

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

(Alternative Form for Single Chamber, Completely Shop or Field Fabricated Vessels Only)

As Required by the Provisions of the ASME Code Rules, Section VIII, Division 1

1. Manufactured and certified by Cryogenic Vessel Alternatives, 9528 Warren Road, Mont Belvieu, Texas 77580  
(Name and address of manufacturer)
2. Manufactured for Cal-Frac Well Services, Ltd., 411 8<sup>th</sup> Avenue SW, Calgary, Alberta, Canada T2P 1E3  
(Name and address of Purchaser)
3. Location of Installation Unknown
4. Type Horizontal C63006 25-450 CA1000 Rev.J 1677 2009  
(Horizontal or Vert., Tank) (Mfg'r's. Serial No.) (CRN) (Drawing Number) (Nat'l. Bd. No.) (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, Section VIII, Division 1 2007  
Year  
to \*\*\*\* \*\*  
Addenda (Date) Code Case Nos. Special Service per UG-120(d)

6. Shell : SA516-70N .875 0 88" 44'8-1/2"  
Matl. (Spec. No., Grade) Nom. Thk. (in.) Corr. Allow. (in.) Diam. I.D. (ft. & in.) Length (overall) (ft. & in.)
7. Seams : type 1 FULL 100 \*\* \*\* type 1 FULL 6  
Long. (Welded, Dbl., Sngl., Lap, Butt) R.T. (Spot or Full) Eff. (%) H.T. Temp. (°F) Time (hr) Girth (Welded, Dbl., Sngl., Lap, Butt) R.T. (Spot, Partial, Full) No. Of Courses
8. Heads : (a) Matl. SA516-70N (b) Matl. SA516-70N  
(Spec. No., Grade) (Spec. No., Grade)

	Location (Top, Bottom, Ends)	Minimum Thickness	Corrosion Allowance	Crown Radius	Knuckle Radius	Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side To Pressure (Convex or Concave)
(a)	Ends	.861	0	**	**	2:1	**	**	**	CONCAVE
(b)	Ends	.868	0	**	**	2:1	**	**	**	CONCAVE

If removable, bolts used (describe other fastening) \*\*\*\*\*

9. MAWP 325PSI \*\* at max. Temp. 115F \*\* °F  
(internal) (external) (internal) (external)

Min. design metal temp. -20 °F at HYDRO test pressure 493 psi

10. Nozzles, inspection and safety valve openings :

Purpose (Inlet, Outlet, Drain)	No.	Diam. or Size	Type	Matl.	Nom. Thk.	Reinforcement Matl.	How Attached	Location
Rear Fill	1	8"	SCH 80 PIPE	SA106 GR B	.500	**	UW 16.1 (e)	Bottom Shell
Front Fill	1	6"	SCH 80 PIPE	SA106 GR B	.432	**	UW 16.1 (e)	Bottom Shell
Front Vapor Line	1	2"	SCH 80 PIPE	SA106 GR B	.218	**	UW 16.1 (e)	Bottom Shell
Vent Pipe/Pressure Relief	1	3"	SCH 80 PIPE	SA106 GR B	.300	**	UW 16.1 (e)	Aft head
LP/HP Gauge Line	2	.25"	SCH 80 PIPE	SA106 GR B	.120	**	UW 16.1 (e)	Aft head
Center Pipe Stub	1	2"	SCH 80 PIPE	SA106 GR B	.218	**	UW 16.1 (e)	Front head
MW Studding Outlet	1	25.5"	Plate	SA516 GR 70N	3.06	**	UW 16.1 (h)	AftHead

11. Supports : Skirt No Lugs \*\* Legs \*\* Other \*\* Attached HEADS WELDED  
(Yes or No) (No.) (No.) (Describe) (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'r's. name and identifying stamp)

No Impact test required / UG-20 (f)**CERTIFICATE OF SHOP / FIELD 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. 31.457 expires November 3, 2011  
Date 4/16/09 Co. name Cryogenic Vessel Alternatives Signed : [Signature]  
(Manufacturer) (Representative)

**CERTIFICATE OF SHOP / FIELD COMPLIANCE**

Vessel constructed by: Cryogenic Vessel Alternatives at 9528 Warren Road, Mont Belvieu, TX 77580  
the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State or Province of TEXAS and employed by Seneca Insurance Company have inspected the component described in this Manufacturer's Data Report on 3-11-2009, 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 loss of any kind arising from or connected with this inspection.

Date: 4-16-09 Signed: [Signature] Commissions NA9280AB - TX1033  
(Authorized Inspector) (National Board (incl. endorsements), State, Prov. and No.)