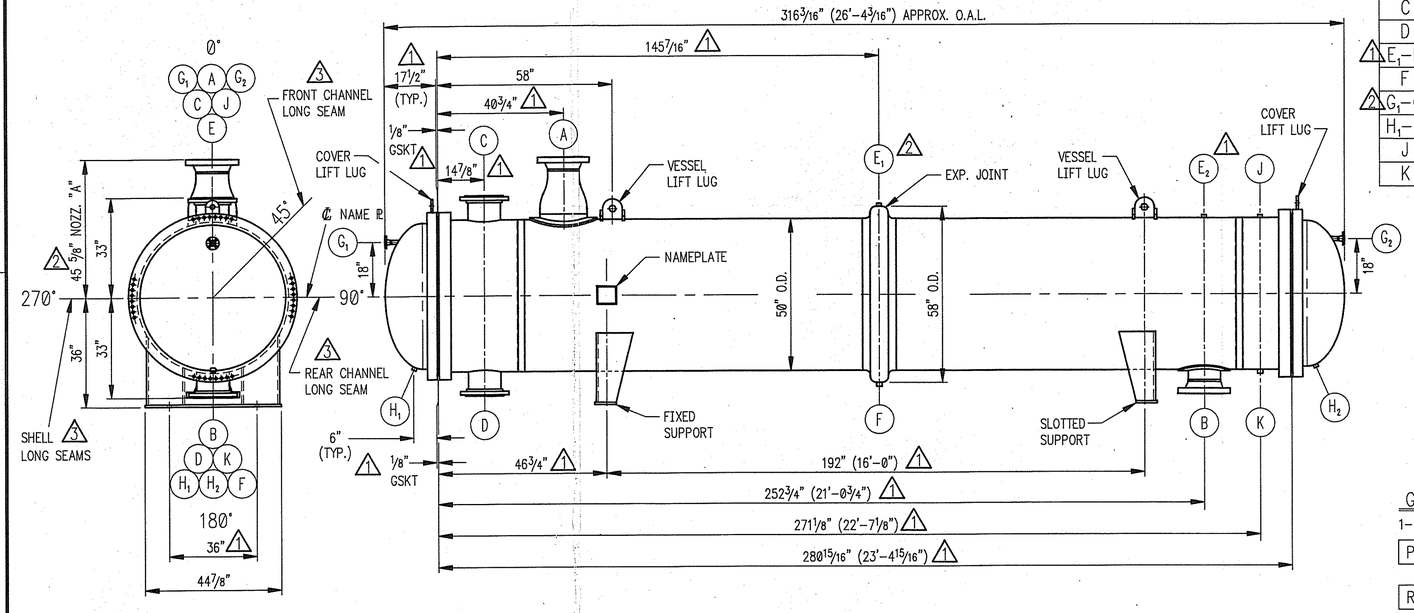


NOZZLE SCHEDULE					
MARK	SIZE	SCH	RATING	PURPOSE	REMARKS
A	10"	XS	300# WN	SHELL INLET	16" x 10" REDUCER
B	10"	120	300# WN	SHELL OUTLET	
C	10"	3/8"	150# LJ	TUBE OUTLET	
D	10"	3/8"	150# LJ	TUBE INLET	
1 E_1-E_2	3/4"	——	3000#	SHELL VENT	THR'D. COUPLET W/PLUG
F	1"	——	3000#	SHELL DRAIN	THR'D. COUPLET W/PLUG
2 G_1-G_2	1"	160	150# WN	STEAM JKT. INLET	
H_1-H_2	3/4"	——	3000#	STEAM JKT. OUTLET	THR'D. COUPLET
J	3/4"	——	3000#	CHANNEL VENT	THR'D. COUPLET W/PLUG
K	1"	——	3000#	CHANNEL DRAIN	THR'D. COUPLET W/PLUG

1

GENERAL NOTES:

1) OAT IS TO SUPPLY TWO (2) SETS OF GASKETS 1 ONE INSTALLED FOR TEST, AND SHIPPED WITH UNIT. ONE SET SHIPPED LOOSE

GENERAL INSPECTION NOTES:

1- HYDROTEST VESSEL PER SP-1584

P LIQUID PENETRANT EXAMINE ALL ARC STRIKES AND CLIP REMOVAL MARKS PER SP-1580

R RADIOGRAPH TO EXTENT REQ'D. PER SP-1581

1

WELDING NOTES:

A	C/S-C/S	WPS-4101 W/E7018 WPS-5101 W/E7A2-2 WPS-7102 W/ER70S-2 WPS-8101 W/ER70S-2
B	S/S-S/S	WPS-4303 W/E316 WPS-5301 W/ER316 WPS-7303 W/ER316 WPS-8303 W/ER316
C	C/S-S/S	WPS-4305 W/E309 WPS-5310 W/ER309 WPS-7304 W/ER309 WPS-8301 W/ER309
3 D	TUBE/TUBESHEET	WPS-8303 W/ER316

DESIGN DATA	SHELL SIDE	TUBE SIDE
APPLICABLE CODES	ASME CODE 1989 SECTION VIII, DIV 1 1989 ADDENDA 2 TEMA B	
DESIGN PRESSURE	300 PSIG	100PSIG/FULL VAC.
DESIGN TEMPERATURE	700° F.	650° F.
MAX. ALLOW. WORKING PRESS.	300 PSIG	100 PSIG
MIN. DESIGN METAL TEMP.	60°F. @ 300 PSIG	15°F. @ 100 PSIG 2
CORROSION ALLOWANCE	1/16"	NONE
BODY FLANGE FACE FINISH	——	125 RMS
RADIOGRAPHIC EXAMINATION	SPOT	SPOT
HEAT TREATMENT	——	——
FINAL TEST PRESSURE	475 PSIG	170 PSIG
MATERIAL	SHELL/JACKET	TUBE SIDE
SHELL	SA-516-70	SA-240-316
COVER	——	SA-516-70 WITH SA-240-316 LINER
SHELL AND HEAD FLANGES	——	SA-105
NOZZLE NECKS	SA-106-B	SA-240-316
NOZZLE FLANGES	SA-105	SA-105
REINFORCING PADS	SA-516-70	——
TUBE SHEETS	SA-240-316	
TUBES	SA-213-316	
BAFFLES	A-36	——
SPACERS	A-53-B	——
TIE-RODS	A-36	——
PARTITION PLATES	——	SA-240-316
COUPLINGS	SA-105	SA-182-F316
GASKETS	——	SPIRAL WOUND CG 316 SS/GRAPHITE
BOLTS OR STUDS	——	SA-193-B7
NUTS	——	SA-194-2H
IMPINGEMENT PLATE	304 S/S	——
SUPPORTS/LIFT LUGS	SA-36	SA-36

JACKET DESIGN DATA-ASME CODE 1989 SEC. VIII DIV. 1	
DESIGN PRESSURE/TEMPERATURE	150 PSIG/400°F
MAWP/MDMT	150 PSIG/-20°F@150 PSIG
CORROSION ALLOW./RADIOGRAPHIC EX.	1/16"/SPOT
FINAL TEST PRESSURE	225 PSIG

WEIGHT EMPTY 36,500#

WEIGHT FULL OF WATER 54,000#

PAINTING ALL EXTERNAL C/S - SANDBLAST PER SSPC-SP6 AND GIVE (1) COAT OF CARBOZINC 11, OR EQ. (3-5 MILS D.F.T.)

ALL EXTERNAL S/S - SOLVENT CLEAN PER SSPC-SP1 AND GIVE (2) COATS SILICONE BASE BLACK PAINT (1.5 MILS TOTAL MIN. D.F.T.)

INSPECTION OAT, CUSTOMER & AUTHORIZED I.A.

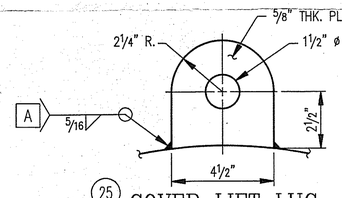
STAMPING ASME "U" STAMP REQ'D.

NOTE: BOLT HOLES SHALL STRADDLE THE NORMAL VESSEL CENTER LINES.

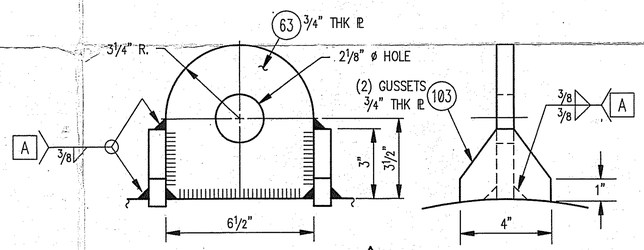
FINAL

COMPANION DRAWINGS:
D-9826, D-9827, D-9828

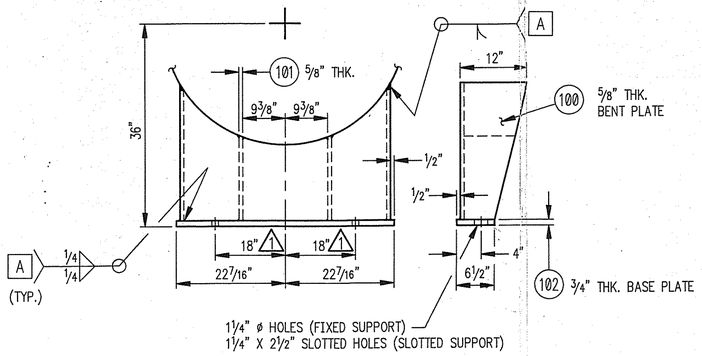
APR 24 1991

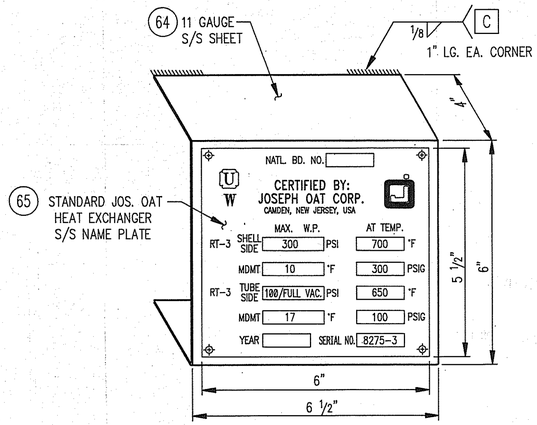


(25) COVER LIFT LUG
(2)-REQ'D.



VESSEL LIFT LUG 3
(2)-REQ'D.





NAME PLATE & BRACKET DETAIL

DATE	REVISION	BY	APPRVD
4/22/91	2 ZONES: A3 B6 C7 C8 D7	HKn	
12/5/90	2 ZONES: D4 D8 D1	S.Sauro	LHB
10-16-90	1 ZONES: A7 C2 C3 C5 TO C8 D2 TO D8	J.F.Sauro	LHB

JOSEPH OAT CORPORATION
CHEMICAL ENGINEERS/DESIGNERS/FABRICATORS
CAMDEN, NEW JERSEY 08104
EST. 1788

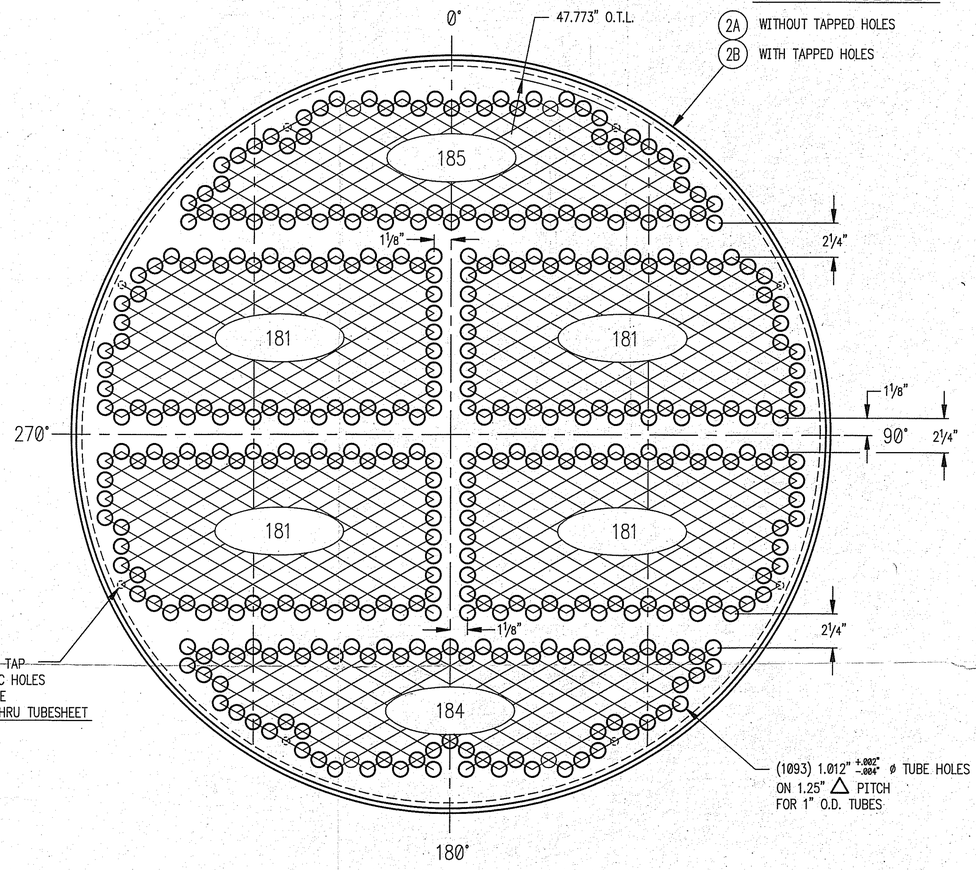
OUTLINE/ASSEMBLY
CRUDE STILL REBOILER
ITEM No. E-4403-2R

FOR: CAPE INDUSTRIES, INC.
WILMINGTON, NORTH CAROLINA

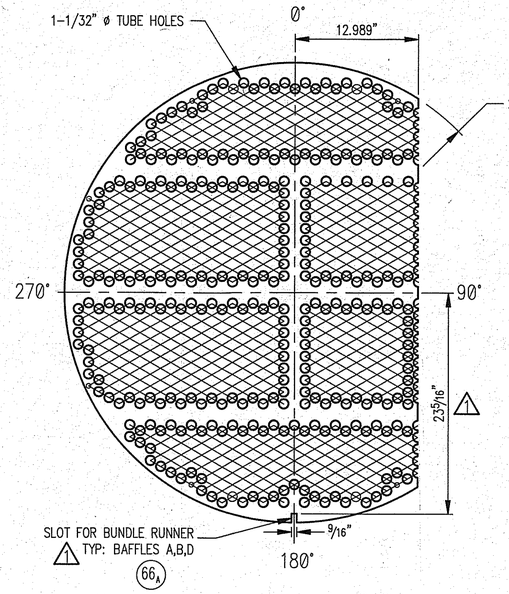
REF. NO. E-4403-2R	JOB NO.: J-8275-3
P.O. NO. P90630	
DRAWN: R.M.Hillegas DATE: 8-16-90	No. REQD: (1) REV.
CHECKED: DATE:	DRAWING NO. D-9825 3
APPRVD. ENG/QC	

DATE: 04-24-1991
TIME: 16:14:40 FILENAME: D-9825

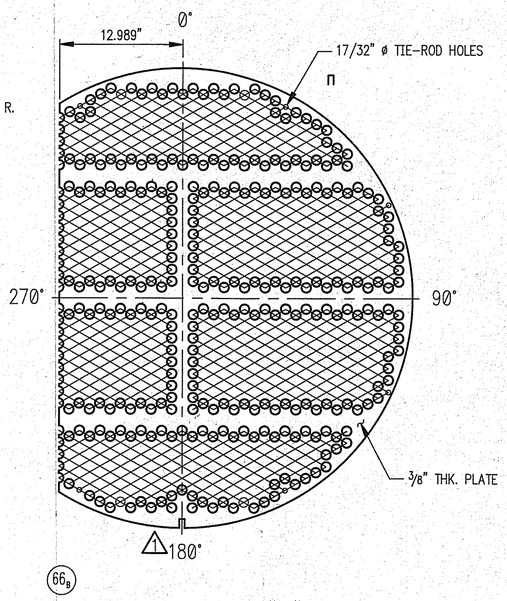
104275



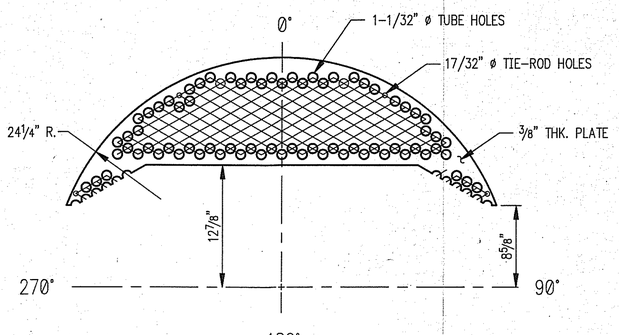
TUBESHEET DRILL PATTERN
TUBESIDE 2A SHOWN



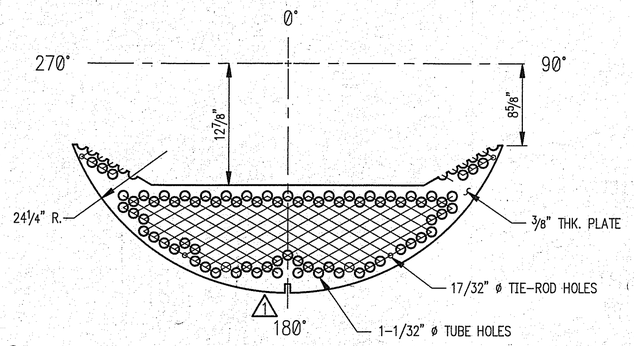
BAFFLE TYPE –"A"
(10)–REQ'D.



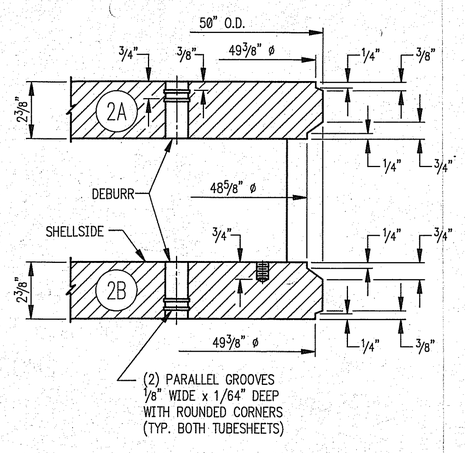
BAFFLE TYPE –"B"
(10)–REQ'D.



BAFFLE TYPE –"C"
(1)–REQ'D.



BAFFLE TYPE –"D"
(1)–REQ'D.



SECTION THRU TUBESHEETS

APR 24 1991

FINAL

DATE	REVISION	BY	APPRVD
10–16–90	△1 ZONE A5 C2 TO C4	J.F.Sauro	BTB

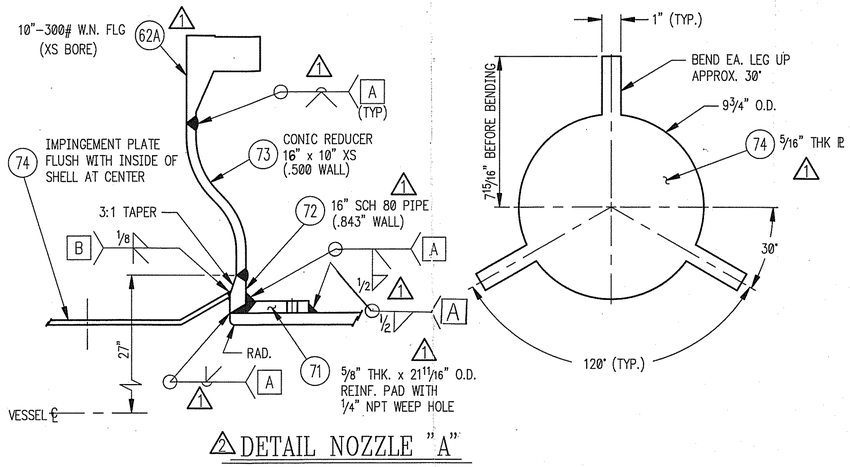
JOSEPH OAT CORPORATION
CHEMICAL ENGINEERS/DESIGNERS/FABRICATORS
CAMDEN, NEW JERSEY 08104
EST. 1788

DETAILS
CRUDE STILL REBOILER
ITEM No. E–4403–2R

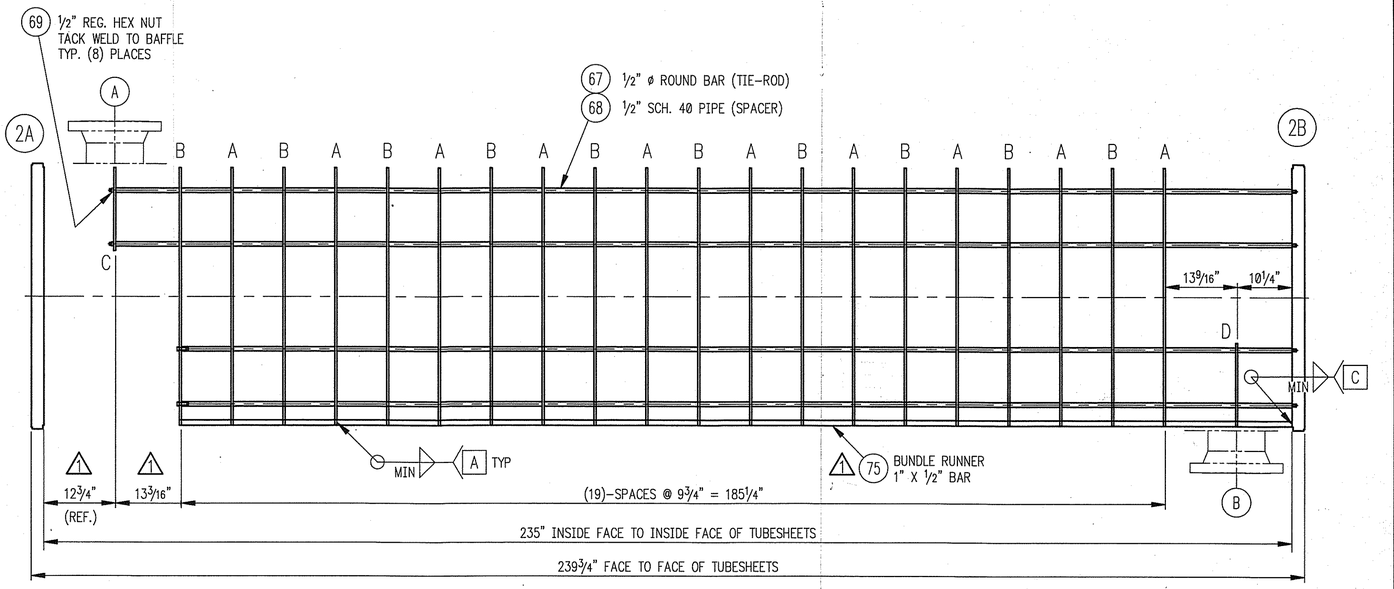
FOR: CAPE INDUSTRIES,INC.
WILMINGTON, NORTH CAROLINA

REF. NO.	JOB NO.: J–8275–3	
P.O. NO. P90630		
DRAWN: R.M.Hillegas DATE: 8–20–90	No. REQD: (1)	REV.
CHECKED: DATE:	DRAWING NO. D–9826	1
APPRVD. ENG/QC		

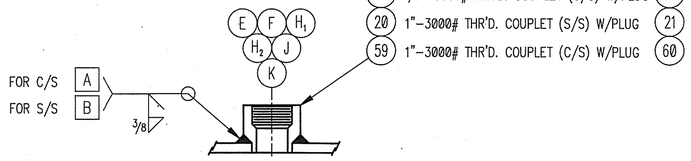
164275



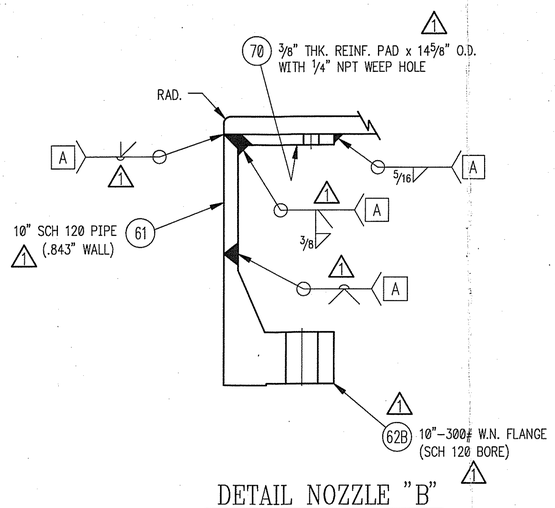
2 DETAIL NOZZLE "A"



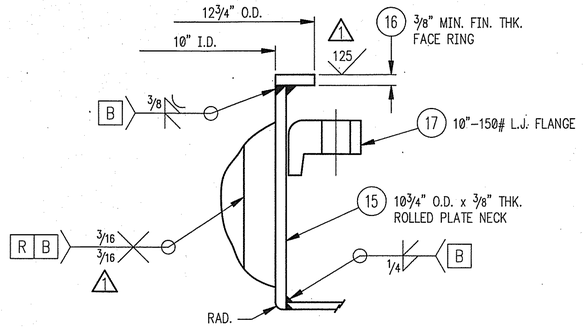
ELEVATION VIEW BAFFLE ARRANGEMENT



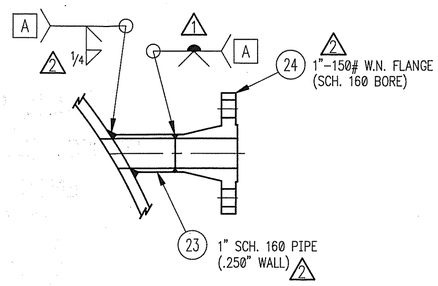
COUPLET DETAIL



DETAIL NOZZLE "B"



DETAIL NOZZLES "C" & "D"



DETAIL NOZZLES "G_1 & G_2"

FINAL

APR 24 1991

DATE	REVISION	BY	APPRVD
12/6/90	2 ZONES: A3 A4 C7	D.Sauro	
10–18–90	REV ELEV'N VIEW: ADD'D RUNNER & WELDS, DIM'S 2 PLC'S REV DETAILS NOZZ A (7 PLC'S), NOZZ B (6 PLC'S), NOZZ C & D (2 PLC'S), NOZZ G1 & G2 1	HKn	

JOSEPH OAT CORPORATION
CHEMICAL ENGINEERS/DESIGNERS/FABRICATORS
CAMDEN, NEW JERSEY 08104
EST. 1788

DETAILS
CRUDE STILL REBOILER
ITEM No. E–4403–2R

FOR: CAPE INDUSTRIES, INC.
WILMINGTON, NORTH CAROLINA

REF. NO.	JOB NO.: J–8275–3	
P.O. NO. P90630		
DRAWN: R.M.Hillegas DATE: 8–23–90	No. REQD: (1)	REV.
CHECKED: DATE:	DRAWING NO. D–9828	2
APPRVD. ENG/QC		

Date: 12/4/1990 Time: 9:33:12
Dwg File: D:\ACAD\8275–3\D–9828

1042275

104275

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 JOSEPH OAT CORP 2500 BROADWAY CAMDEN N.J.
(Name and address of manufacturer)

2. Manufactured for CAPE IND. INC. WILMINGTON N.C.
(Name and address of purchaser)

3. Location of installation SAME
(Name and address)

4. Type HORIZ. (Horiz. or vert., tank) | 8275-3 (Mfgr's serial No.) | — (CRN) | 9825 (Drawing) | 2802 (Nat'l. Bd. No.) | 1991 (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 desig construction, and workmanship conform to ASME Rules, Section VIII, Division 1 1989 (Year)

— (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, or shells of heat exchangers

6. Shell: SA-516-70 (Matl. (Spec. No., Grade)) | .625 (Nom. Thk. (in.)) | .0625 (Corr. Allow. (in.)) | 48.75 (Diam. I.D. (ft & in.)) | 240" (Length (Overall)(ft & in.))

7. Seams: DBL. (Long. (Dbl., Sngl.)) | SPOT (R.T. (Spot or Full)) | 85 (Eff. (%)) | — (H.T. Temp. (°F))

— (Time) | DBL (Girth (Dbl., Sngl.)) | SPOT (R.T. (Spot, Partial, or Full)) | 2 (No. of Courses)

8. Heads: (a) Matl. — (Spec. No., Grade) (b) Matl. — (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) — (Matl., Spec. No., Gr., Size, No.)

9. Type of Jacket SEE REMARKS Proof Test —

10. Jacket Closure — (Describe as ogee & weld, bar, etc.) If bar, give dimensions — If bolted, describe or sketc

11. MAWP 300 psi at max. temp. 700 °F. Min. design metal temp. 60 °F at 300 ps
Hydro., pneu., or comb. test press. 475 psi.

Items 12 and 13 to be completed for tube sections

12. Tubesheets: SA-240-316 (Stationary Matl. (Spec. No., Gr.)) | 48.75 (Diam. (in.) (Subject to pressure)) | 2 1/2 (Nom. Thk. (in.)) | NONE - TUBE 1/16 - SHELL (Corr. Allow. (in.)) | WELDED (Attach. (Welded, Bolted))

— (Floating Matl. (Spec. No., Gr.)) | — (Diam. (in.)) | — (Nom. Thk. (in.)) | — (Corr. Allow. (in.)) | — (Attach.)

13. Tubes: SA-213-316 (Matl. (Spec. No., Gr.)) | 1" (O.D. (in.)) | 14 (Nom. Thk. ~~(in.)~~ or Gauge) | 1093 (Number) | STRAIGHT (Type (Straight or "U"))

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

14. Shell: SA-240-316 (Matl. (Spec. No., Grade)) | .250 (Nom. Thk. (in.)) | NONE (Corr. Allow. (in.)) | 49.5" (Diam I.D. (ft & in.)) | 15.875 - REAR 25.810 - FRONT (Length (Overall)(ft & in.))

15. Seams: DBL (Long. (Dbl., Sngl.)) | SPOT (R.T. (Spot or Full)) | 85 (Eff.(%)) | — (H.T. Temp. (°F))

— (Time) | SNGL. (Girth (Dbl., Sngl.)) | NONE (R.T. (Spot, Partial, or Full)) | 1 - EACH END (No. of Courses)

16. Heads: (a) Matl. SA-105 (Spec. No., Grade) (b) Matl. SA-105 (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	3.25	NONE	—	—	—	—	—	55.125	FLAT
(b)	END	3.25	NONE	—	—	—	—	—	55.125	FLAT

If removable, bolts used (describe other fastenings) SA-193-B7 3/4 92 SA-194-2H 3/4 184 EACH END (Matl., Spec. No., Gr., Size, No.)

17. MAWP 100 psi at max. temp. 650 °F. Min. design metal temp. 15 °F at 100 psi
Hydro., pneu., or comb. test press. 170 psi.

(12/87) This Form (E00108) may be obtained from the ASME Order Dept., 22 Law Drive, Box 2300, Fairfield, NJ 07007-23C

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