

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

1. Manufactured and certified by HEAT TRANSFER EQUIPMENT CO. 1515 N. 93RD E. AVE. TULSA, OK 74115  
 (Name and address of Manufacturer)

2. Manufactured for AMOCO OIL COMPANY P.O. BOX 578 YORKTOWN, VA 23690  
 (Name and address of Purchaser)

3. Location of installation AMOCO OIL COMPANY GRAFTON, VA  
 (Name and address)

4. Type: SHELL (Description of vessel part (shell, two-piece head, tube bundle))  
1667 (Nat'l. Bd. No.) 93-2610-A-1 (Drawing No.) HEAT TRANSFER EQUIPMENT COMPANY (Mfg's serial No.) 1993 (CRN)  
1992 ED. (Drawing prepared by) (Year built)

5. ASME Code, Section VIII, Div. 1 1992 ED. 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): 2 (b) Overall length ft & in.: 18'-4 9/16"

| 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         | 27" ID        | 8'-4 9/16"      | SA-516-70*          |  | 1/2"      | 1/8"  | 1                   | SPOT             | 85%  | 1                             | SPOT             | 85%  | 1150°F         | 1 HR. |
| 1         | 27" ID        | 10'-0"          | SA-516-70*          |  | 1/2"      | 1/8"  | 1                   | SPOT             | 85%  | 1                             | SPOT             | 85%  | 1150°F         | 1 HR. |

7. Heads: (a) (Mar'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) |                              |           |       |        |         |                  |                    |                      |               |                  |         |            |                  |      |
| (b) |                              |           |       |        |         |                  |                    |                      |               |                  |         |            |                  |      |

(b) (Mar'l Spec. No., Grade or Type) H.T. - Time & Temp

If removable, bolts used (describe other fastening)

(Mar'l Spec. No., Grade, Size, No.)

8. Type of jacket \_\_\_\_\_ Jacket closure \_\_\_\_\_ (Describe as ogee & weld, bar, etc.)

If bar, give dimensions \_\_\_\_\_

9. MAWP 225 psi at max. temp. 650 °F Min. design metal temp. -20 °F at 225 psi  
 (internal) (external) (internal) (external)

10. Impact test NO PER UG-20(f) (Indicate yes or no and the component(s) impact tested)

11. Hydro., pneu., or comb. test press. 340 Proof test \_\_\_\_\_

Items 12 and 13 to be completed for tube sections.

12. Tubesheet: \_\_\_\_\_ Stationary (Mar'l Spec. No.) \_\_\_\_\_ Dia., in. (subject to press.) \_\_\_\_\_ Nom. thk., in. \_\_\_\_\_ Corr. Allow., in. \_\_\_\_\_ Attachment (welded or bolted)

\_\_\_\_\_ Floating (Mar'l Spec. No.) \_\_\_\_\_ Dia., in. \_\_\_\_\_ Nom. thk., in. \_\_\_\_\_ Corr. Allow., in. \_\_\_\_\_ Attachment

13. Tubes: \_\_\_\_\_ Mar'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): \_\_\_\_\_ (b) Overall length (ft & in.): \_\_\_\_\_

| 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 |
|           |               |                 |                     |  |           |       |                     |                  |      |                               |                  |      |                |      |
|           |               |                 |                     |  |           |       |                     |                  |      |                               |                  |      |                |      |
|           |               |                 |                     |  |           |       |                     |                  |      |                               |                  |      |                |      |

# 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 \_\_\_\_\_

|     | 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) |                              |           |       |        |         |                  |                    |                      |               |                  |         |            |                  |      |
| (b) |                              |           |       |        |         |                  |                    |                      |               |                  |         |            |                  |      |

If removable, bolts used (describe other fastening) \_\_\_\_\_

(Mat'l Spec. No., Grade, Size, No.) \_\_\_\_\_

16. MAWP \_\_\_\_\_ psi at max. temp. \_\_\_\_\_ °F Min. design metal temp. \_\_\_\_\_ °F at \_\_\_\_\_ psi.

(internal) (external) (internal) (external)

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:

| 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 |                        |
|                                      | 1   | 6"-300#          | RFLWN       | SA-105   |        | 1.0625"          | .125" |                        | WELD         |        | SHELL                  |
|                                      | 1   | 8"-300#          | RFLWN       | SA-105   |        | 1.125"           | .125" |                        | WELD         |        | SHELL                  |
| ** AUX                               | 2   | 1"-300#          | RFLWN       | SA-105   |        | .5625"           | .125" |                        | WELD         |        | NOZ. PIPE              |
|                                      |     |                  |             |          |        |                  |       |                        |              |        |                        |
| ** W/BLIND FLANGE                    |     |                  |             |          |        |                  |       |                        |              |        |                        |
|                                      |     |                  |             |          |        |                  |       |                        |              |        |                        |
|                                      |     |                  |             |          |        |                  |       |                        |              |        |                        |
|                                      |     |                  |             |          |        |                  |       |                        |              |        |                        |
|                                      |     |                  |             |          |        |                  |       |                        |              |        |                        |
|                                      |     |                  |             |          |        |                  |       |                        |              |        |                        |

20. Supports: Skirt NO Lugs - Legs - Others 2-SADDLES Attached WELDED TO SHELL

(Yes or No) (No.) (No.) (Describe) (Where and How)

21. Remarks: P.O. NO. 9340308

ITEM NO. EA-205

SIZE: 29"

\* VACUUM DEGASSED AND NORMALIZED.

## 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. 12,197 Expires JULY 15, 19 95

Date 7-27-93 Name HEAT TRANSFER EQUIPMENT COMPANY Signed Darryl Barnett

(Manufacturer) (Representative)

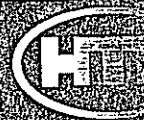
## CERTIFICATE OF SHOP/FIELD INSPECTION

I, the undersigned, holding a valid commission issued by The National Board of Boiler and Pressure Vessel Inspectors and the State or Province of OK and employed by COMMERCIAL UNION INSURANCE COMPANY of BOSTON, MA have inspected the pressure vessel part described in this Manufacturer's Data Report on 7-27-93, 19 93, 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 7-27-93 Signed [Signature] Commissions 2000 8223A 01269

(Authorized Inspector) (Nat'l Board incl. endorsement, State, Province and No.)

NATL. BD. NO. 11967



CERTIFIED BY  
HEAT TRANSFER EQUIPMENT CO.  
TULSA, OKLAHOMA

PART

W.P. TUBE P.S.

W.P. SHELL 225 P.S.

DESIGN TUBES P.S.

METAL TEMP SHELL 20 P.S.

SERIAL NO. 9340610-A

YEAR 1995

TEST TUBES P.S.

ITEM IEA-203 SIZE 29 1/4

NO. 9340608

REF. SQ. FT.

SERVICE COILER

650

650

225 P.S.

225 P.S.

340 P.S.

340 P.S.

TYPE SHELL

TYPE SHELL

TYPE SHELL

TYPE SHELL

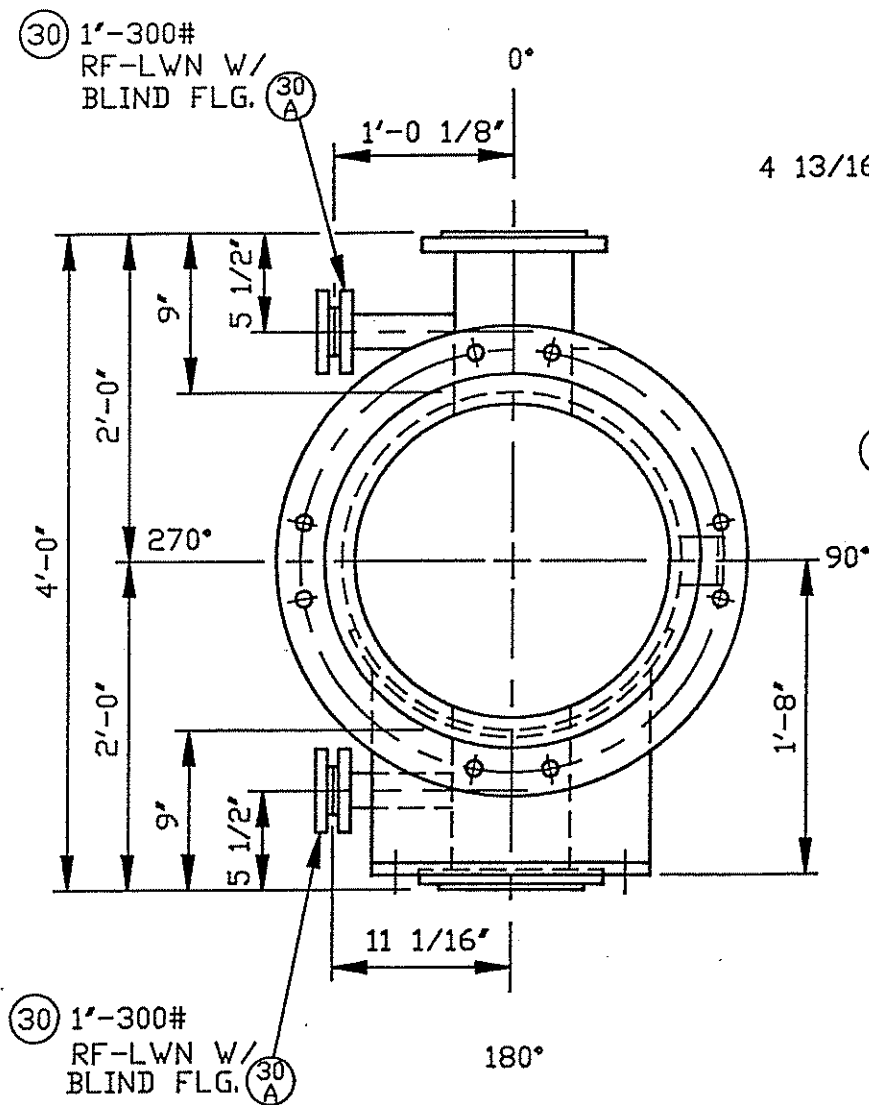
TYPE SHELL

TYPE SHELL

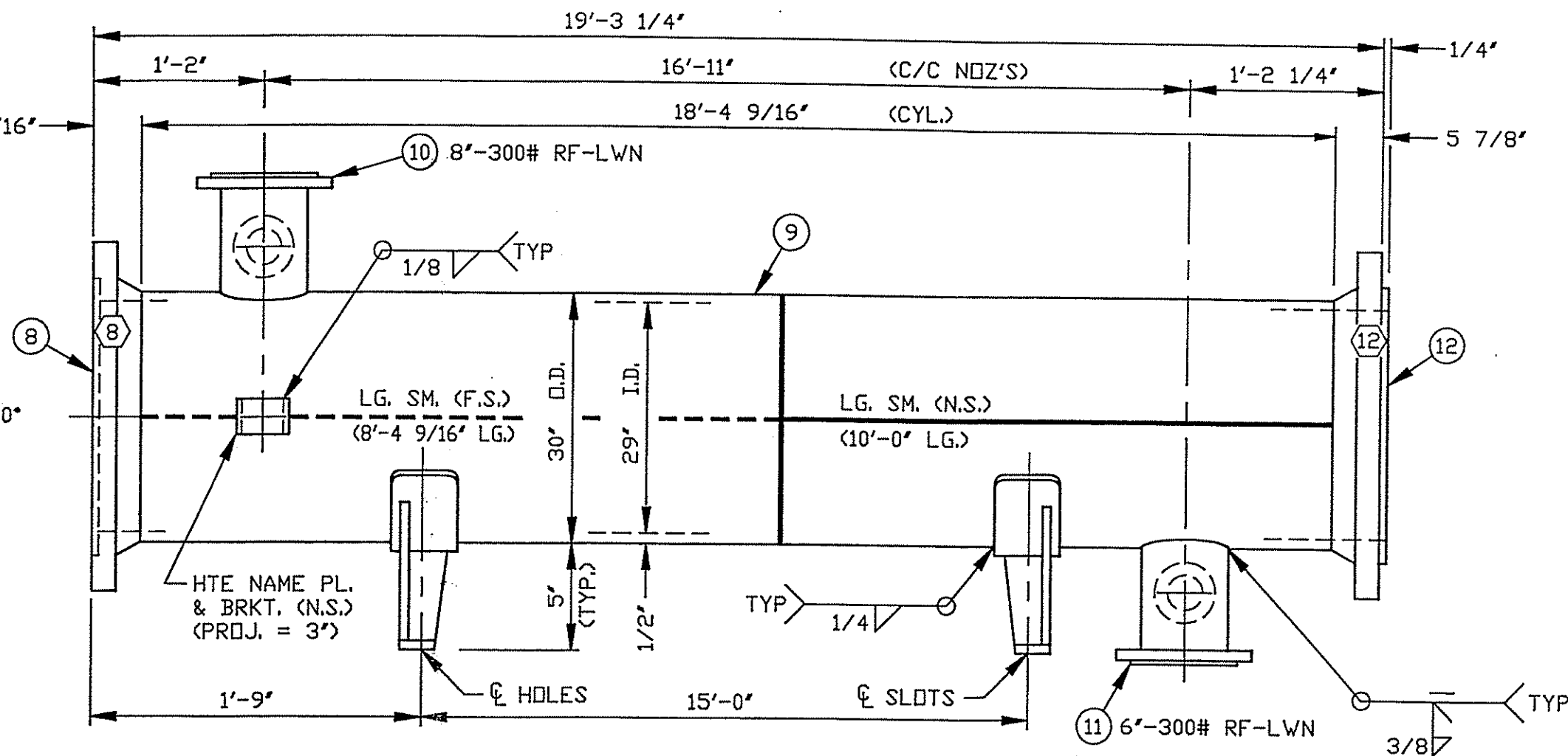
TYPE SHELL

TYPE SHELL

TYPE SHELL



END VIEW

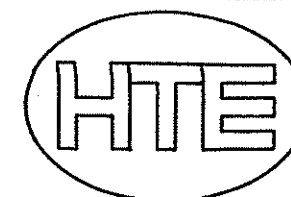


ELEVATION VIEW

NOTES:

1. SPOT RADIOGRAPH.
2. 1/8" (MIN.) RAD. ON NOZ. I.D. @ SHELL I.D.
3. GRIND ALL INSIDE WELDS FLUSH W/ SHELL I.D.
4. WELDING PROCEDURES: ASA-1-1.1 & SMA-1-1.1
5. SEE DWG. NO. 5 FOR BODY FLG. DETAILS.
6. SEE DWG. NO. 6 FOR WELD DETAILS & GEN. NOTES.
7. SEE DWG. NO. 6 BLK. NO. 4 FOR LG. & CIRC. SEAMS.
8. SEE DWG. NO. 3 FOR SUPPORT DETAILS.
9. SEE DWG. NO. 4 FOR NAME PL. & BRK'T. DETAILS.
10. ALL BOLT HOLES TO STRADDLE CENTERLINES.
11. POST WELD HEAT TREAT AS FOLLOWS:
  - A. HEAT FROM 800° F TO 1150° F @ 400° F PER HOUR.
  - B. HOLD @ 1150° F ±25° F FOR 1 HOUR (MIN.).
  - C. COOL FROM 1150° F TO 800° F @ 500° F PER HOUR.
  - D. FURTHER COOLING IN STILL AIR.

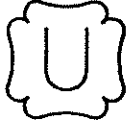
AMOCO OIL COMPANY  
YORKTOWN REFINERY  
P.D. NO. 9340308  
ITEM NO. EA-205  
SERVICE: COKER



HEAT TRANSFER EQUIPMENT CO.  
Tulsa, Oklahoma

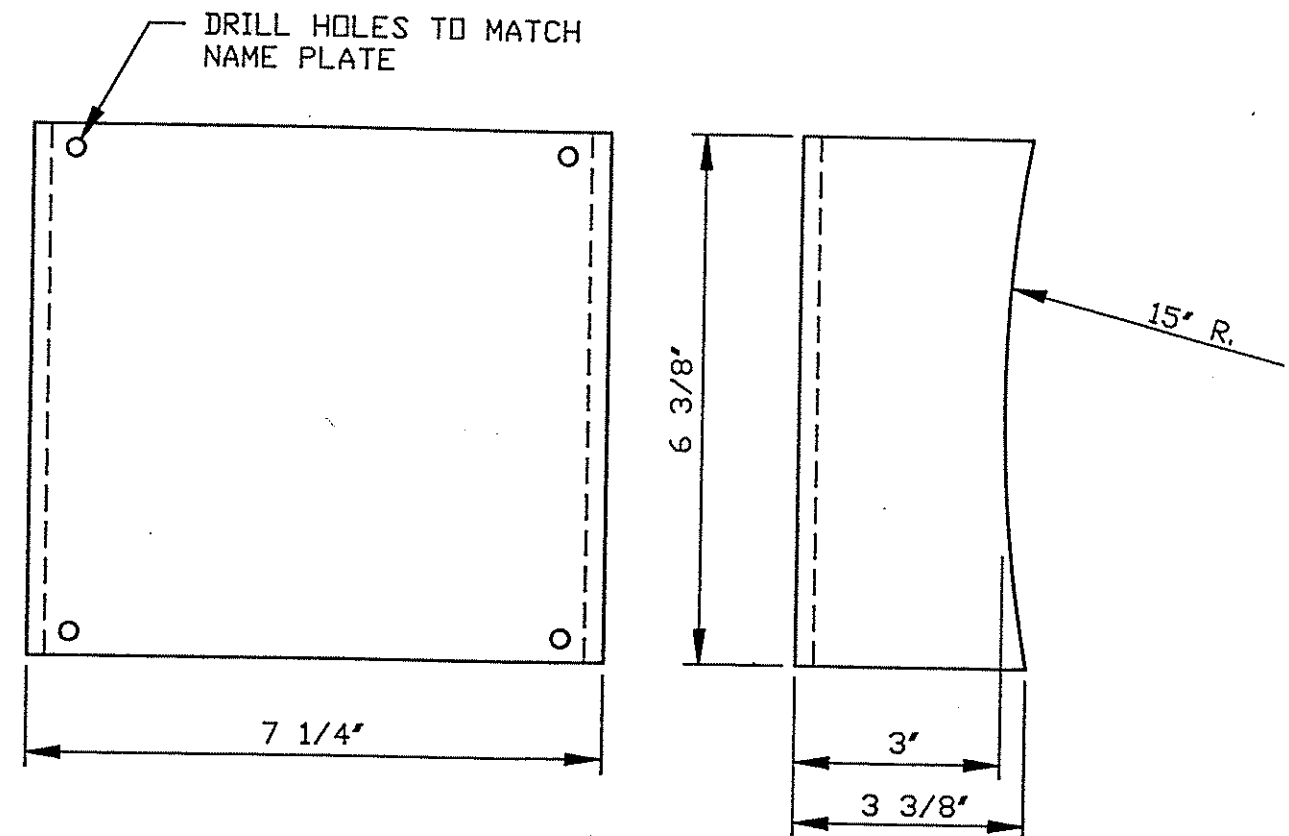
| Rev | Date | Description | By | SHELL DETAILS |              |              |             | REV.                    |
|-----|------|-------------|----|---------------|--------------|--------------|-------------|-------------------------|
| △   |      |             |    | DWN.          | R.A.C.       | CK.          | BM          | APP. <i>[Signature]</i> |
| △   |      |             |    | DATE 5/6/93   | DATE 5/18/93 | DATE 5-19-93 | 93-2610-A-2 | △                       |

\*\* TO BE ASSIGNED AT TIME OF SHIPMENT

|                                                                                           |                                                                |                            |                                                                                     |
|-------------------------------------------------------------------------------------------|----------------------------------------------------------------|----------------------------|-------------------------------------------------------------------------------------|
| <br>PART | NAT'L. BD. NO. **                                              |                            |  |
|                                                                                           | CERTIFIED BY<br>HEAT TRANSFER EQUIPMENT CO.<br>TULSA, OKLAHOMA |                            |                                                                                     |
|                                                                                           | M.A.W.P. TUBES                                                 | - P.S.I. AT - °F           |                                                                                     |
|                                                                                           | M.A.W.P. SHELL                                                 | 225 P.S.I. AT 650 °F       |                                                                                     |
|                                                                                           | MIN. DESIGN TUBES                                              | - °F AT - P.S.I.           |                                                                                     |
|                                                                                           | METAL TEMP. SHELL                                              | -20 °F AT 225 P.S.I.       |                                                                                     |
|                                                                                           | SERIAL NO.                                                     | 93-2610-A                  |                                                                                     |
|                                                                                           | YEAR                                                           | 1993                       |                                                                                     |
|                                                                                           | TEST TUBES                                                     | - P.S.I. SHELL 340 P.S.I.  |                                                                                     |
|                                                                                           | ITEM                                                           | EA-205 SIZE 29' TYPE SHELL |                                                                                     |
| P.O. NO. 9340308                                                                          |                                                                |                            |                                                                                     |
| SURF. SQ. FT.                                                                             |                                                                |                            |                                                                                     |
| SERVICE COKER                                                                             |                                                                |                            |                                                                                     |
|                                                                                           |                                                                |                            |                                                                                     |
|                                                                                           |                                                                |                            |                                                                                     |
|                                                                                           |                                                                |                            |                                                                                     |

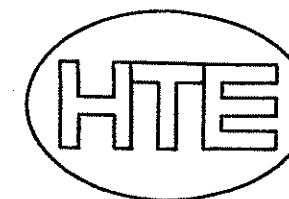
65 NAME PLATE DETAIL

RIVET EACH CORNER  
TO BRACKET WITH  
STN. STL. RIVETS



66 NAME PLATE BRACKET DETAIL  
3/16" THK.

AMOCO OIL COMPANY  
YORKTOWN REFINERY  
P.O. NO. 9340308  
ITEM NO. EA-205  
SERVICE COKER



HEAT TRANSFER EQUIPMENT CO.  
Tulsa, Oklahoma

| Rev | Date | Description | By |
|-----|------|-------------|----|
| △   |      |             |    |
| △   |      |             |    |
| △   |      |             |    |

## NAMEPLATE DETAILS

|              |              |              |    |      |  |
|--------------|--------------|--------------|----|------|--|
| DWN.         | R.A.C.       | CK.          | BM | APP. |  |
| DATE 5/14/93 | DATE 5/18/93 | DATE 5-19-93 |    |      |  |

93-2610-A-4

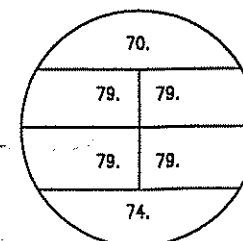
REV.  
△



TIE RODS.  
1/2" O.D.  
8 REQD. TOTAL

# SEAL BAR NOTES:

- 1) CUT SLOTS IN BAFFLES ONLY.
- 2) CUT SLOTS 5/16" WIDE.
- 3) CUT SLOT DEPTHS [SEAL BAR WIDTH+ 1/16"] FROM OUTSIDE EDGE OF SLOT.

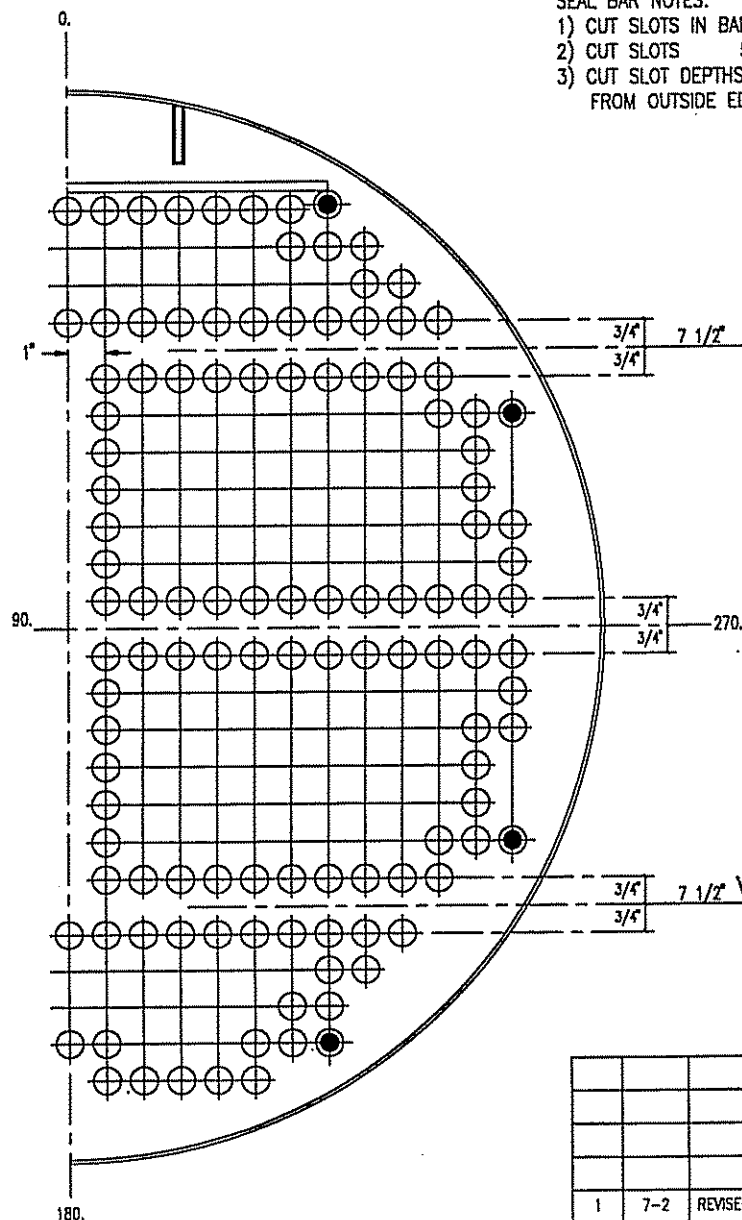


TUBE DISTRIBUTION

# NOTES:

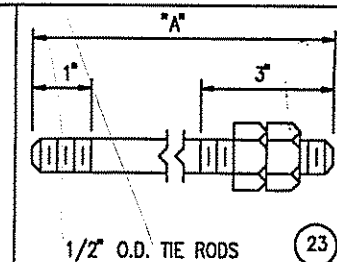
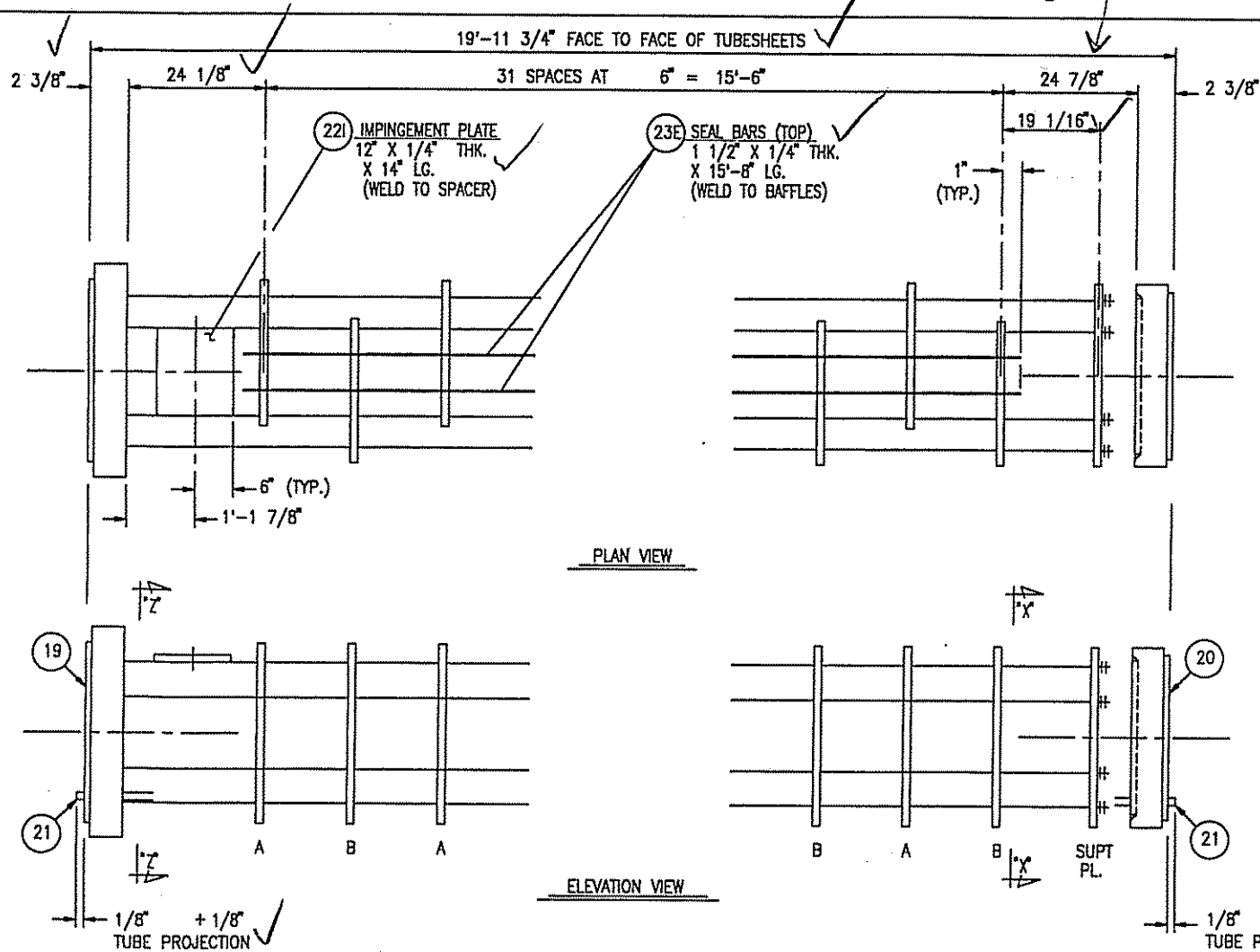
- 1) DRILL AND REAM TUBE HOLES IN TUBESHEETS TO .7580"  $\pm$  .0020" DIA. FOR 460 - 3/4" O.D. TUBES.
- 2) TUBE PITCH = 1" SQUARE.
- 3) NUMBER OF PASSES = 6
- 4) SEE DRAWING 50216-F FOR TUBE GROOVING DETAILS.
- 5) BAFFLE O.D. = 28 13/16"
- 6) O.T.L. = 27 1/4"

LAYOUT SYMMETRICAL  
ABOUT VERTICAL  
CENTER LINE.

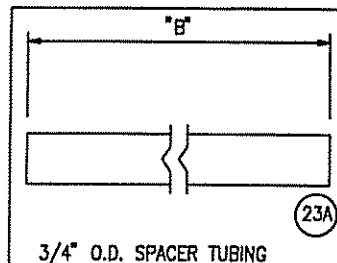


VIEW LOOKING AT SHELL SIDE OF NO. 19 TUBESHEET

|     |      |                                  |             |                                                                                                                                                                                                                 |
|-----|------|----------------------------------|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|     |      |                                  | TUBE LAYOUT |                                                                                                                                                                                                                 |
|     |      |                                  | DWN. BY     | <br><b>GULF COAST HEAT EXCHANGERS</b><br>9528 WARREN ROAD<br>MONT BELVUE, TEXAS 77580<br>TEL 281.383.3060 FAX 281.383.3257 |
|     |      |                                  | JOM         |                                                                                                                                                                                                                 |
|     |      |                                  | DATE        |                                                                                                                                                                                                                 |
| 1   | 7-2  | REVISED BAFFLE O.D. PER CUSTOMER | 6- 9-01     |                                                                                                                                                                                                                 |
| 0   | 6-9  | ISSUE FOR FABRICATION            | CKD. BY     | DWG.NO.                                                                                                                                                                                                         |
| NO. | DATE | REVISIONS                        | DRO         | 50216-H                                                                                                                                                                                                         |



| REQ'D. | "A"        |
|--------|------------|
| (A) 8. | 19'-3 3/4" |
| (B)    |            |
| (C)    |            |
| (D)    |            |



| REQ'D.   | "B"     |
|----------|---------|
| (1) 6.   | 24"     |
| (2) 2.   | 30"     |
| (3) 124. | 5 3/4"  |
| (4) 60.  | 11 3/4" |
| (5) 6.   | 18 3/4" |
| (6) 2.   | 24 3/4" |
| (7)      |         |

# NOTES:

1) FOR SECTION AND VIEW DETAILS SEE DWG. 50216-J.

| BUNDLE DETAILS |                    |           |  <b>GULF COAST HEAT EXCHANGERS</b><br>8528 WARREN ROAD<br>MONT BELVIEU, TEXAS 77580<br>TEL 281.383.3060 FAX 281.383.3257 |         |
|----------------|--------------------|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| DWN. BY        | JQM                | DATE      |                                                                                                                                                                                                               |         |
| 6-9            | ISSUE FOR APPROVAL | 6-9-01    | CKD. BY                                                                                                                                                                                                       | DWG.NO. |
| NO.            | DATE               | REVISIONS | DRO                                                                                                                                                                                                           | 50216-I |

Channel Box

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

1. Manufactured and certified by CANNON BOILER WORKS, INC. 510 CONSTITUTION BLVD. NEW KENSINGTON, PA. 15068  
 (Name and address of Manufacturer)

2. Manufactured for Western Refining Yorktown, Inc 2201 Goodwin Neck Rd. Yorktown, VA 23692  
 (Name and address of Purchaser)

3. Location of installation Same as line #2  
 (Name and address)

4. Type Channel 15344-B ---  
 (Description of vessel part (shell, two-piece head, tube bundle)) (Manufacturer's serial number) (CRN)

N/A D-15344-B1 Rev. 8 D Cannon Boiler Works, Inc. 2009  
 (National Board Number) (Drawing Number) (Drawing prepared by) (Year Built)

5. ASME Code, Section VIII, Div. 1 1998/1998 --- ---  
 Edition and Addenda (date) Code Case No. Special services 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) Number of course(s) One (b) Overall length 24 7/8"

| 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 |
| One       | 29 1/2" OD | 24 7/8" | SA-240 Type 316L    |  | 1/4"      | 0     | 1                    | None             | 70%  | 1                              | None             | 70%  | N/A            | N/A  |
| ---       | ---        | ---     | ---                 |  | ---       | ---   | ---                  | ---              | ---  | ---                            | ---              | ---  | ---            | ---  |
| ---       | ---        | ---     | ---                 |  | ---       | ---   | ---                  | ---              | ---  | ---                            | ---              | ---  | ---            | ---  |

7. Heads: (a) --- (b) ---  
 (Material Spec. Number, Grade or Type) (H.T. - Time & Temp.) (Material Spec. Number, Grade or Type) (H.T. - Time & Temp.)

| Location (Top, Bottom, Ends) | Thickness |       | Radius |         | Elliptical Apex Angle | Conical Apex Angle | Hemispherical Radius | Flat Diameter | Side to Pressure |         | Category A |                  |      |
|------------------------------|-----------|-------|--------|---------|-----------------------|--------------------|----------------------|---------------|------------------|---------|------------|------------------|------|
|                              | Min.      | Corr. | Crown  | Knuckle |                       |                    |                      |               | Convex           | Concave | Type       | Full, Spot, None | Eff. |
| (a)                          | ---       | ---   | ---    | ---     | ---                   | ---                | ---                  | ---           | ---              | ---     | ---        | ---              | ---  |
| (b)                          | ---       | ---   | ---    | ---     | ---                   | ---                | ---                  | ---           | ---              | ---     | ---        | ---              | ---  |

If removable, bolts used (describe other fastenings) ---

(Material, spec. number, grade, size, number)

8. Type of Jacket --- Jacket Closure ---  
 (Describe as ogee & weld, bar, etc.)

If bar, give dimensions

9. MAWP 75 --- at max. temp. 125 --- Min. design metal temp. -20 F at 75  
 (internal) (external) (internal) (external)

10. Impact Test No at a test temperature of ---  
 (Indicate yes or no and the component(s) impact tested)

11. Hydro., pneu., or comb. test press. Hydro / 113 Proof Test ---

Items 12 and 13 to be completed for tube sections.

12. Tubesheet: --- --- --- --- ---  
 [Stationary (Material Spec. Number.)) [Diameter (subject to pressure.)) [Nominal thickness) [Corr. Allow.) [Attachment (welded or bolted)]

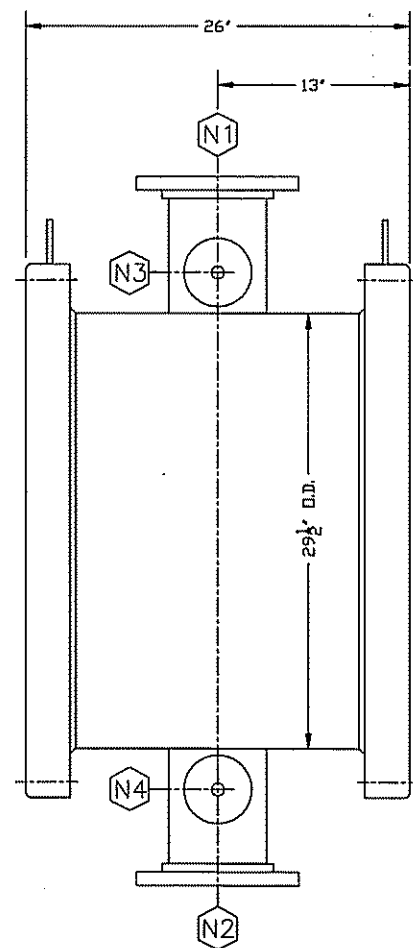
--- --- --- --- ---  
 [Floating (Material Spec. No.)) [Diameter) [Nominal thickness) [Corr. Allow.) [Attachment)

13. Tubes: --- --- --- --- ---  
 (Material, Spec. No., Grade or Type) (O.D.) (Nominal thickness) (Number) [Type (Straight or U)]

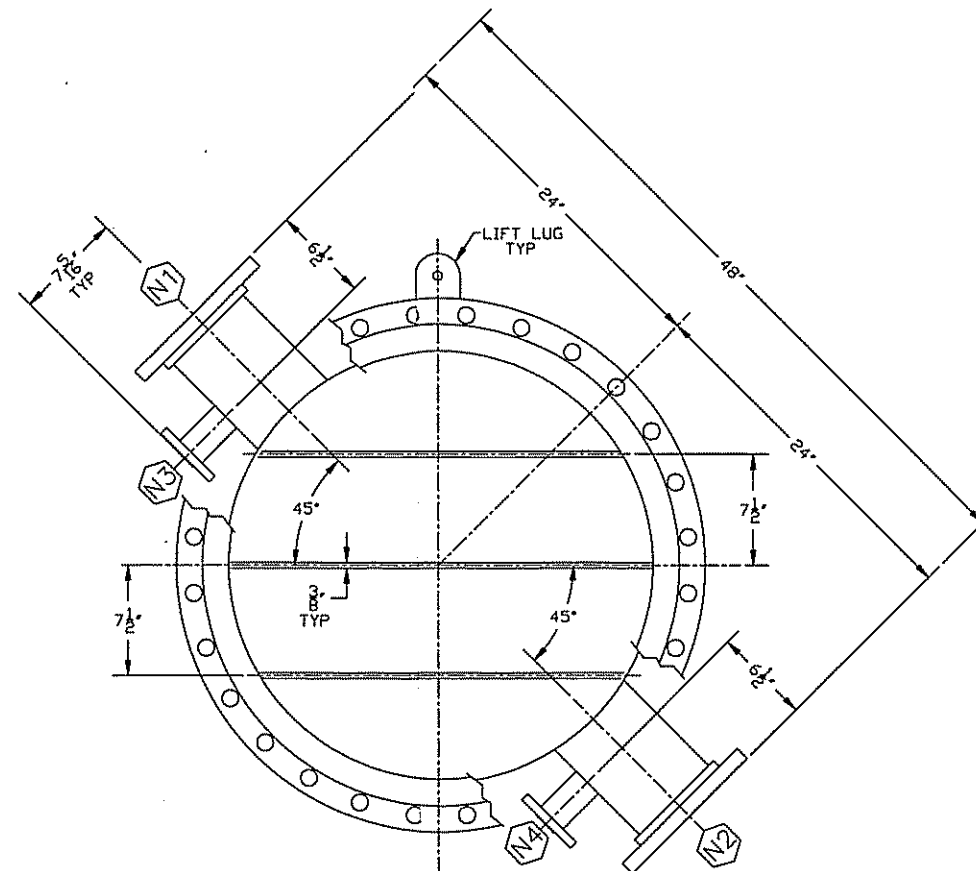
Items 14-18 incl. to be completed for inner chambers of jacketed vessels or channels of heat exchangers.

14. Shell: (a) No. of course(s) --- (b) Overall length ---

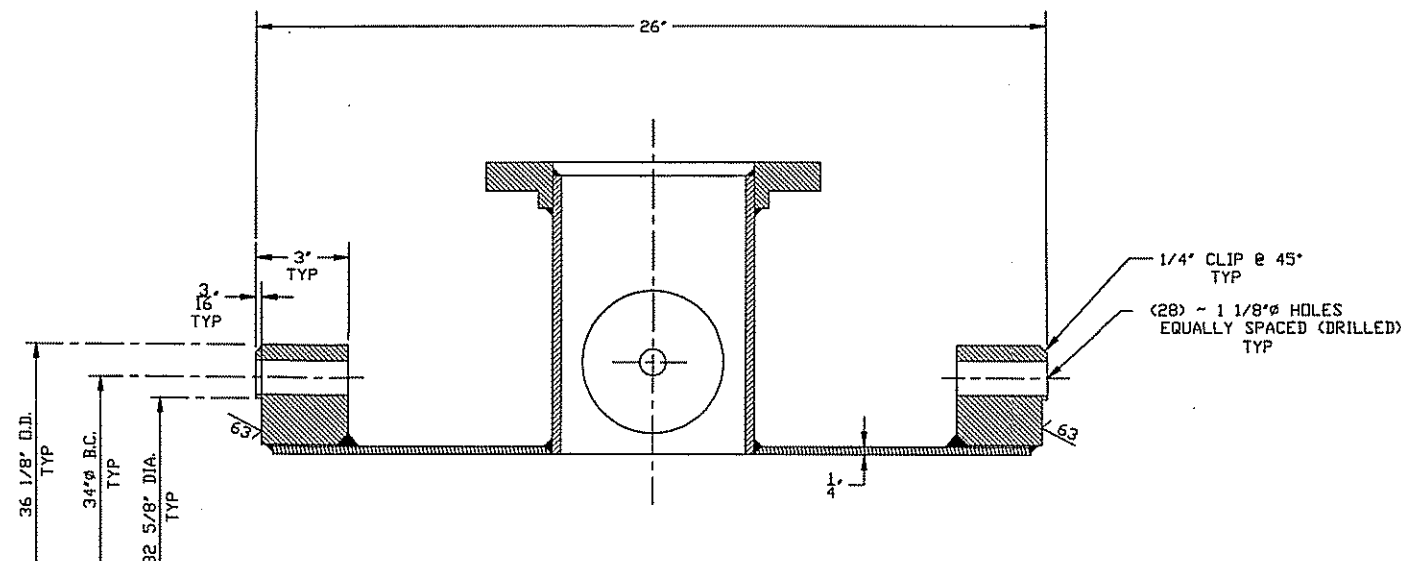
| Course(s) |          |        | Material            |  | Thickness |       | Long. Joint (Cat. A) |                  |      | Circum. Joint (Cat. A, B, & C) |                  |      | Heat Treatment |      |
|-----------|----------|--------|---------------------|--|-----------|-------|----------------------|------------------|------|--------------------------------|------------------|------|----------------|------|
| No.       | Diameter | Length | Spec./Grade or Type |  | Nom.      | Corr. | Type                 | Full, Spot, None | Eff. | Type                           | Full, Spot, None | Eff. | Temp.          | Time |
| ---       | ---      | ---    | ---                 |  | ---       | ---   | ---                  | ---              | ---  | ---                            | ---              | ---  | ---            | ---  |
| ---       | ---      | ---    | ---                 |  | ---       | ---   | ---                  | ---              | ---  | ---                            | ---              | ---  | ---            | ---  |
| ---       | ---      | ---    | ---                 |  | ---       | ---   | ---                  | ---              | ---  | ---                            | ---              | ---  | ---            | ---  |



ELEVATION VIEW  
(SEE END VIEW FOR NOZZLE ORIENTATION)



END VIEW



SECTION THRU CHANNEL

| NOZZLE DATA |      |        |               |           |         |
|-------------|------|--------|---------------|-----------|---------|
| NOZ         | SIZE | RATING | TYPE          | PIPE THK. | SERVICE |
| N1          | 6"   | 150#   | F.F.S.O. FLG. | SCH. 40S  | ---     |
| N2          | 6"   | 150#   | F.F.S.O. FLG. | SCH. 40S  | ---     |
| N3          | 3/4" | 300#   | R.F. LWN      | ---       | ---     |
| N4          | 3/4" | 300#   | R.F. LWN      | ---       | ---     |

# MATERIALS:

CHANNEL: SA-240-316L  
 BODY FLANGES: SA-240-316L  
 NOZZLES: SA-312-316L  
 FLANGES: SA-182-316L  
 FITTINGS: SA-182-316L  
 PLATE: SA-240-316L

# NOTES:

- BOLT HOLES TO STRADDLE CENTERLINES.
- NO PAINTING REQUIRED.
- APPROX. WEIGHT = 750 LBS.
- SPOT X-RAY OF LONGITUDINAL SEAM PER CUSTOMER REQUEST.

# CUSTOMER APPROVAL

Signature \_\_\_\_\_ Date: \_\_\_\_\_  
 Drawing must be returned signed for Fabrication

## TOLERANCE BLOCK

FLANGE ROTATION:  $\pm 1^\circ$   
 OVERALL HEIGHT:  $\pm 1/4"$   
 NOZZLE ALIGNMENT:  $\pm 1/8"$   
 FLANGE ALIGNMENT:  $\pm 1/16"$   
 SUPPORT LOCATIONS:  $\pm 1/8"$   
 OVERALL LENGTH:  $\pm 1/4"$   
 REFERENCE: UG-79, UG-80, UG-81

## A.S.M.E. CODE

DESIGN DATA  
 DESIGN PRESSURE: 75 PSIG  
 DESIGN TEMPERATURE: 125°F  
 TEST PRESSURE: 113 PSIG  
 OPERATING PRESSURE: < 75 PSIG  
 CORROSION ALLOWANCE: NONE  
 A.S.M.E. CODE SECTION VIII, DIV 1  
 1988 CODE: 1998 ADDENDA  
 RADIOGRAPH: SPOT (SEE NOTE 4)  
 STRESS RELIEF: NONE  
 WELD PREHEAT: PER WPS  
 M.O.M.T.: -20°F  
 NDE: VISUAL  
 LETHAL SERVICE: NONE

**CANNON BOILER WORKS, INC.**  
 510 CONSTITUTION BLVD. NEW KENSINGTON, PA 15068

CUSTOMER: WESTERN REFINING YORKTOWN INC.  
 REPRESENTED BY: \_\_\_\_\_

EA-205 CHANNEL  
 GENERAL ARRANGEMENT

| REV | DESCRIPTION                                                 | BY  | CHK | DATE      | NTS | 15344 | D-15344-C-B1 | D |
|-----|-------------------------------------------------------------|-----|-----|-----------|-----|-------|--------------|---|
| D   | NOTE 4 SPECIFY LONGITUDINAL SEAM                            | TLA | JAE | 1/13/2009 |     |       |              |   |
| C   | BODY, AND NOZZLE FLANGES STAINLESS STEEL, WERE CARBON STEEL | TLA | JAE | 1/12/2009 |     |       |              |   |
| B   | REVISE TO 1998 ED. 98 ADD. REVISE NOZZLE DATA               | JVF | JAE | 1/7/2009  |     |       |              |   |
| REV | DESCRIPTION                                                 | BY  | CHK | DATE      | NTS | 15344 | D-15344-C-B1 | D |

| FILE NAME:                          | DATE COMPLETED | DATE CHECKED | DATE RELEASED |
|-------------------------------------|----------------|--------------|---------------|
| J:\15300\SO\15344\15344-C-B-1-D.dwg | 12/22/2008     | JAE          | 11/24/2008    |
| SCALE                               | DATE           | SCALE        | DATE          |
|                                     |                |              |               |