

10-77404M Job No.		FORM U-1 MANUFACTURER'S DATA REPORT FOR PRESSURE VESSELS												
24" x 20' BEM EWFTS (JCS) Unit Description		As Required by the Provisions of the ASME Boiler and Pressure Vessel Code Rules, Section VIII, Division 1												
1. Manufactured and certified by Graham Corporation, 20 Florence Ave, Batavia, New York, 14020 (Name and address of Manufacturer)														
2. Manufactured for CMI Equipment & Engineering Company, 41663 170 St., Glenco, Minnesota, 55336 (Name and address of Purchaser)														
3. Location of installation Not Known (Name and address)														
4. Type Horizontal (Horizontal, vertical, or sphere)		Condenser (Tank, separator, jkt. vessel, heat exch., etc.)							10-77404-1 (Manufacturer's serial number)					
N/A (CRN)		C-63211-1, Rev. 0 (Drawing number)							39567 (National Board number)			2010 (Year built)		
5. ASME Code, Section VIII, Div. 1		2007/ A09 Edition and Addenda (date)							N/A Code Case number			N/A 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 multichamber vessels.														
6. Shell: (a) Number of course(s) 1 (b) Overall length 19' 9.500"														
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
1	24.0" OD	19' 9.500"	SA-106-B		.375"	0	S	None	100%	N/A	N/A	N/A	N/A	N/A
7. Heads: (a) N/A (b) N/A (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.
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	N/A	N/A
If removable, bolts used (describe other fastening) N/A (Material spec. number, grade, size, number)														
8. Type of jacket N/A Jacket closure N/A (Describe as ogee & weld, bar, etc.)														
If bar, give dimensions N/A If bolted, describe or sketch.														
9. MAWP 20 psi 15 psi at max. temp. 300 °F 300 °F Min. design metal temp. 0 °F at 20 psi (Internal) (External) (Internal) (External)														
10. Impact test No, per UG-20(f) at test temperature of N/A (Indicate yes or no and the component(s) impact tested)														
11. Hydro., pneu., or comb. test pressure Hydro. at 26 psi Proof test N/A														
Items 12 and 13 to be completed for tube sections.														
12. Tubesheet		SA-516-70 (Stationary (material spec. no.))		26.500" (Diameter (subject to press.))		1.25" (Nominal thickness)		0 (Corr. allow.)		Welded Attachment (welded or bolted)				
		N/A (Floating (material spec. no.))		N/A (Diameter)		N/A (Nominal thickness)		N/A (Corr. allow.)		N/A (Attachment)				
13. Tubes		SB-111-443 (Material spec. no., grade or type)		.750" (O. D.)		.049" (Nominal thickness)		321 (Number)		Straight (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) Number of 2 (b) Overall length 2' 4.0"														
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
2	24.0" OD	1' 2.0"	SA-106-B		.375"	0	S	None	100%	1	None	70%	N/A	N/A
15. Heads: (a) SA-516-70 (b) SA-234-WPB (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)	END	1.250"	0"	N/A	N/A	N/A	N/A	N/A	28.125"			N/A	N/A	N/A
(b)	END	.3281"	0"	N/A	N/A	2:1	N/A	N/A	24"		X	N/A	N/A	N/A
If removable, bolts used (describe other fastening) (a) & (b) welded to #14. (a); SA-193-B7 .750" Dia. (28) w/ SA-194-2H Nuts (Material spec. number, grade, size, number)														

16. MAWP 75 psi (Internal) N/A (External) at max. temp. 200 °F (Internal) N/A (External) Min. design metal temp. 0 °F at 75 psi
17. Impact test No, per UG-20(f), Fig. UCS-66 Note(c) & UNF-65 at test temperature of N/A
[Indicate yes or no and the component(s) impact tested]
18. Hydro., pneu., or comb. test pressure Hydro. at 98 psi Proof test N/A
19. 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	
Vapor Inlet	1	12"	150# RFSO	SA-106-B	SA-105	0.375"			c	Fig. UW-21(1)	
Vapor Outlet	1	1.50"	150# RFSO	SA-106-B	SA-105	0.200"			c	Fig. UW-21(1)	
Condensate Outlet	1	1.50"	150# RFSO	SA-106-B	SA-105	0.200"			c	Fig. UW-21(1)	
Test Conn.	1	0.750"	NPT	SA-105		3000#			c		
Test Conn.	1	0.500"	NPT	SA-105		3000#			c		
Water In & Out	2	6"	150# RFSO	SA-106-B	SA-105	0.280"			c	Fig. UW-21(1)	
Vent & Drain	2	0.750"	NPT	SA-105		3000#			c		
Test Conn.	2	0.750"	NPT	SA-105		3000#			c		

20. Supports: Skirt No (Yes or no) Lugs N/A (Number) Legs N/A (Number) Others (2) Cradles (Describe) Attached Welded to Shell bottom (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, Manufacturer's name, and identifying number):

N/A

22. Remarks

Length of tubes: 20' 0"

Over pressure protection must be provided by others prior to placing vessel in service, see UG-125.

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 BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. U Certificate of Authorization Number 79 Expires March 31, 2013

Date 09/13/2010

Name Graham Corporation
(Manufacturer)

Signed Robert A. Carlini
(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 NY, OH, PA and employed by HSB CT, of Hartford, CT have inspected the pressure vessel described in this Manufacturer's Data Report on September 16, 2010, 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 09/16/2010

Signed Thomas J. Ryan
(Authorized Inspector)

Commissions 10056A, NY4001, OH, PA
[National Board (incl. endorsements), State, Province, and number]

CERTIFICATE OF FIELD ASSEMBLY COMPLIANCE

We certify that the statements made in this report are correct and that the field assembly construction of all parts of this vessel conforms with the requirements of ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. U Certificate of Authorization Number _____ Expires _____

Date _____

Name _____
(Assembler)

Signed _____
(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 BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. The described vessel was inspected and subjected to a hydrostatic test of _____. 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 _____

Signed _____
(Authorized Inspector)

Commissions _____
[National Board (incl. endorsements), State, Province, and number]