

FORM U-1 MANUFACTURERS' DATA REPORT FOR PRESSURE VESSELS

as required by the provisions of the ASME Code rules, Section VIII, Division 1

JOB NO.: 268332

1. Manufactured and certified by MANNING & LEWIS ENGINEERING CO. 675 RAHWAY AV, UNION, NJ 07083
(name and address of manufacturer)
2. Manufactured for CAPE INDUSTRIES, P.O. BOX 327, HIGHWAY 421, N. WILMINGTON N.C. 28402-0327
(name and address of purchaser)
3. Location of installation CAPE INDUSTRIES, HIGHWAY 421 N. WILMINGTON, N.C. 28402
(name and address)
4. Type: HORIZ. H.E 16097 D-21484 -4 7792 1992
(horiz. or vert. tank) (mfr's serial no.) (CRN) (drawing no.) (Nat'l. Bd. no.) (year built)
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 Code, Section VIII, Division 1: 1989
(year)
- A90
(addenda (Date)) (Code Case no.) (special service per UG-120(d))

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

6. Shell: SA51670 1/2 1/16 2'-7" 19'-6 1/8"
(mat'l (spec. no., grade)) (nom. thickness (in.)) (corr. allow (in.)) (dia. ID (ft. & in.)) (length (overall) (ft. & in.))
7. Seams: DBL BUTT SPOT 85 - - DBL BUTT SPOT 5
(long (dbl., singl.)) (RT (spot or full)) (eff. (%)) (HT temp. (°F)) (time) (girth (dbl., singl.)) (RT (spot, partial, or full)) (no. of courses)
8. Heads: (a) _____ (b) _____
(mat'l. (spec. no., grade)) (mat'l. (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) | | | | | | | | | | |
| (b) | | | | | | | | | | |

If removable, bolts used (describe other fastenings):

(mat'l., 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 ogree & weld, bar, etc.)
11. MAWP: 300 at max. temp. 700 Min design metal temp.: 20 at 300 Hydro., pneu. or comb. test pressure 475
(psi) (°F) (°F) (psi) (psi)

Items 12 and 13 to be completed for tube sections.

12. Tubesheets: SA240316 31 1/8 3 1/4 0 WELDED
(stationary mat'l (spec. no., gr.)) (dia. (in.) (subject to pressure)) (nom. thickness (in.)) (corr. allow (in.)) (attachment (welded, bolted))
- _____ (floating mat'l (spec. no., gr.)) (dia. (in.)) (nom. thickness (in.)) (corr. allow (in.)) (attachment)
13. Tubes: SA213 316/SA213 317 3/4 14 600/170 STRAIGHT
(mat'l (spec. no., gr.)) (OD (in.)) (nom. thickness (wall gauge)) (no.) (type (straight or U))

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

14. Shell: SA240316 3/4 0 2' 6 3/4" 1' 5 7/8" 1' 4 1/4"
(mat'l (spec. no., gr.)) (nom. thickness (in.)) (corr. allow (in.)) (dia. ID (ft. & in.)) (length (overall) (ft. & in.))
15. Seams: DBL BUTT SPOT 85 - - GROOVE NONE 1
(long (dbl., singl.)) (RT (spot or full)) (eff. (%)) (HT temp. (°F)) (time) (girth (dbl., singl.)) (RT (spot, partial, or full)) (no. of courses)
16. Heads: (a) SA51670 (b) _____
(mat'l (spec. no., grade)) (mat'l (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) | <u>ENDS</u> | <u>4"</u> | <u>0</u> | | | | | | <u>34</u> | <u>FLAT</u> |
| (b) | | | | | | | | | | |

If removable, bolts used (describe other fastenings): SA193 B7, 1 1/8"-8, 44

(mat'l., spec. no., gr., size, no.)

17. MAWP: 600 at max. temp. 650 Min design metal temp.: 20 at 600 Hydro., pneu. or comb. test pressure
(psi) (°F) (°F) (psi) (psi)

FORM U-1 (back)

8. Nozzles, inspection and safety valve openings:

| Purpose (inlet, outlet drain, etc.) | Number | Dia. or Size | Type | Mat'l | Nom. Thickness | Reinforcement Material | How Attached | Location |
|-------------------------------------|--------|--------------|------|-----------|----------------|------------------------|--------------|----------|
| INLET/OUTLET | 2 | 14-300# | FLG | SA106B | .438 | SA51670 | WELDED | SHELL |
| VENT | 1 | 3/4 NPT | SCR | SA105 | 3000# | | WELDED | EX. JT. |
| DRAIN | 1 | 1 NPT | SCR | SA105 | 3000# | | WELDED | EX. JT. |
| VENT/DRAIN | 20 | 1/4 NPT | SCR | - | - | | TAPPED | T.S. |
| INLET/OUTLET | 2 | 6-600# | FLG | SA182 316 | 1.375 | | WELDED | CHAN |
| VENT | 1 | 3/4 NPT | SCR | SA182 316 | 3000# | | WELDED | CHAN |
| DRAIN | 1 | 1 NPT | SCR | SA182 316 | 3000# | | WELDED | CHAN |

19. Supports: Skirt NO Lugs - Legs 2 Other - Attached WELDED TO SHELL (where and how)

20. Remarks: Manufacturers' Partial Data Reports properly identified and signed by Commissioned Inspectors have been furnished for the following items of the report:

32-240 METHANOL PREHEATER WITH THERMINOL 66 IN THE SHELL & C MOTHER LIQUOR IN THE TUBES. SHELL SIDE HAS 44" OD X 1/2" (NOM) TK. F&F EXP. JOINT EXEMPT FROM CHARPY IMPACT PER UG 20 (f), UCS 66a, UHA 51 DESIGN FACTOR FOR SMLS SCETION PER UW 11 & 12 =1

CERTIFICATE OF SHOP 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.

"U" Certificate of Authorization no. 1574 expires MARCH 31 1995
 Date 06-09-92 Name MANNING & LEWIS ENGINEERING COMPANY (manufacturer)

Signed [Signature] (representative)

CERTIFICATE OF SHOP INSPECTION

Vessel constructed by MANNING & LEWIS ENGINEERING COMPANY at UNION, NEW JERSEY
 I, the undersigned, holding a valid commission issued by The National Board of Boiler and Pressure Vessel Inspectors and the state or province of NEW JERSEY and employed by KEMPER NATIONAL INSURANCE COMPANIES
LONG GROVE, IL have inspected the pressure vessel described in this Manufacturers' Data Report on 06-09 1992 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.

Signed [Signature] (Authorized Inspector) Commissions NB-8897; NJ 701 (Nat'l Bd. (incl. endorsements) state, prov. and no.)

CERTIFICATE OF FIELD ASSEMBLY COMPLIANCE

I certify that the field assembly construction of all parts of this vessel conforms with the requirements of Section VIII, Division 1 of the BOILER AND PRESSURE VESSEL CODE.
 Certificate of Authorization no. _____ expires _____ 19 _____
 Name _____ (assembler that certified and constructed field assembly) 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 the state or province of _____ and employed by _____ 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 report 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 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 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.

Signed _____ (Authorized Inspector) Commissions _____ (Nat'l Bd. (incl. endorsements) state, prov. and no.)

SHF. 1
 E-6203-13R2
 ACCT. 4043
 DATE 9/17/92
 APPROVED: S.O. [Signature]
 P.O.# 27-0178
 P.O.# P-13268N

3/9/46
11:00 AM
STATUS EC

7 Restricted

40 tubes w/indications

3 - 61-80%

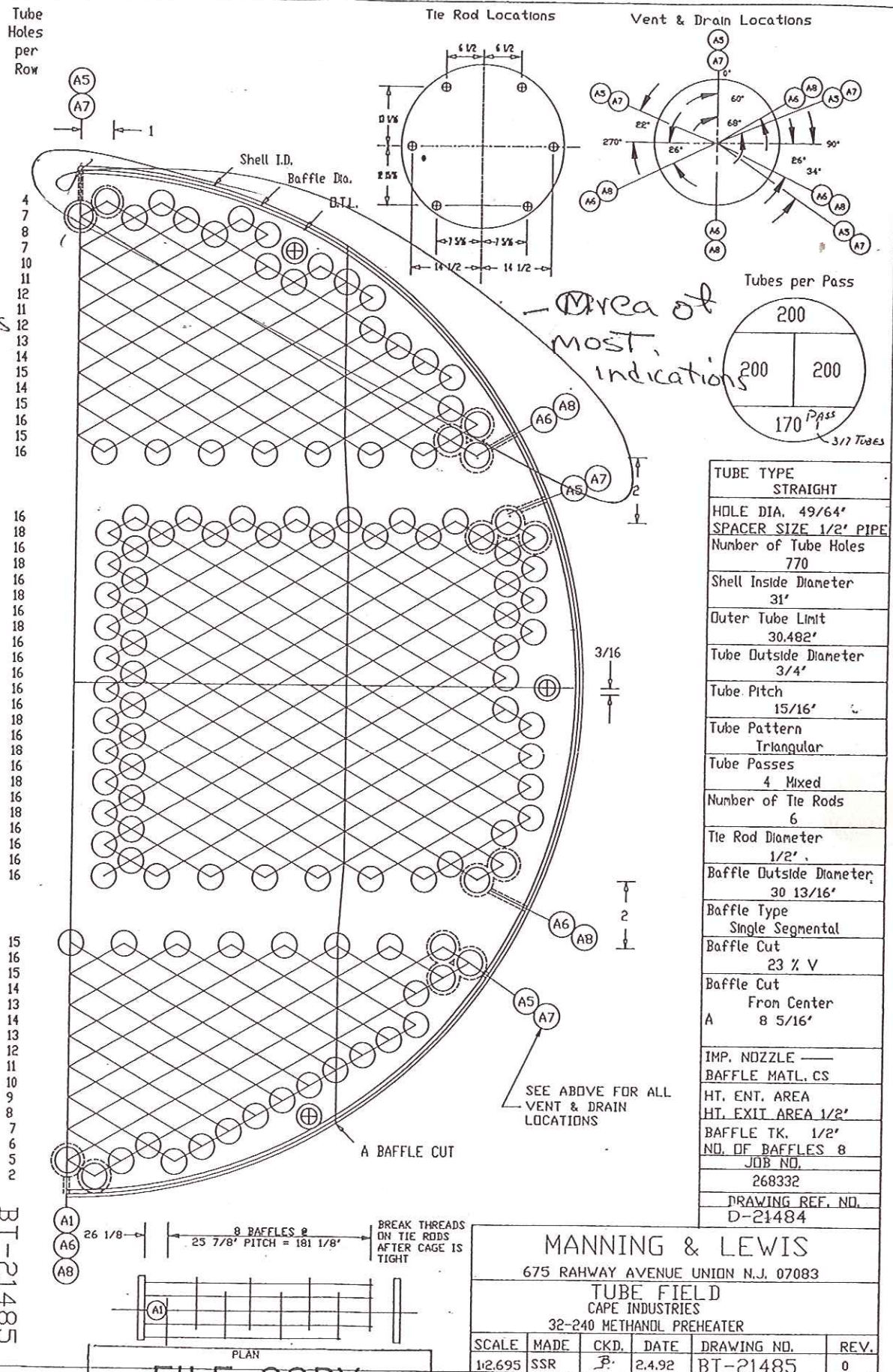
28 - 41-60%

9 - 21-40%

~37 in 1st pass

all 317SS ok

~100 tubes left
to check



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