

1097 59.127
112247 12

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

1. Manufactured and certified by CMS Heat Transfer Division, Inc. 55 Greene Street Bay Shore NY 11706 USA
(Name and address of Manufacturer)

2. Manufactured for Hanover, 20602 E. 81st St., Broken Arrow, OK 74014
(Name and address of Purchaser)

3. Location of installation unknown

4. Type: Horizontal (Name and address) Heat Exchanger 1913.2
(Horiz., vert., or sphere) (Tank, separator, jkt. vessel, heat exch., etc.) (Mfr.'s serial No.)
N/A 10.19132.00 760 2007
(CRN) (Drawing No.) (Nat'l. Bd. No.) (Year built)

5. ASME Code, Section VIII, Div. 1 2004 Edition, 2008 Addenda none none
(Edition and Addenda (date)) (Code Case No.) (Special Service per UG-120(d))

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

6. Shell (a) No. of course(s): 3 (b) Overall length (ft & in.): 23'-9.25"

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
2	24	10'-0"	SA-516 Gr 70		.500	.063	1	Spot	85%	1	Spot	85%	-	-
1	24	3'-9.25"	SA-516 Gr 70		.500	.063	1	Spot	85%	1	Spot	85%	-	-
-	-	-	-		-	-	-	-	-	-	-	-	-	-

7. Heads: (a) SA-516 Gr 70 (b) none
(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 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)	BOTTOM	.500	.063	-	-	2:1	-	-	-	-	x	S	NONE	85%
(b)	-	-	-	-	-	-	-	-	-	-	-	-	-	-

If removable, bolts used (describe other fastening)

none

8. Type of Jacket none Jacket closure N/A
(Mat'l Spec. No., Grade, size, No.) (Describe as ogee & weld, bar, etc.)
If bar, give dimensions: N/A If bolted, describe or sketch.

9. MAWP 550 psi at max. temp. 250 °F Min. design metal temp. -50 °F at 550 psi.
(internal) (external) (internal) (external)

10. Impact test no per UCS-66(a)(1)(a) at test temperature of - °F

11. Hydro., ~~proof~~ ~~exam~~ test press. 825 (Indicate yes or no and the component(s) impact tested) none
Proof test

Items 12 and 13 to be completed for tube sections.

12. Tubesheet: SA-516 Gr 70 24.375 2.750 .125 Bolted
(Stationary (Mat'l Spec. No.)) (Dia., in. (subject to press.)) (Nom. thk., in.) (Corr. Allow., in.) (Attachment (welded or bolted))
none - - - -
(Floating (Mat'l Spec. No.)) (Dia., in.) (Nom. thk., in.) (Corr. Allow., in.) (Attachment)
13. Tubes: SA-214 .750 .083 117 U-type
(Mat'l Spec. No., Grade or Type) (O.D., in.) (Nom. thk., in. or gauge) (Number) (Type (Straight or U))

Items 14 - 18 incl. to be completed for inner chambers of jacketed vessels or channels of heat exchangers.

14. Shell (a) No. of course(s): 1 (b) Overall length (ft & in.): 0'-8.875"

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	24	0'-8.875"	SA-106B		.375	.063	S	None	85%	-	-	-	-	-
-	-	-	-		-	-	-	-	-	-	-	-	-	-
-	-	-	-		-	-	-	-	-	-	-	-	-	-

15. Heads: (a) SA-234 WPB (b) none
(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 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)	END	.375	.063	-	-	2:1	-	-	-	-	x	S	NONE	85%
(b)	-	-	-	-	-	-	-	-	-	-	-	-	-	-

If removable, bolts used (describe other fastening)

(32) 7/8"-9 NC-UNC SA-193 B7 studs with SA-194 2H nuts

(Mat'l Spec. No., Grade, size, No.)

16. MAWP 150 (internal) (external) psi at max. temp. 600 (internal) (external) °F. Min. design metal temp. -20 °F at 150 psi.

17. Impact test no per UG-20 at test temperature of - °F.

18. Hydro., ~~proof~~ test press. (Indicate yes or no and the component(s) impact tested) 225 Proof test none

19. Nozzles, inspection, and safety valve openings:

Purpose (Inlet, Outlet, Drain, etc.)	No.	Diameter or Size	Flange Type	Material		Nozzle Thickness		Reinforcement Material	How Attached		Location (Insp. Open.)
				Nozzle	Flange	Nom.	Corr.		Nozzle	Flange	
Inlet	2	10	WN300#	SA-333 Gr 6	SA-350 LF2	.500	.063	SA-333 Gr 6	welded	welded	shell
Outlet	1	10	WN300#	SA-333 Gr 6	SA-350 LF2	.500	.063	SA-333 Gr 6	welded	welded	shell
Vent	2	3/4	6000#	SA-333 Gr 6	SA-350 LF2	.308	.063	none	welded	welded	shell
Inlet	1	4	WN300#	SA-106B	SA-105	.237	.063	none	welded	welded	bonnet
Outlet	1	4	WN300#	SA-106B	SA-105	.237	.063	none	welded	welded	bonnet
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-

20. Supports: Skirt no (Yes or no) Lugs none (No.) Legs 2 (No.) Others none (Describe) Attached shell-welded (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, mfr.'s name and identifying number)

Shell cylinder, SN-K1402-01-1, Made by Labarge Pipe & Steel Company, 1300 N. Labarge Ave., Wagoner, OK 74467

22. Remarks: PO# 4417198

Equipment # E-225 for US-106187

CERTIFICATE OF SHOP COMPLIANCE

We certify that the statements 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. 28,741 Expires 12/21/2007

Date 7/12/07 Name CMS Heat Transfer Division, Inc. Signed [Signature]

(Manufacturer) (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 New York and employed by OneBeacon America Insurance Co. of Boston, MA

have inspected the pressure vessel described in this Manufacturer's Data Report on JULY 7, 2007, 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 a loss of any kind arising from or connected with this inspection.

Date 7/12/2007 Signed [Signature] Commissions NB 9376 AN - N.Y. 5122

(Authorized Inspector) (Nat'l Board Incl. endorsements, State, Province and No.)

CERTIFICATE OF FIELD ASSEMBLY COMPLIANCE

We certify that the statements on this report are correct and that the field assembly construction of all parts of this vessel conforms with the requirements of ASME Code, Section VIII, Division 1. U Certificate of Authorization No. - Expires -

Date - Name - Signed -

(Assembler) (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 compared the statements in this Manufacturer's 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 to the best of my knowledge and belief, the Manufacturer has constructed and assembled this pressure vessel in accordance with the 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 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 Board Incl. endorsements, State, Province and No.)

2/2

Items 6 – 11 Incl. to be completed for single wall vessels, jackets of jacketed vessels, shell of heat exchangers, or chamber of multi-chamber vessels.

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
2	24" O.D.	10'-0"	SA516 GR70	.500"	0	1	Spot	85	1	Spot	85	N/A	N/A
1	24" O.D.	3'-9 1/4"	SA516GR70	.500"	0	1	Spot	85	1	Spot	85	N/A	N/A

[illegible]

If bar, give dimensions

11. Hydro., pneu., or comb. test press. Proof test

Items 12 and 13 to be completed for tube sections.

13. Tubes:	Mat'l Spec No., Grade or Type	O.D., in.	Nom. thk., in. or gauge	Number	Type (Straight or U)
------------	-------------------------------	-----------	-------------------------	--------	----------------------

Items 14 – 18 incl. to be completed for inner chambers of jacketed vessels or channels of heat exchangers.

[illegible]

Form U-2 (Back)

15. Heads (a) _____ (b) _____
(Mat'l Spec. No., Grade or Type) H.T. - Time & Temp (Mat'l Spec. No., Grade or Type) H.T. - Time & Temp

[illegible]

If removable, bolts used (describe other fastening) _____
(Mat'l Spec. No., Grade, Size, No.)

16. MAWP (internal) (external) psi at max. temp. (internal) (external) °F Min. design metal temp. °F at psi

17. Impact test _____
(indicate yes or no and the component(s) impact tested)

18. Hydro., pneu., or comb. test press. _____ Proof test _____

19. Nozzles, inspection, and safety valve openings:

[illegible]

20. Supports: Skirt _____ (Yes or No) Lugs _____ (No.) Legs _____ (No.) Others _____ (Describe) Attached _____ (Where and How)

21. Remarks: FOR INFORMATION ONLY:

The weld procedure used on this item has also been qualified in a post weld heat treated condition.

Certified to material & workmanship only.

P.O. 47414

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 Code for Pressure Vessels, Section VIII, Division 1.

U Certificate of Authorization No. 11,876 Expires July 19, 2007

Date 5-25-07 Name LaBarge Pipe & Steel Company Signed *Robert J. Pitts*
(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 the State or Province of Oklahoma and employed by H S B CT of CT have inspected the pressure vessel part described in this Manufacturer's Data Report on May 25th, 2007, and state that, to the best of my knowledge and belief, the Manufacturer has constructed this pressure vessel part 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 part 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 a loss of any kind arising from or connected with this inspection.

Date 5-25-07 Signed [Signature] Commissions OK#697
(Authorized Inspector) (Nat'l Board incl. endorsement, State, Province and No.)