material, construction, and workmanship of this vessel conform to the ASME Code for Pressure Vessels, Section VIII, Division 1, Division of \_\_\_\_\_  
 Date Mar 2/83 Signed C E Macpherson Co. (Manufacturer) TIW Industries Ltd. (Representative)

"U" Certificate of Authorization No. 15,927 expires July 14, 19 83

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 Ontario and employed by MCCR of The Province of Ontario have inspected the part of a pressure vessel described in this Manufacturer's Partial Data Report on 2 March 19 83, and state that, to the best of my knowledge and belief, the Manufacturer has constructed this part in accordance with the ASME Boiler and Pressure Vessel Code, Section VIII, Division 1.

By signing this certificate neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the part described in this Manufacturers' Partial 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 2 March 1983  
 Signed [Signature] (Authorized Inspector) Commissions 76 (Natl. Board, State Province and No.)