

95614

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

1. Manufactured by HEAT TRANSFER EQUIPMENT COMPANY 1515 N. 93 E. Ave. Tulsa, Okla 74112
(Name and address of manufacturer)
2. Manufactured for Celanese Chemical Co., Inc.
(Name and address of purchaser)
3. Location of Installation Celanese Chemical Co., Inc. Pampa, Texas
(Name and address)
4. Type Horz. Heat Exch. Vessel No. 79-771-A (CRN) (Drawing) (Nat'l Brd No.) Year Built 1980
(Horiz., or vert. tank) (Mfr's Serial No.)
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 1977 and Addenda to W-78 and Code Case no.
(Date) (Year)
- Special service per UG-120(d) None
- Manufacturers' 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, mfr's name and identifying stamp)

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

6. Shell: Material SA-515 Nom. Thickness 7/16 in. Corrosion Allowance 1/16 in. Diam. 3 ft. 6 1/4 in. Length 20 ft. 5 in.
(Spec. No., Grade) (Overall)
7. Seams: Longitudinal Db1 R.T. Spot Efficiency 85% H.T. Temp 0 F Time 0 Girth Db1 R.T. Spot No. of Courses 3
(Db1., Sngl.) (Spot or Full) (Db1., Sngl.) (Spot, Partial, or Full)
8. Heads: (a) Material SA-516-70 (S. Hd.) (b) Material SA-105 (S. Flg.)
(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)	End	7/16" (Nom)	1/16"			2:1			46-3/8"	Concave
(b)		3 1/2"	1/16"							

If removable, bolts used (describe other fastenings) SA-193-B7 (125,000) 40-3/4"
(Material, Spec. No., Gr., Size, No.)

9. Type of Jacket Proof Test
10. Jacket Closure If bar, give dimensions If bolted, describe or sketch.
(Describe as ogee & weld, bar, etc.)
11. Constructed for max. allowable working pressure 55 & F.V. psi at max. temp. 500 F Min. temp. (when less than -20 F) F.
Hydrostatic, pneumatic, or combination test pressure 85 psi.

Items 12 and 13 to be completed for tube sections 304

12. Tubesheets: Stationary Material SA-240-304 Diam. 43 in. Nominal Thick. 2-1/8 in. Corrosion Allow. 1/8 in. Attachment Bolted
(Spec. No., Gr.) (Subject to pressure) (Welded, Bolted)

Floating Material Diam. in. Nominal Thick. in. Corrosion Allow. in. Attachment
(Spec. No., Gr.)

13. Tubes: Material SA-249-304 O.D. 1 in. Nominal Thickness 14 in. X of gauge Number 400 Type U
(Spec. No., Gr.) (Straight or "U")

Items 14-17 incl. to be completed for inner chambers of jacketed vessels or channels of heat exchangers

14. Shell: Material SA-240-304 Nominal Thickness 3/8 in. Corrosion Allowance 1/16 in. Diam. 3 ft. 6-1/8 in. Length 1 ft. 4 in.
(Spec. No., Gr.)
15. Seams: Longitudinal Db1 R.T. Spot Efficiency 85% H.T. Temp 0 F Time 0 Girth Db1 R.T. Spot No. of courses 1
(Db1., Sngl.) (Spot or Full) (Db1., Sngl.) (Spot, Partial or Full)
16. Heads: (a) Material SA-240-304 (C. Hd.) (b) Material SA-182-F304 (C. Flg.)
(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)	End	3/8" (Nom)	1/16"			2:1			46-3/8"	Concave
(b)		3 1/2"	1/16"							

If removable, bolts used (describe other fastenings)
(Material, Spec. No., Gr., Size, No.)

17. Max. allowable working pressure 61 & F.V. psi at max temp. 400 F Min. temp. (when less than -20F) F.
Hydro. pneu. or comb. test pressure 106 psi.

Items below to be completed for all vessels where applicable

18. Safety Valve Outlets: Number Size Location

19. Nozzles:

Purpose (Inlet, Outlet, Drain)	Number	Diam. or Size	Type	Material	Nominal Thickness	Reinforcement Material	How Attached
Chan. In	1	8"-150#	Pipe	SA-312-304	.500"	Weld	Welded
Chan. Out	1	8"-150#	Pipe	SA-312-304	.500"	" "	" "
Shell In	1	8"-150#	Pipe	SA-106-B	.500"	" "	" "
Shell Out	1	8"-150#	Pipe	SA-106-B	.500"	" "	" "

20. Inspection Openings:

Manholes No. _____ Size _____ Location _____

Handholes No. _____ Size _____ Location _____

Threaded No. _____ Size _____ Location _____

21. Supports: Skirt _____ Lugs _____ Legs 2 Other _____ Attached Welded to shell
(Yes or no) (No.) (No.) (Describe) (Where and how)

22. Remarks: Anaerobic Feed Cooler

All Noz. to have 1-3/4"- 6000# Cplg. (N.S.) & 1-1"-6000# cplg. (F.S.)

Vent & Drain 2-3/4"-6000# cplg.

#23 2-8" Lap Joint Stub End, SA-403-304, .500" Thk., 8.625" O.D. 8" Lg .

CERTIFICATE OF 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.

Date 4/3/80 Signed HEAT TRANSFER EQUIPMENT COMPANY by J.H.O. Flood
(Manufacturer) (Representative)"U" Certificate of Authorization No. 12,197 expires April 15, 19 80

CERTIFICATE OF SHOP INSPECTION

Vessel made by HEAT TRANSFER EQUIPMENT CO. at 1515 N. 93 E. Ave. Tulsa, Okla 74112I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and the State or Province of IL. and employed by Commercial Union Insurance Co.of Boston, Mass have inspected the pressure vessel described in this Manufacturers' Data Report on 4-3-, 19 80, 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 the Manufacturers' 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 4-3-80
Signed C. F. Corbin Commissions ILL # 605
(Inspector) (Nat'l Board, State, Province and No.)

CERTIFICATE OF COMPLIANCE FOR FIELD WORK

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.

Date _____ Signed _____ by _____
(Manufacturer) (Representative)

"U" Certificate of Authorization No. _____ expires _____, 19 _____

CERTIFICATE OF FIELD ASSEMBLY INSPECTION

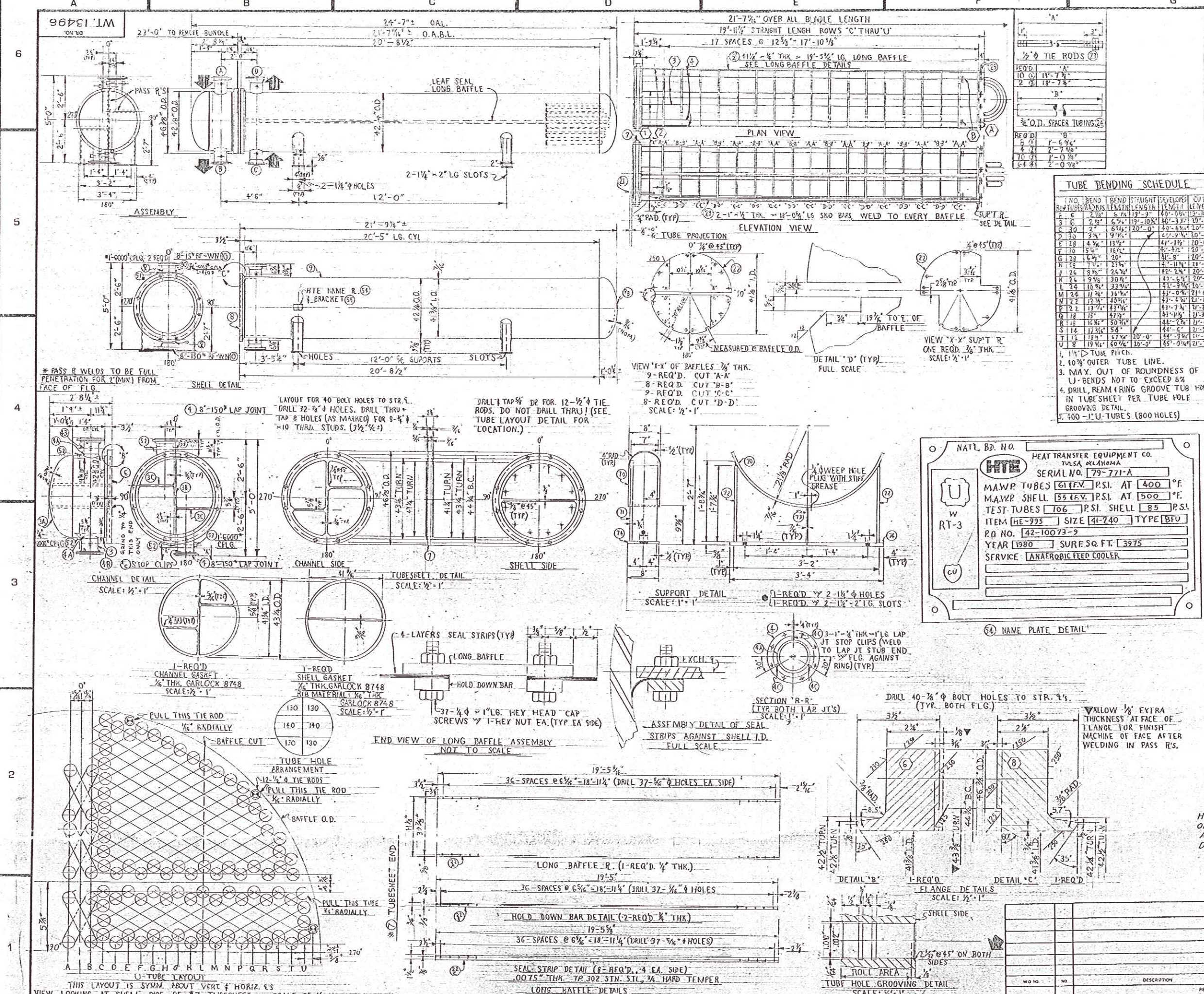
I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and the State or Province of _____ and employed by _____

of _____ have compared the statements in this Manufacturers' 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 that, to the best of my knowledge and belief, the Manufacturer has constructed and assembled this pressure vessel in accordance with 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 Manufacturers' 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, State, Province and No.)



DESCRIPTION		NATL SPEC
1	CHAN. CYL. 41 1/2" I.D. x 1/4" THK. (FIN. DIM.)	SA-105
2	8" SCH. 40S. SMPL. PIPE x 1/4" LG. (FIN. DIM.)	SA-105
3	8" SCH. 40S. SMPL. PIPE x 1/4" LG. (FIN. DIM.)	SA-105
4	8" SCH. 40S. SMPL. PIPE x 1/4" LG. (FIN. DIM.)	SA-105
5	8" SCH. 40S. SMPL. PIPE x 1/4" LG. (FIN. DIM.)	SA-105
6	8" SCH. 40S. SMPL. PIPE x 1/4" LG. (FIN. DIM.)	SA-105
7	8" SCH. 40S. SMPL. PIPE x 1/4" LG. (FIN. DIM.)	SA-105
8	8" SCH. 40S. SMPL. PIPE x 1/4" LG. (FIN. DIM.)	SA-105
9	8" SCH. 40S. SMPL. PIPE x 1/4" LG. (FIN. DIM.)	SA-105
10	8" SCH. 40S. SMPL. PIPE x 1/4" LG. (FIN. DIM.)	SA-105
11	8" SCH. 40S. SMPL. PIPE x 1/4" LG. (FIN. DIM.)	SA-105
12	8" SCH. 40S. SMPL. PIPE x 1/4" LG. (FIN. DIM.)	SA-105
13	8" SCH. 40S. SMPL. PIPE x 1/4" LG. (FIN. DIM.)	SA-105
14	8" SCH. 40S. SMPL. PIPE x 1/4" LG. (FIN. DIM.)	SA-105
15	8" SCH. 40S. SMPL. PIPE x 1/4" LG. (FIN. DIM.)	SA-105
16	8" SCH. 40S. SMPL. PIPE x 1/4" LG. (FIN. DIM.)	SA-105
17	8" SCH. 40S. SMPL. PIPE x 1/4" LG. (FIN. DIM.)	SA-105
18	8" SCH. 40S. SMPL. PIPE x 1/4" LG. (FIN. DIM.)	SA-105
19	8" SCH. 40S. SMPL. PIPE x 1/4" LG. (FIN. DIM.)	SA-105
20	8" SCH. 40S. SMPL. PIPE x 1/4" LG. (FIN. DIM.)	SA-105
21	8" SCH. 40S. SMPL. PIPE x 1/4" LG. (FIN. DIM.)	SA-105
22	8" SCH. 40S. SMPL. PIPE x 1/4" LG. (FIN. DIM.)	SA-105
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74	8" SCH. 40S. SMPL. PIPE x 1/4" LG. (FIN. DIM.)	SA-105
75	8" SCH. 40S. SMPL. PIPE x 1/4" LG. (FIN. DIM.)	SA-105
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81	8" SCH. 40S. SMPL. PIPE x 1/4" LG. (FIN. DIM.)	SA-105
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95	8" SCH. 40S. SMPL. PIPE x 1/4" LG. (FIN. DIM.)	SA-105
96	8" SCH. 40S. SMPL. PIPE x 1/4" LG. (FIN. DIM.)	SA-105
97	8" SCH. 40S. SMPL. PIPE x 1/4" LG. (FIN. DIM.)	SA-105
98	8" SCH. 40S. SMPL. PIPE x 1/4" LG. (FIN. DIM.)	SA-105
99	8" SCH. 40S. SMPL. PIPE x 1/4" LG. (FIN. DIM.)	SA-105
100	8" SCH. 40S. SMPL. PIPE x 1/4" LG. (FIN. DIM.)	SA-105

NOTES FOR CHANNEL DETAIL:

- SPOT X-RAY
- 1/8" RAD. (MIN.) ON NOZZLE I.D. & CHAN. I.D.
- GRIND ALL INSIDE WELDS SMOOTH.
- SEE FLANGE DETAILS FOR FLG. DETAIL 'B'.
- FINISH MACHINE FACE OF BODY FLG. AFTER WELDING IN PASS 'R'.

NOTES FOR SHELL DETAIL:

- SPOT X-RAY
- GRIND ALL INSIDE WELDS FLUSH W/ I.D.
- EXCEPT SMOOTH AT ELLIP. HEAD.
- 1/8" (MIN) RAD. ON NOZ. I.D. & SHELL I.D.
- SEE FLANGE DETAILS FOR FLG. DET. 'C'.

NOTES FOR BUNDLE DETAIL:

- DRILL TUBE HOLES IN BAFFLES 1/4" DIA. & DEBURR.
- DRILL TIE ROD HOLES 3/8" DIA.
- RADIUS ALL CORNERS ON BAFFLE CUTS.
- PLUG SHELL FOR DIA. BEFORE BUNDLE ASSY.

4 SHELL SIDE & TUBE SIDE DESIGNED FOR 15 P.S.I. EXTERNAL PRESSURE.

DESIGN DATA	SHELL TUBES	MATERIALS
DESIGN PRESS. P.S.I.	3515V. 616V.	TUBES: SA-213 TP304
TEST PRESS. P.S.I.	85	STN. STL.
DESIGN TEMP. °F	500	CHAN. & TUBESHEE
CORR. ALLOW.	1/8"	304 STN. STL.
NO. OF PASSES	TWO SIX	
RADIO TECHNIQUE	SPOT SPOT	
HEAT TREAT	NO NO	REMANUFACT. C-STEEL

ASME CODE (SECT. VIII, DIV. 1) OF 1972 (M. 78) TEMA CLASS 'B' - 1

GENERAL NOTES:

- TUBE SURFACE: 3.975 EFF. SQ. FT. TUBE PITCH 19.15"
- TUBES: 400-1" O.D. x 14 BWG (AVG) WALL: 20-0" STR. LGTH.
- ALL BOLTS HOLES TO STRADDLE 9'S.
- COAT ALL STUDS & NUTS W/ THRD. LUBE.
- GASKETS: CHAN. & SHELL 1/4" THK. GARLOCK 8748.
- PAINT: C-STEEL ONLY-SANDBLAST & 1% RED LEAD PRIMER (2 TO 4 MILS D.F.I.)

CUSTOMER INSPECTION REQ'D.

CUSTOMER: CELANESE CHEMICAL CO., INC.

RD. NO. 32-10073-9

ITEM: HE-995

NOZZLES

NOZZLE	ALL NOZZLES TO HAVE
A 8"-150" LAP JOINT	1 1/4" - 6000° CPLG. PLUG
B 8"-150" LAP JOINT	(N.S.) & 1 1/4" - 6000° CPLG. PLUG (F.S.)
D 8"-150" RF-WN	
E 3 1/2" - 6000° CPLG. PLUG	

HTE CO., TULSA, OKLA.
ONE - 41-240 B-FU
ASSEMBLY & SPECIFICATIONS
DWG. # 79-771-A

AREA XXI EFFLUENT TREATMENT
HEAT EXCHANGER
HE-995 41-240 B-FU
PLAN, ELEV., DETAILS & SPECS.

DRAWING NO. WT-13496