

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 Boiler and Pressure Vessel Code Rules, Section VIII, Division 1

1. Manufactured and certified by **Cryogenic Vessel Alternatives, Inc., 9528 Warren Road, Mont Belvieu, Texas, 77580**

(Name and address of Manufacturer)

2. Manufactured for _____

(Name and address of Purchaser)

3. Location of Installation **Unknown**

(Name and address)

4. Type **Horizontal** **28042** **N/A** **A306 REV A** **2645** **2014**
(Horizontal or vertical, tank) (Manufacturer's serial number) (CRN) (Drawing number) (National Board number) (Year built)5. ASME Code, Section VIII, Division 1 **2013/ N/A** **N/A** **Low Temperature**
(Edition and Addenda, if applicable (date)) (Code Case numbers) (Special service per UG-120(d))6. Shell: **SA240 304SS** **.250 in** **N/A** **10' 3" (ID)** **43' 4"**
(Material spec. number, grade) (Nominal thickness) (Corr. allow.) (Inner diameter) (Length (overall))

Body Flanges on Shells												
No.	Type	ID	OD	Flange Thk	Min Hub Thk	Material	How Attached	Location	Bolting			
									Num & Size	Bolting Material	Washer (OD, ID, thk)	Washer Material
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

7. Seams: **Type 1** **Full** **100%** **N/A** **N/A** **Type 1** **Spot** **100%** **9**
(Long. (welded, dbl., sngl., lap, butt)) (R.T. (spot or full)) (Eff., %) (H.T. temp) (Time, hr) (Girth. (welded, dbl., sngl., lap, butt)) (R.T. (spot or full)) (Eff., %) (No. of courses)8. Heads: (a) Material **SA240 304SS** (b) Material **SA240 304SS**
(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	.245	N/A	N/A	N/A	2:1	N/A	N/A	N/A	Concave
(b)	ENDS	.245	N/A	N/A	N/A	2:1	N/A	N/A	N/A	Concave

Body Flanges on Heads												
	Location	Type	ID	OD	Flange Thk	Min Hub Thk	Material	How Attached	Bolting			
									Num & Size	Bolting Material	Washer (OD, ID, thk)	Washer Material
(a)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A

9. MAWP **40 psi** **N/A** at max. temp. **100 °F** **N/A**
(Internal) (External) (Internal) (External)Min. design metal temp. **-320 °F** at **40 psi** . Hydro, pneu., or comb. test pressure **PNEU at 60 psi** .Proof test **N/A** .

10. Nozzles, inspection and safety valve openings:

Purpose (Inlet, Outlet, Drain, etc.)	No.	Diameter or Size	Type	Material		Nozzle Thickness		Reinforcement Material	Attachment Details		Location (Insp. Open.)
				Nozzle	Flange	Nom.	Corr.		Nozzle	Flange	
REAR TOP FILL	1	2"	SCH 40 PIPE	SA312 304SS		.154			UW 16.1		Aft fHead
Vent Pipe	1	2"	SCH 40 PIPE	SA312 304SS		.154			UW 16.1		Aft Head
Gauge Line	2	.25"	SCH 40 PIPE	SA312 304SS		.088			UW 16.1		Aft Head
Trycock	1	.375"	SCH 40 PIPE	SA312 304SS		.091			UW 16.1		Aft Head
Manway	1	16"	Riser Ring	SA240 304SS		.500		SA240 304SS	UW 16.1		Shell

Additional Nozzles - See Attached U-4...

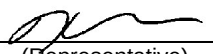
11. Supports: Skirt **No** Legs **N/A** Legs **N/A** Other **Annular Piping** Attached **Heads Welded**
(Yes or no) (Number) (Number) (Describe) (Where and how)

12. Remarks: Manufacturer's Partial Data Reports properly identified and signed by Commissioned Inspectors, have been furnished for the following items of the report:

N/A
(Name of part, item number, Manufacturer's name and identifying stamp)**No Impact Test Required / UHA 51(d)(1)****Front head SN: 264426-151-5****Rear head SN: 264496-151-4**

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 BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. "U" Certificate of Authorization Number **31457** expires **November 3, 2014**.

Date **09/23/2014** Co. name **Cryogenic Vessel Alternatives, Inc.** Signed 
(Manufacturer) (Representative)

CERTIFICATE OF SHOP/FIELD INSPECTION

Vessel constructed by **Cryogenic Vessel Alternatives, Inc.** at **9528 Warren Road, Mont Belvieu, Texas, 77580**
I, the undersigned, holding a valid commission issued by The National Board of Boiler and Pressure Vessel Inspectors and employed by

_____ have inspected the component described in this Manufacturer's Data Report on _____, and state that, to the best of my knowledge and belief, the Manufacturer has constructed this pressure vessel in accordance with ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. By signing this certificate neither the Inspector nor his/her employer makes any warranty, expressed or implied, concerning the pressure vessel described in this Manufacturer's Data Report. Furthermore, neither the Inspector nor his/her 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 **N/A** Signed _____ Commissions **N/A**
(Authorized Inspector) [National Board (incl. endorsements)]

FORM U-4 MANUFACTURER'S DATA REPORT SUPPLEMENTARY SHEET

As Required by the Provisions of the ASME Boiler and Pressure Vessel Code Rules, Section VIII, Division 1

1. Manufactured and certified by Cryogenic Vessel Alternatives, Inc., 9528 Warren Road, Mont Belvieu, Texas, 77580
(Name and address of Manufacturer)

2. Manufactured for Ferus NGF Inc, Suite 1220, 401 – 9th Ave SW, Calgary, Alberta, T2P3C5, CANADA
(Name and address of Purchaser)

3. Location of installation Unknown
(Name and address)

4. Type Horizontal N/A 28042
(Horizontal, vertical, or sphere) (Tank, separator, heat exch., etc.) (Manufacturer's serial number)

N/A A306 REV A 2645 2014
(CRN) (Drawing number) (National Board number) (Year built)

Purpose (Inlet, Outlet, Drain, etc.)	No.	Diameter or Size	Type	Material		Nozzle Thickness		Reinforcement Material	Attachment Details		Location (Insp. Open.)
				Nozzle	Flange	Nom.	Corr.		Nozzle	Flange	
Sump	2	10"	Head	SA240 304SS		.250		SA240 304SS	UW 16.1		Shell
Recirculation Line	2	2"	SCH 40 PIPE	SA312 304SS		.154			UW 16.1		Aft Head
REAR BOTTOM FILL	1	2"	SCH 40 PIPE	SA312 304SS		.154			UW 16.1		Aft Head
Pressure Build Line	1	1.5"	SCH 40 PIPE	SA312 304SS		.145			UW 16.1		Aft Head
PUMP FEED	2	5"	SCH 40 PIPE	SA312 304		.258			UW16.1		Aft Head
FRONT TOP FILL	1	2"	SCH 40 PIPE	SA312 304		.154			UW16.1		Front Head
FRONT BOTTOM FILL	1	2"	SCH 40 PIPE	SA312 304		.154			UW16.1		Front Head

Certificate of Authorization: Type "U" No. 31457 Expires November 3, 2014

Date 09/23/2014 Name Cryogenic Vessel Alternatives, Inc.
(Manufacturer)

Date N/A Name _____ Commissions: N/A
(Authorized Inspector) [National Board (incl. endorsements)]

Signed 
(Representative)