Additional Drawing No.

Header Volume (cu.ft.)

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 Harsco Industrial Air-X-Changers, 5215 Arkansas Road, Catoosa, Oklahoma, 74015, USA
(Name and address of Manufacturer)

2. Manufactured for EXTERRAN, P.O. BOX 690349, HOUSTON, Texas, 77269, USA
(Name and address of Purchaser)

3. Location of Installation UNKNOWN
(Name and address)

4. Type Heat Exchanger (Horizontal or vertical, tank) | 14001353.4 (Manufacturer's serial number) | N/A (CRN) | HDR-4, REV0 (Drawing number) | 85384 (National Board number) | 2014 (Year built)

5. ASME Code, Section VIII, Division 1 | 2013/ N/A [Edition and Addenda, if applicable (date)] | N/A (Code Case numbers) | N/A (Special service per UG-120(d))

6. Shell: SA516 70 (Material spec. number, grade) | .875 in (Nominal thickness) | 0 in (Corr. allow.) | N/A (Inner diameter) | N/A [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: Corner Joint [Long. (welded, dbl., sngl., lap, butt)] | N/A [R.T.(spot or full)] | C=.20 (Eff.,%) | N/A (H.T. temp) | N/A (Time, hr) | N/A [Girth. (welded, dbl., sngl., lap, butt)] | N/A [R.T. (spot or full)] | N/A (Eff., %) | N/A (No. of courses)

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	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure (Convex or Concave)
(a)	TOP, BTM	.75"	0	N/A	N/A	N/A	N/A	N/A	4" x 17.875"	N/A
(b)	ENDS	.625"	0	N/A	N/A	N/A	N/A	N/A	4" x 4.125"	N/A

Body Flanges on Heads

No.	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 1650 psi (Internal) | N/A (External) at max. temp. 350 °F (Internal) | N/A (External)

Min. design metal temp. -20 °F at 1650 psi . Hydro, pneu., or comb. test pressure HYDRO. at 2145 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	
IN/OUT	2	2"	1500# RFWN	SA106 GRB	SA105	SCH-160		Weld	Welded	Welded	Header
DRAIN	1	1"	CPLG	SA105		6000#		Weld	Welded	Welded	Header
DRAIN	1	1"	THDOLT	SA105		6000#		Weld	Welded	Welded	Nozzle
DRAIN	1	1.5"	THDOLT	SA105		6000#		Weld	Welded	Welded	Nozzle
DRAIN	1	0.75"	CPLG	SA105		6000#		Weld	Welded	Welded	Nozzle

11. Supports: Skirt NO (Yes or no) | Lugs N/A (Number) | Legs N/A (Number) | Other Structure (Describe) | Attached Bolted (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:

(2) Box Headers, SN 14001353.4 FR/BK, Professional Fabricators Inc.
(Name of part, item number, Manufacturer's name and identifying stamp)

Line 6 - -Tube and Plug Dimensions OR Header Dimensions: 5.6250" X 0.8750" X 1' 5.8750"
Straight length of tubes, OR, Distance between the headers: 8' 0.0"
(A)TUBES: 32 x .625" OD, Gauge: 16BWG, Material: SA214 Rolled Tube Sheet (B)INSP.OPENINGS:
64, Type: 3/4X16UNF-Threaded, Material: SA105 (C)IMPACT REQUIREMENTS: IMPACT EXEMPT PER:
UG-20(f). Constructed in conformance with Appendix 28.

FORM U-1A (Back)

NB Number 85384

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 4241 expires December 31, 2014.

Date 07/30/2014 Co. name **Harsco Industrial Air-X-Changers** (Manufacturer) Signed (Representative)

CERTIFICATE OF SHOP/FIELD INSPECTION

Vessel constructed by **Harsco Industrial Air-X-Changers** at **5215 Arkansas Road, Catoosa, Oklahoma, 74015, USA**

I, the undersigned, holding a valid commission issued by The National Board of Boiler and Pressure Vessel Inspectors and employed by OneCIS Insurance Company, of Lynn, MA

have inspected the component described in this Manufacturer's Data Report on July 31, 2014, 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 07/31/2014 Signed (Authorized Inspector) Commissions 7376A, OK652, KS356, MO0132 [National Board (incl. endorsements)]

85384

FORM U-2A MANUFACTURER'S PARTIAL DATA REPORT (ALTERNATIVE FORM)
A Part of a Pressure Vessel Fabricated by One Manufacturer for Another Manufacturer
As Required by the Provisions of the ASME Boiler and Pressure Vessel Code Rules, Section VIII, Division 1

1. Manufactured and certified by: Professional Fabricators Inc., 2765 E. Dawson Rd., Tulsa, OK 74110 (Name and address of Manufacturer)
2. Manufactured for: Harsco Industrial Air-X-Changers, 5215 Arkansas Road, Catoosa, OK 74015 (Name and address of Purchaser)
3. Location of installation: Unknown (Name and address)
4. Type: Heat Exchanger [Description of vessel part (shell, two-piece head, tube bundle)] — 14001353.4 FR/BK (Manufacturer's serial number) — – (CRN) — – (National Board number) — 14001353-HDR-4 (Drawing number) — Harsco Industrial Air-X-Changers (Drawing prepared by) — 2014 (Year built)
5. ASME Code, Section VIII, Div. 1: 2013 [Edition and Addenda (date)] — – (Code Case number) — – [Special Service per UG-120 (d)]
6. Shell: (a) Number of course(s): – (b) Overall length: 1' 5.875"

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
–	5.625"	1' 5.875"	SA516 70	0.875"	–	–	–	–	–	–	–	–	–

Body Flange 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

7. Heads: (a) SA516 70 (Material spec. number, grade or type) (H.T.-time and temp.) (b) SA516 70 (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)	Ends	0.625"	–	–	–	–	–	–	4"	x	4.125"	–	–	–
(b)	Top/Bottom	0.75"	–	–	–	–	–	–	4"	x	17.875"	–	–	–

Body Flange on Heads

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

8. MAWP – (Internal) – (External) psi at max. temp. – (Internal) – (External) F. Min. design metal temp. – F at – psi.
9. Impact test: No [Indicate yes or no and the component(s) impact tested]
10. Hydro., pneu., or comb. test press. – Proof test –
11. Nozzles, inspection, and safety valve openings:

Purpose (Inlet, Outlet, Drain, etc.)	No.	Diameter or Size	Type	Material		Nozzle Thickness		Reinforcement Material	Attachment Details		Location
				Nozzle	Flange	Nom	Corr.		Nozzle	Flange	(Insp. Open.)
Inlet/Outlet	2	2"	1500#RFWN	SA106 B	SA105	SCH-160	–	–	UW16.1	UW16.1	FR/BK
AUX	1	.75"	6000#	–	SA105	–	–	–	UW16.1	UW16.1	BK
AUX	1	1"	6000# T-O-L	–	SA105	–	–	–	UW16.1	UW16.1	FR
AUX	1	1"	6000#	–	SA105	–	–	–	UW16.1	UW16.1	FR
AUX	1	1.5"	6000#T-O-L	–	SA105	–	–	–	UW16.1	UW16.1	FR

12. Identification of part(s)

Name of Part	Quantity	Line No.	Mfr's. Identification No.	Mfr's. Drawing No.	CRN	National Board No.	Year Built
–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–

13. Supports: Skirt – (Yes or no) Lugs – (Number) Legs – (Number) Other – (Describe) Attached – (Where and how)
14. Remarks: Design and Calculations by Harsco Industrial Air-X-Changers; Constructed in Conformance to Appendix 28; No Hydro Was Performed

Form U-2A (Back)

CERTIFICATE OF SHOP / FIELD COMPLIANCE

We certify that the statements made in this report are correct and that all details of material, construction, and workmanship of this pressure vessel part conform to the **ASME BOILER AND PRESSURE VESSEL CODE**, Section VIII, Division 1.

U Certificate of Authorization No. 33,341 Expires April 18, 2017

Date July 15, 2014 Name Professional Fabricators, Inc. Signed _____

(Manufacturer) (Representative)

CERTIFICATE OF SHOP / FIELD 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 Oklahoma and employed by OneCIS Insurance Company of Lynn, MA have inspected the pressure vessel part described in this Manufacturer's Data Report on July 15, 2014 and state that, to the best of my knowledge and belief, the Manufacturer has constructed this pressure vessel part 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 part 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 7/16/2014 Signed Russell Layton Commissions NB 14411A OK 1176

(Authorized Inspector) [Nat'l Board (incl. endorsements), State, Province, and number]