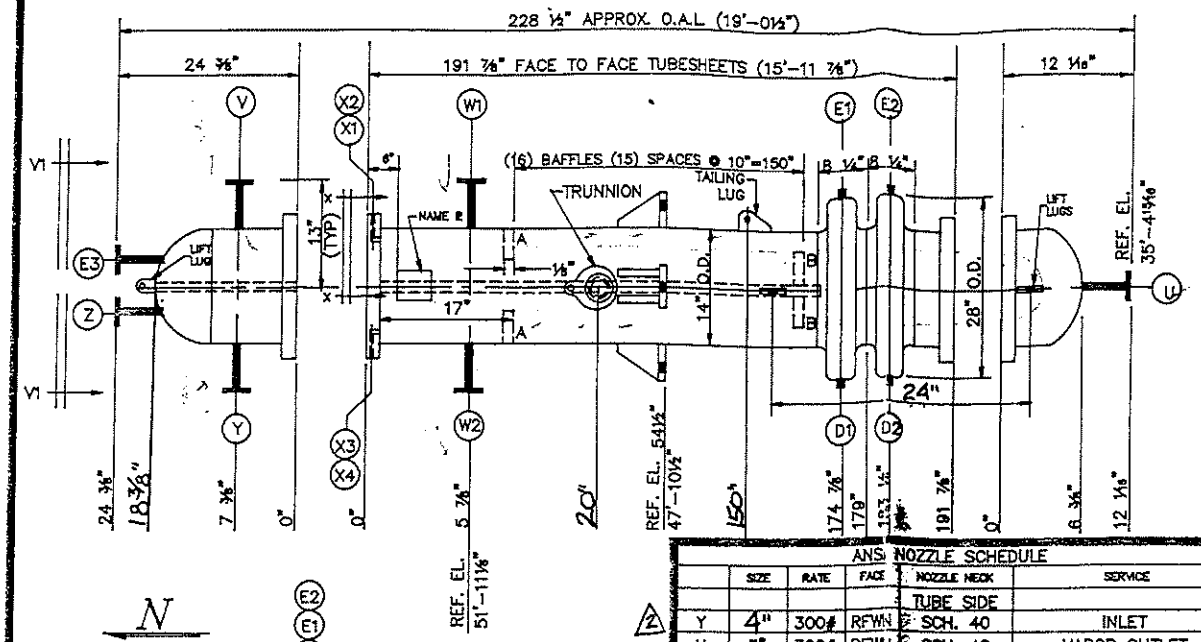
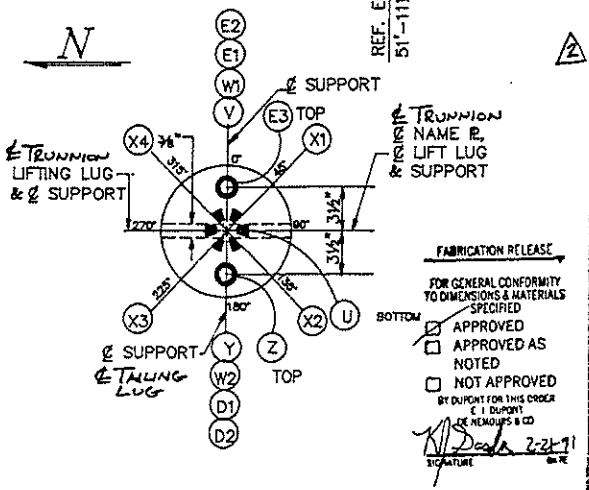




ORIENTATION
VIEW V1–V1

FABRICATION RELEASE

FOR GENERAL CONFORMITY TO DIMENSIONS & MATERIALS SPECIFIED

- ☑ APPROVED
- ☐ APPROVED AS NOTED
- ☐ NOT APPROVED

BY DUPONT FOR THIS ORDER E I DUPONT DE NEMOURS & CO

SIGNATURE DATE 2-27-91

ANSI NOZZLE SCHEDULE

	SIZE	RATE	FACE	NOZZLE NECK	SERVICE
				TUBE SIDE	
Y	4"	300#	RFWN	SCH. 40	INLET
V	3"	300#	RFWN	SCH. 40	VAPOR OUTLET
U	3"	300#	RFWN	SCH. 40	LIQUID OUTLET
E3	1"	300#	RFWN	SCH. 40	VENT
Z	1"	300#	RFWN	SCH. 40	INLET
				SHELL SIDE	
W1	4"	150#	RFWN	SCH. 80	INLET
W2	4"	150#	RFWN	SCH. 80	OUTLET
E1–E2	¾"	6000#	THD.	VENT. CPLT. PLUGGED	VENT
D1–D2	¾"	6000#	THD.	VENT. CPLT. PLUGGED	DRAIN
X1–4	⅜"	—	N.P.T.		TUBESHEET VENT

WPS	P1–P1	W–42(SMAW) W–72(FCAW) W–89(SAW)
WPS	P1–P8	W–2(SMAW) W–112(FCAW) W–100(SAW)
WPS	P8–P8	W–3(SMAW) W–81(FCAW) W–90(SAW)

ASME CODE REQUIREMENTS

	SHELL SIDE	TUBE SIDE
DESIGN PRESSURE PSIG	75	225
DESIGN TEMPERATURE (MAX/MIN) °F	400/15	400/15
HYDRO. TEST PRESSURE PSIG	115	340
CORROSION ALLOWANCE (S.STL ONLY)	1/8"	NONE
POSTWELD HEAT TREATMENT	NONE	NONE
RADIOGRAPHIC EXAMINATION	SPOT	
METAL TEMP. (TEMA 8th ED.) °F	400/70/87/70	400/253/70/300

ASME CODE STAMP / NAT'L BD. REG IS REQUIRED.
CUSTOMER INSPECTION IS REQUIRED
SPECIFICATIONS: 1986 ASME CODE SECT. VIII DIV. 1 ADDENDA–A87
SPECIAL SERVICE: NONE CODE CASE: NONE PARTIAL DATA REPORTS: NONE
TEMA (B) G1G; G5C; G7B; SG1E; SG2S; SU2A; SW300M; G111E
TUBES: SA–249 TP 316L PER DUPONT SPEC. SW300M TYPE 1 CAT. III WALL AVG.
NO. 92 O.D. 3/4" BWG. 16 LENGTH: 192 (16'–0")
TUBESHEETS: SA–240 TP 316L

PART	SHELL SIDE	TUBE SIDE
VESSEL	SA–106 GR.B (SMLS)	SA–240 TP 316L
COVERS		
FORMED HEADS	SA–516 GR. 70	SA–240 TP 316L
BODY FLANGES		SA–516 GR. 70
NOZZLE FLANGES	SA–105	SA–182 F 316L
NOZZLE PIPE	SA–106 GR.B (SMLS)	SA–312 TP 316L
STUDS/NUTS	SA–193–B7/SA–194–2H	SA–193–B7/SA–194–2H
GASKETS SU2A GR1		1/8" THK. KEVLAR

APR 8 1991

BPF 285566

REVISIONS

Sheet 1

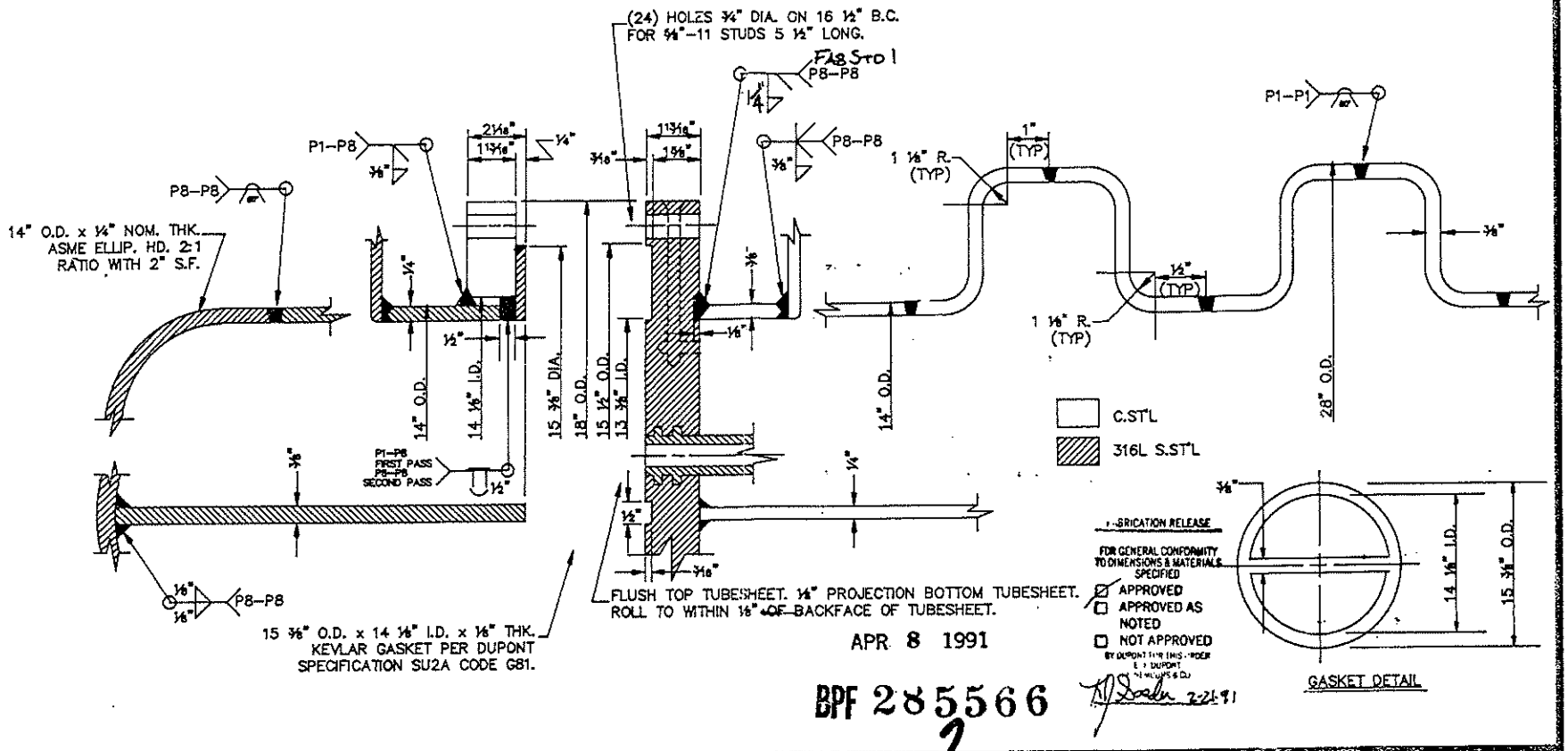
2	2/8/90	ADDED BONNET WEIGHTS. REV SIZE OF Y	
1	1/8/90	GEN. REV.	
CERTIFIED		ENG.	

CUSTOMER E.I.DUPONT DE NEMOURS & COMPANY, INC.
CUSTOMER P.O. NO. 1PBC–961101
ITEM NO. PROJ. NO. 6432
PLANT BEAUMONT, TEXAS
EX. NO. 5116–7307–15
TEMA SIZE AND TYPE
(1) 13–192 BFM VACUUM JET AFTER CONDENSER

SOUTHERN HEAT EXCHANGER CORP.
P.O. BOX 030008 TUSCALOOSA, AL. 35403

DATE 04/01/89	ORDER NO.	DWG. NO. SP–2099–2
BY B. HUFF	89–037	SHEET 1 OF 5

5116-7307-15



APR 8 1991

BPF 285566

FABRICATION RELEASE
FOR GENERAL CONFORMITY TO DIMENSIONS & MATERIALS SPECIFIED
☒ APPROVED
☐ APPROVED AS NOTED
☐ NOT APPROVED
BY DUPONT FOR THIS ITEM ONLY
E. I. DUPONT DE NEMOURS & CO.
2-21-91

NOTES

1. EST. WT. EMPTY: 3040 # | FULL: 4540 # | BDL: ———
2. ALL BOLT HOLES STRADDLE NORMAL CENTERLINES.
3. WOODEN COVERS ON ALL OPEN NOZZLES. (SEE NOTE 6.)
4. MAIN GASKET SURFACES.
5. PAINT: SANDBLAST EXPOSED C.ST'L NEAR WHITE PER SSPC–SP–10. PRIME WITH (1) COAT DUPONT 825 HBGF CORLAR CHROMATE FREE EPOXY PRIMER MIXED WITH VF–Y–632 ACTIVATOR 5–8 MILS D.F.T. INTERMEDIATE COAT WITH (1) COAT DUPONT 823 HB 87637 CORLAR EPOXY ENAMEL (CIRRUS GRAY) MIXED WITH VF–Y–632 ACTIVATOR 5–8 MILS D.F.T. TOP COAT WITH (1) COAT DUPONT 326 IMRON POLYURETHANE ENAMEL MIXED WITH VC–Y–511 ACTIVATOR 2–4 MILS D.F.T. FOR A TOTAL D.F.T. OF 12 TO 20 MILS. TOP COAT TO PROVIDE COMPLETE HIDING AND UNIFORM COLOR PER DUPONT SPECIFICATION C111SL.
6. COAT ALL EXPOSED GASKET SURFACES WITH RUST VETO HEAVY. SEAL WITH CLOTH BACKED TAPE. COVER WITH WOODEN COVERS BOLTED IN PLACE WITH A FULL COMPLIMENT OF BLACK IRON BOLTS.
7. ALL TUBES MUST BE TESTED AND INSPECTED PER DUPONT SPEC. SW300M TYPE 1 CAT. III.

NON–PRESSURE PARTS

SUPPORTS	SA–516GR.70
BAFFLES / SUPPORTS	SA–36
TIE RODS / SPACERS	C.ST'L
PASS PARTITIONS	316L S.ST'L
LIFT LUGS	316L S.ST'L
LONG BAFFLE	C.ST'L

9. EST. WT. EMPTY TOP BONNET 350 # /BOTTOM BONNET 220 #

CERTIFIED ENG. [illegible]

CUSTOMER E.I.DUPONT DE NEMOURS & COMPANY, INC.

CUSTOMER P.O. NO. LPBC–96110U

ITEM NO. PROJ. NO. 6432

PLANT BEAUMONT, TEXAS

EN NO. 5116–7307–15

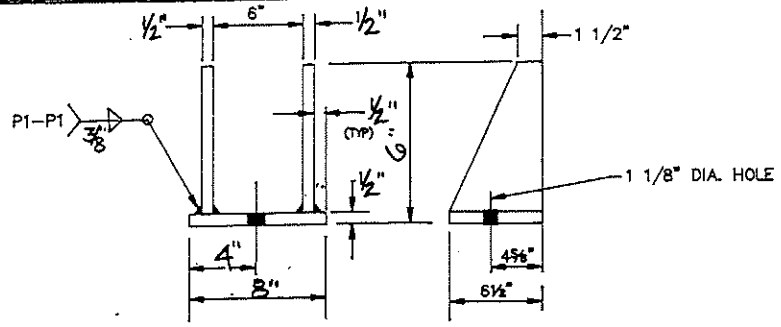
TEMA SIZE AND TYPE

(1) 13–192 BFM VACUUM JET AFTER CONDENSER

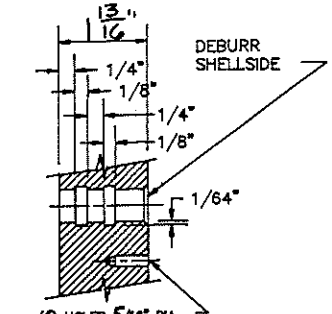
SOUTHERN HEAT EXCHANGER CORP.

P.O. BOX 030008 TUSCALOOSA, AL. 35403

DATE 04/01/89	ORDER NO.	DWG. NO. SP–2099–2
BY B. HUFF	89–037	SHEET 2 OF 5



SUPPORT DETAIL
(4) REQUIRED



APR 8 1991

BPF 285566

SHEET # 3

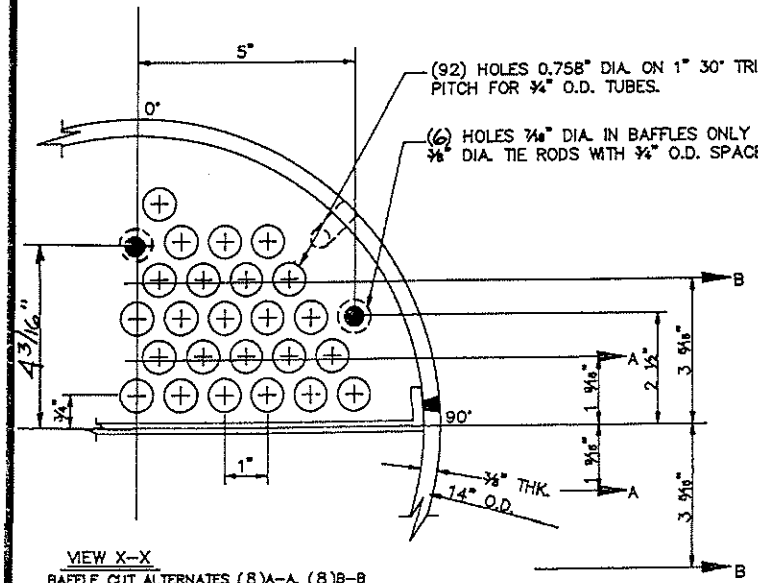
FABRICATION RELEASE

FOR GENERAL CONFORMITY TO DIMENSIONS & MATERIALS SPECIFIED

- [x] APPROVED
- [ ] APPROVED AS NOTED
- [ ] NOT APPROVED

BY DUPONT FOR THIS ORDER
E. I. DUPONT DE NEMOURS & CO

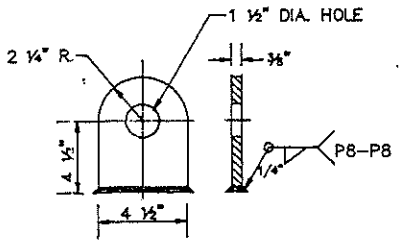
SIGNATURE _____ DATE 2-21-91



VIEW X–X
BAFFLE CUT ALTERNATES (8)A–A, (8)B–B
BAFFLE DIA.:13.150"
O.T.L.:11.0958"
TUBEHOLE DIA.IN BAFFLES: 25/32"

C.ST'L

316L S.ST'L



LIFT LUG DETAIL
(6) REQ'D

NATIONAL BOARD NO. LATER

U
W
RT3

CERTIFIED BY

SOUTHERN HEAT EXCHANGER CORP.

TUSCALOOSA, ALABAMA

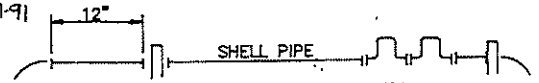
SHELL SIDE				
MADP	75	PSI AT	400	°F.
MADT	15	°F. AT	75	PSI
TUBE SIDE				
MADP	225	PSI AT	400	°F.
MADT	15	°F. AT	225	PSI

SHECO SER. NO. 89–037 YEAR 1989
CUST. ORDER LPBC–96110U
CUST. ITEM
EN NO. 5116–7307–15 DUPONT INSP. INT'L
BEAUMONT, TX PROJ. NO. 6432

SOUTHERN

CAUTION

THE PRESSURE AND TEMPERATURES SHOWN ON THE S.H.E. NAMEPLATE RELATE ONLY TO THE PRESSURE RETENTION CAPABILITY OF THIS HEAT EXCHANGER. COMPONENTS OF THIS HEAT EXCHANGER HAVE BEEN DESIGNED FOR SPECIFIC OPERATING CONDITIONS. A CHANGE IN SERVICE OR DEVIATION FROM THE SPECIFIED OPERATING CONDITIONS REQUIRES THAT A MECHANICAL DESIGN CHECK BE MADE IN ORDER TO AVOID POSSIBLE DAMAGE TO THE HEAT EXCHANGER.



THEORETICAL COURSE LENGTH

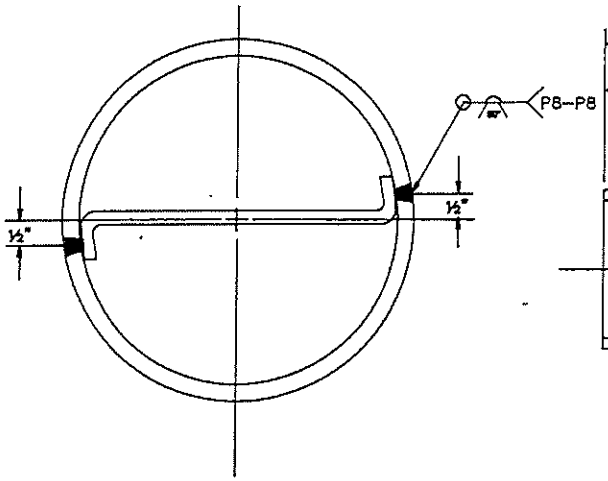
CERTIFIED ENG.	
CUSTOMER	E.I.DUPONT DE NEMOURS & COMPANY, INC.
CUSTOMER P.O. NO.	LPBC–96110U
ITEM NO.	PROJ. NO. 6432
PLANT	BEAUMONT, TEXAS
EN NO.	5116–7307–15

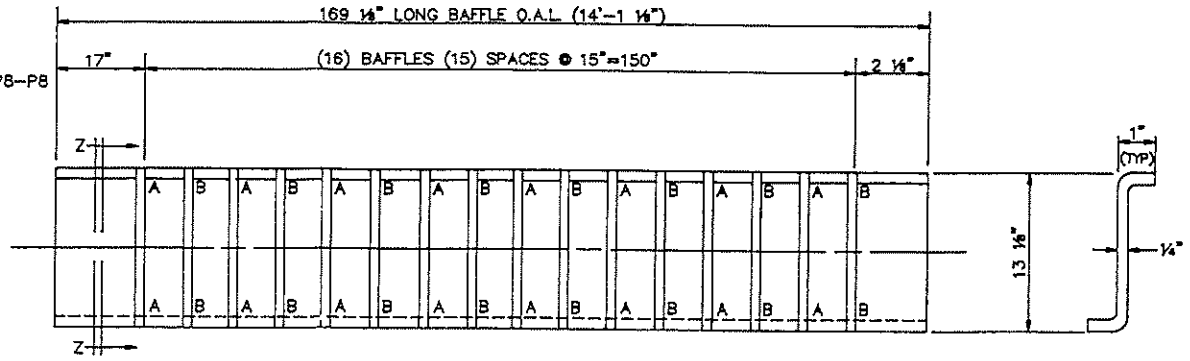
TEMA SIZE AND TYPE

(1) 13–192 BFM VACUUM JET AFTER CONDENSER

SOUTHERN HEAT EXCHANGER CORP.
P.O. BOX 030008 TUSCALOOSA, AL. 35403

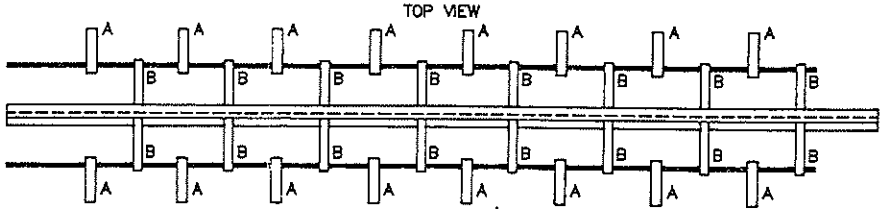
DATE 04/01/89	ORDER NO.	DWG. NO. SP–2099–2
BY B. HUFF	89–037	SHEET 3 OF 5





VIEW Z–Z

CROSS BAFFLE TO LONG BAFFLE DETAIL
TOP VIEW



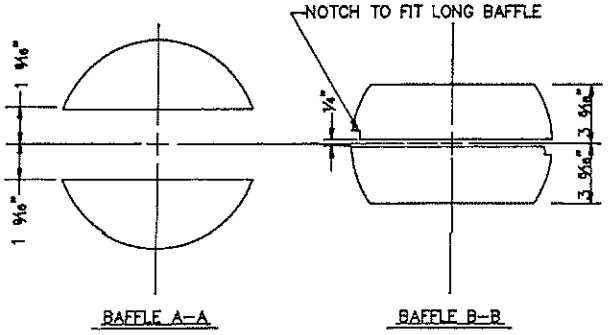
CROSS BAFFLE TO LONG BAFFLE DETAIL
SIDE VIEW

C.ST'L
316L S.ST'L

APR 8 1991

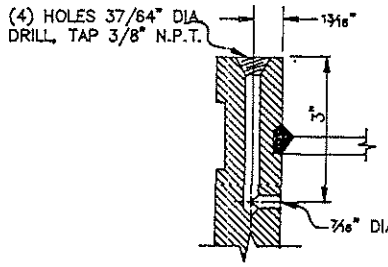
BPF 285566

SHEET # 4



BAFFLE A–A BAFFLE B–B

CROSS BAFFLE DETAIL



TUBESHEET VENT DETAIL

FABRICATION RELEASE

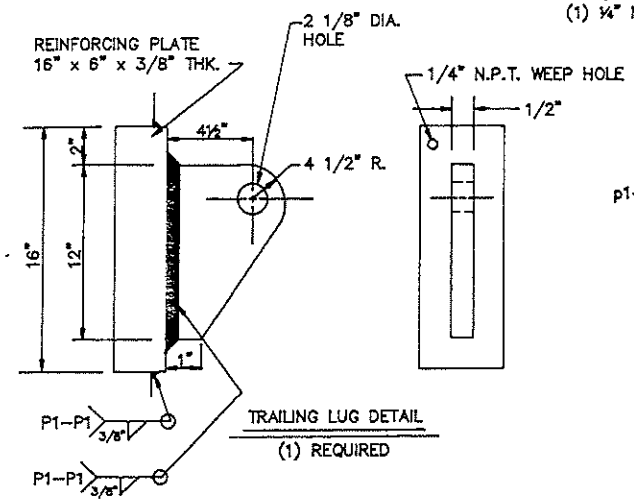
FOR GENERAL CONFORMITY TO DIMENSIONS & MATERIALS SPECIFIED

- ☒ APPROVED
- ☐ APPROVED AS NOTED
- ☐ NOT APPROVED

BY DUPONT FOR THIS ORDER E. I. DUPONT DE NEMOURS & CO

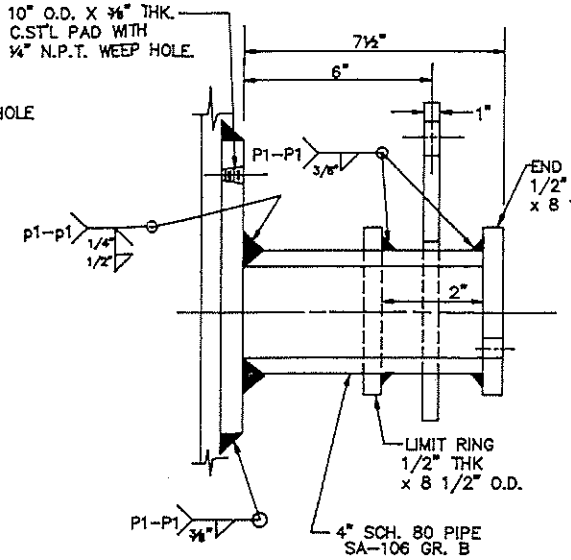
SIGNATURE 2291

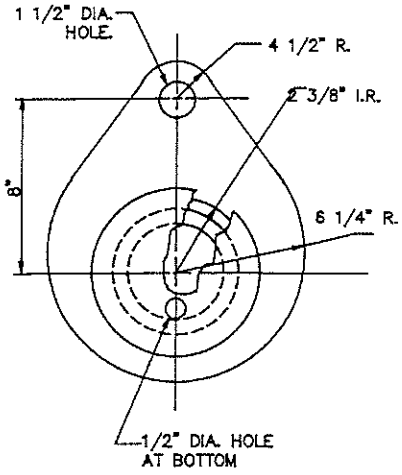
CERTIFIED	ENG.	
CUSTOMER E.I.DUPONT DE NEMOURS & COMPANY, INC.		
CUSTOMER P.O. NO. PBC–961100		
ITEM NO.		PROJ. NO. 6432
PLANT BEAUMONT, TEXAS		
EN NO. 5116–7307–15		
TEMA SIZE AND TYPE		
(1) 13–192 BFM VACUUM JET AFTER CONDENSER		
SOUTHERN HEAT EXCHANGER CORP.		
P.O. BOX 030008 TUSCALOOSA, AL. 35403		
DATE 04/01/89	ORDER NO.	DWG. NO. SP–2099–2
BY B. HUFF	89–037	SHEET 4 OF 5



TRAILING LUG DETAIL

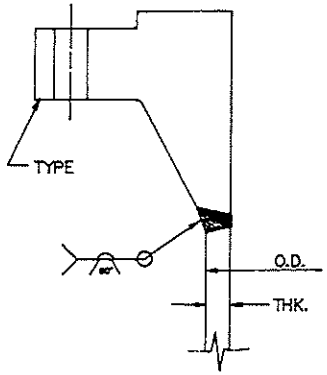
(1) REQUIRED





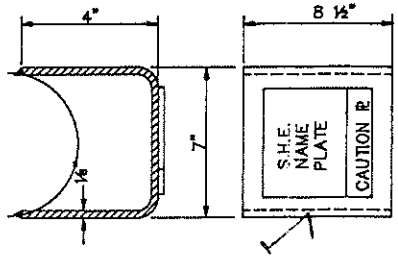
TRUNNION DETAIL

(2) REQUIRED



RFWN NOZZLE DETAIL

S.H.E. MARK	TYPE	O.D.	THK.	MAT'L
U/V	3" 300#	3 ½"	.216"	S.ST'L
W1/W2	4" 150#	4 ½"	.337"	C.ST'L
E3/Z	1" 300#	1.315"	.133"	S.ST'L
Y	6" 300#	6 5/8"	.280"	S.ST'L



NAME PLATE BRACKET DETAIL

NOTE: NAME ℞ MUST BE ATTACHED USING 304 S. ST'L DRIVE SCREWS.

FABRICATION RELEASE

FOR GENERAL CONFORMITY TO DIMENSIONS & MATERIALS SPECIFIED

☐ APPROVED
☐ APPROVED AS NOTED
☐ NOT APPROVED

BY DUPONT FOR THIS ORDER E. I. DUPONT DE NEMOURS & CO.

2-21-91
DATE

C.ST'L

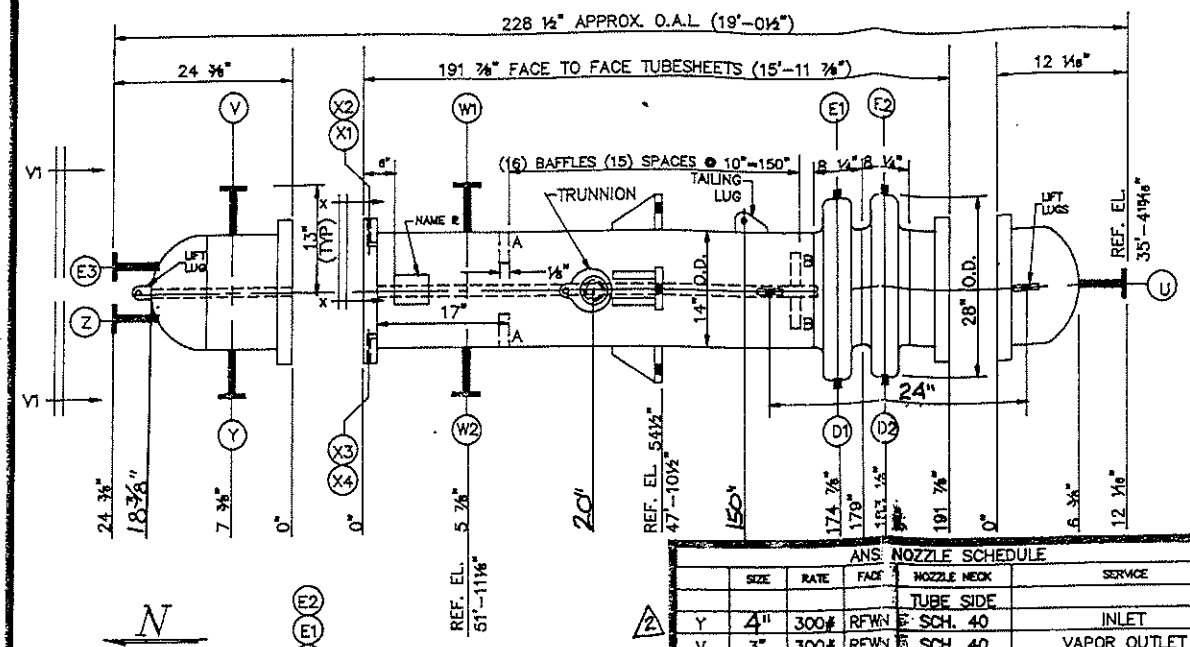
304 S.ST'L

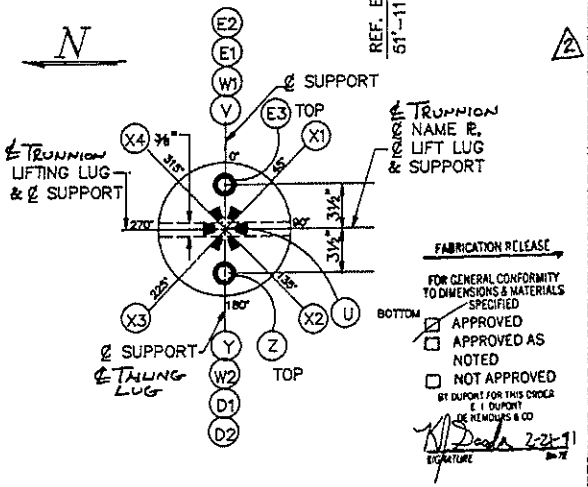
APR 8 1991

BPF 265566

5

CERTIFIED	ENG.	
CUSTOMER E.I.DUPONT NEMOURS & COMPANY, INC.		
CUSTOMER P.O. NO. LPBC-96110W		
ITEM NO.		PROJ. NO. 6432
PLANT BEAUMONT, TEXAS		
EN. NO. 5116-7307-15		
TEMA SIZE AND TYPE		
(1) 13-192 BFM VACUUM JET AFTER CONDENSER		
SOUTHERN HEAT EXCHANGER CORP.		
P.O. BOX 030008 TUSCALOOSA, AL. 35403		
DATE 08-10-89	ORDER NO.	DWG. NO. SP-2099-2
BY N.B.Y.	89-037	SHEET 5 OF 5





ORIENTATION
VIEW V1–V1

ANS NOZZLE SCHEDULE

	SIZE	RATE	FACE	NOZZLE NECK	SERVICE
				TUBE SIDE	
Y	4"	300#	RFWN	SCH. 40	INLET
V	3"	300#	RFWN	SCH. 40	VAPOR OUTLET
U	3"	300#	RFWN	SCH. 40	LIQUID OUTLET
E3	1"	300#	RFWN	SCH. 40	VENT
Z	1"	300#	RFWN	SCH. 40	INLET
				SHELL SIDE	
W1	4"	150#	RFWN	SCH. 80	INLET
W2	4"	150#	RFWN	SCH. 80	OUTLET
E1–E2	¾"	6000#	THD.	WOT. CPLT. PLUGGED	VENT
D1–D2	¾"	6000#	THD.	WOT. CPLT. PLUGGED	DRAIN
X1–4	⅜"	——	N.P.T.		TUBESHEET VENT

WPS	P1–P1	W–42(SMAW) W–72(FCAW) W–89(SAW)
WPS	P1–P8	W–2(SMAW) W–112(FCAW) W–100(SAW)
WPS	P8–P8	W–3(SMAW) W–81(FCAW) W–90(SAW)

ASME CODE REQUIREMENTS

	SHELL SIDE	TUBE SIDE
DESIGN PRESSURE PSIG	75	225
DESIGN TEMPERATURE (MAX/MIN) °F	400/15	400/15
HYDRO. TEST PRESSURE PSIG	115	340
CORROSION ALLOWANCE (C.S.T.L. ONLY)	1/8"	NONE
POSTWELD HEAT TREATMENT	NONE	NONE
RADIOGRAPHIC EXAMINATION	SPOT	
METAL TEMP. (TEMA 8th ED.) °F	400/70/87/70	400/253/70/300

ASME CODE STAMP / NAT'L BD. REG IS REQUIRED.
CUSTOMER INSPECTION IS REQUIRED
SPECIFICATIONS: 1986 ASME CODE SECT. VIII DIV. 1 ADDENDA–A87
SPECIAL SERVICE: NONE CODE CASE: NONE PARTIAL DATA REPORTS: NONE
TEMA (B) G1C; G5C; G7B; SG1E; SG2S; SU2A; SW300M; C111SI
TUBES: SA–249 TP 316L PER DUPONT SPEC. SW300M TYPE 1 CAT. III WALL SVG.
NO. 92 O.D. 3/4" BWG. 16 LENGTH: 192 (16'–0")
TUBESHEETS: SA–240 TP 316L

PART	SHELL SIDE	TUBE SIDE
VESSEL	SA–106 GR.B (SMLS)	SA–240 TP 316L
COVERS		
FORMED HEADS	SA–516 GR. 70	SA–240 TP 316L
BODY FLANGES		SA–516 GR. 70
NOZZLE FLANGES	SA–105	SA–182 F 316L
NOZZLE PIPE	SA–106 GR.B (SMLS)	SA–312 TP 316L
STUDS/NUTS	SA–193–B7/SA–194–2H	SA–193–B7/SA–194–2H
GASKETS SU2A, G81		1/8" THK. KEVLAR

APR 8 1991

BPF 2855566

REVISIONS

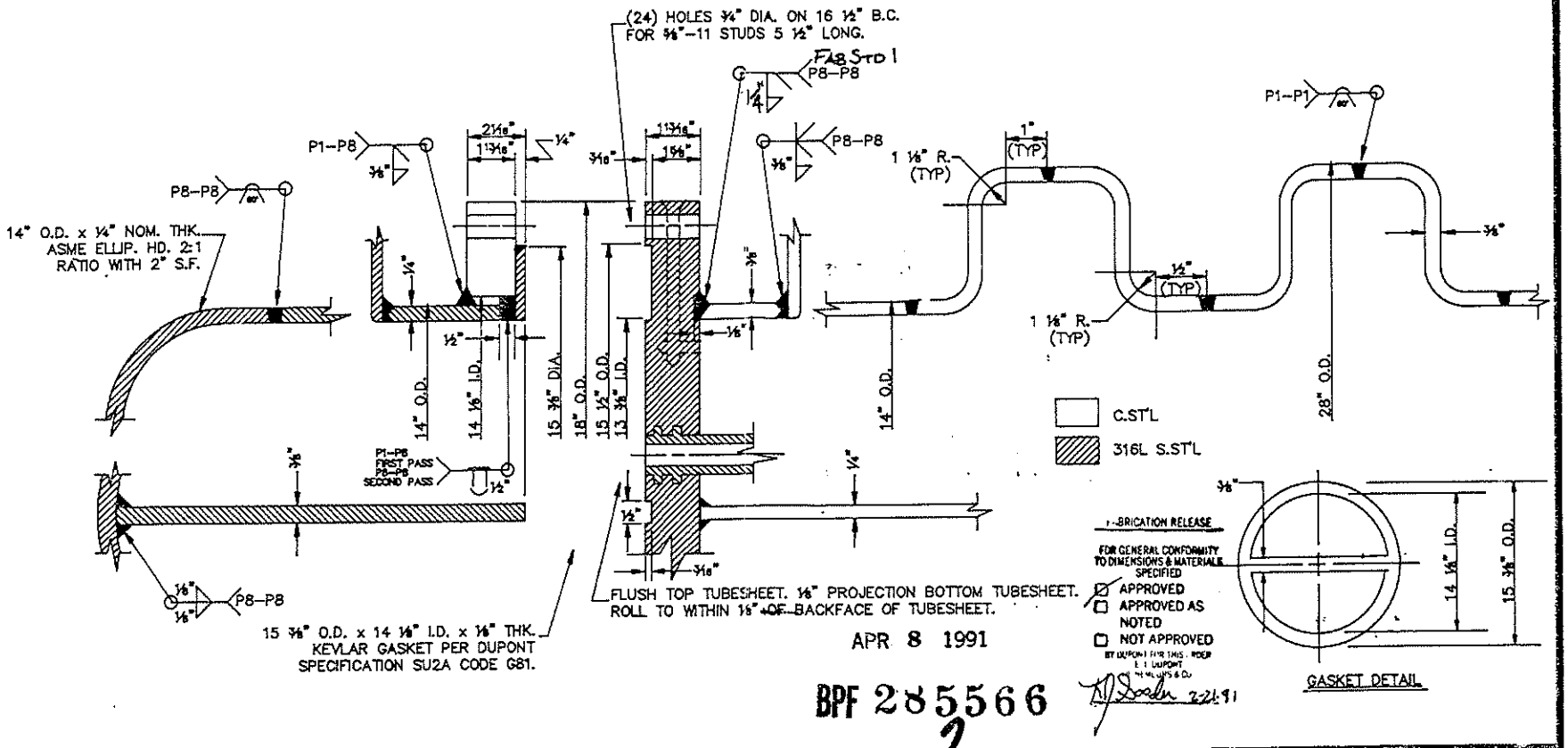
Sheet 1

2	2/8/90	ADDED BONNET WEIGHTS. REV SIZE OF Y	
1	1/8/90	GEN. REV.	

CERTIFIED ENG. [illegible]
CUSTOMER E.I.DUPONT DE NEMOURS & COMPANY, INC.
CUSTOMER P.O. NO. LPBC–96110U
ITEM NO. PROJ. NO. 6432
PLANT BEAUMONT, TEXAS
EN NO. 5116–7307–15
TEMA SIZE AND TYPE
(1) 13–192 BFM VACUUM JET AFTER CONDENSER

SOUTHERN HEAT EXCHANGER CORP.
P.O. BOX 030008 TUSCALOOSA, AL. 35403

DATE 04/01/89	ORDER NO.	DWG. NO. SP–2099–2
BY B. HUFF	89–037	SHEET 1 OF 5



NOTES

1. EST. WT. EMPTY: 3040 # FULL: 4540 # BDL: ———
2. ALL BOLT HOLES STRADDLE NORMAL CENTERLINES.
3. WOODEN COVERS ON ALL OPEN NOZZLES. (SEE NOTE 6.)
4. 125 MAIN GASKET SURFACES.
5. PAINT: SANDBLAST EXPOSED C.ST'L NEAR WHITE PER SSPC–CP–10. PRIME WITH (1) COAT DUPONT 525 HBCF CORLAR CHROMATE FREE EPOXY PRIMER MIXED WITH VF–Y–632 ACTIVATOR 5–8 MILS D.F.T. INTERMEDIATE COAT WITH (1) COAT DUPONT 823 HB 67637 CORLAR EPOXY ENAMEL (CIRRUS GRAY) MIXED WITH VF–Y–632 ACTIVATOR 5–8 MILS D.F.T. TOP COAT WITH (1) COAT DUPONT 329 IMRON POLYURETHANE ENAMEL MIXED WITH VC–Y–511 ACTIVATOR 2–4 MILS D.F.T. FOR A TOTAL D.F.T. OF 12 TO 20 MILS. TOP COAT TO PROVIDE COMPLETE HIDING AND UNIFORM COLOR PER DUPONT SPECIFICATION C111SI.
6. COAT ALL EXPOSED GASKET SURFACES WITH RUST VETO HEAVY. SEAL WITH CLOTH BACKED TAPE. COVER WITH WOODEN COVERS BOLTED IN PLACE WITH A FULL COMPLIMENT OF BLACK IRON BOLTS.
7. ALL TUBES MUST BE TESTED AND INSPECTED PER DUPONT SPEC. SW300M TYPE 1 CAT. III.

NON–PRESSURE PARTS

SUPPORTS	SA–516 GR 70
BAFFLES / SUPPORTS	SA–36
TIE RODS / SPACERS	C.ST'L
PASS PARTITIONS	316L S.ST'L
LIFT LUGS	316L S.ST'L
LONG BAFFLE	C.ST'L

9. EST. WT. EMPTY TOP BONNET 350 # /BOTTOM BONNET 220 #

CERTIFIED ENG. [illegible]

CUSTOMER E.I. DUPONT DE NEMOURS & COMPANY, INC.

CUSTOMER P.O. NO. LPBC–96110U

ITEM NO. PROJ. NO. 6432

PLANT BEAUMONT, TEXAS

EN NO. 5116–7307–15

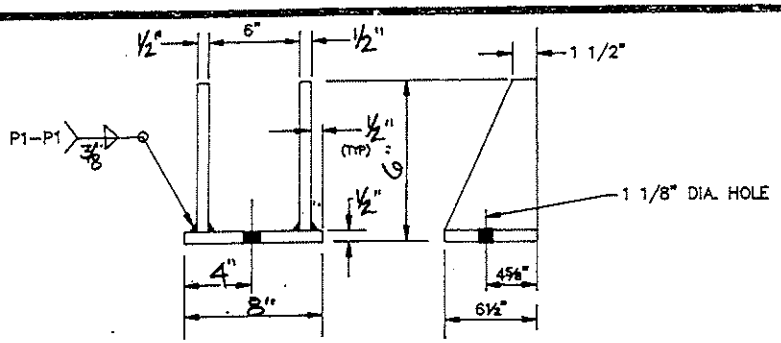
TEMA SIZE AND TYPE

(1) 13–192 BFM VACUUM JET AFTER CONDENSER

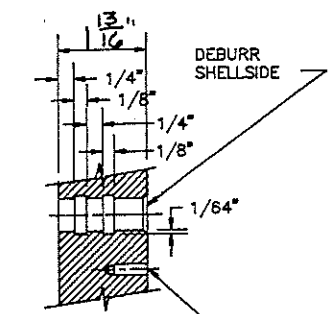
SOUTHERN HEAT EXCHANGER CORP.

P.O. BOX 030008 TUSCALOOSA, AL. 35403

DATE 04/01/89	ORDER NO.	DWG. NO. SP–2099–2
BY B. HUFF	89–037	SHEET 2 OF 5



SUPPORT DETAIL
(4) REQUIRED



APR 8 1991

BPF 285566

SHEET # 3

FABRICATION RELEASE

FOR GENERAL CONFORMITY TO DIMENSIONS & MATERIALS SPECIFIED

- ☑ APPROVED
- ☐ APPROVED AS NOTED
- ☐ NOT APPROVED

BY DUPONT FOR THIS ORDER E. I. DUPONT DE NEMOURS & CO

SIGNATURE _____ DATE 2-21-91

NATIONAL BOARD NO. LATER

U
W
RT3

CERTIFIED BY

SOUTHERN HEAT EXCHANGER CORP.

TUSCALOOSA, ALABAMA

SHELL SIDE				
MADP	75	PSI AT	400	°F.
MADT	15	°F. AT	75	PSI
TUBE SIDE				
MADP	225	PSI AT	400	°F.
MADT	15	°F. AT	225	PSI

SHECO SER. NO. 89-037 YEAR 1989

CUST. ORDER LPBC-96110U

CUST. ITEM

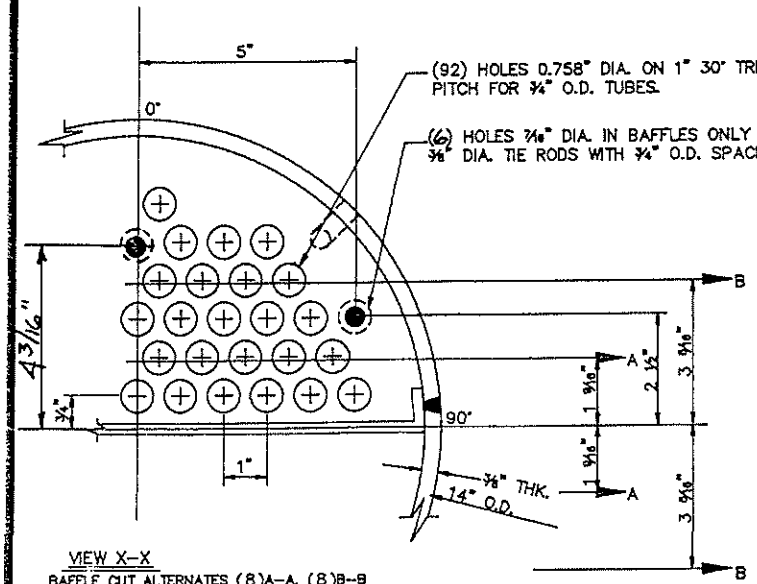
EN NO. 5116-7307-15 DUPONT INSP. INT'L

BEAUMONT, TX PROJ. NO. 6432

SOUTHERN

CAUTION

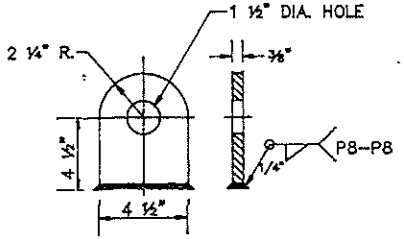
THE PRESSURE AND TEMPERATURES SHOWN ON THE S.H.E. NAMEPLATE RELATE ONLY TO THE PRESSURE RETENTION CAPABILITY OF THIS HEAT EXCHANGER. COMPONENTS OF THIS HEAT EXCHANGER HAVE BEEN DESIGNED FOR SPECIFIC OPERATING CONDITIONS. A CHANGE IN SERVICE OR DEVIATION FROM THE SPECIFIED OPERATING CONDITIONS REQUIRES THAT A MECHANICAL DESIGN CHECK BE MADE IN ORDER TO AVOID POSSIBLE DAMAGE TO THE HEAT EXCHANGER.



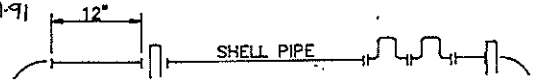
VIEW X-X
BAFFLE CUT ALTERNATES (8)A-A, (8)B-B
BAFFLE DIA.:13.150"
O.T.L.:11.0958"
TUBEHOLE DIA.IN BAFFLES: 25/32"

C.ST'L

316L S.ST'L



LIFT LUG DETAIL
(6) REQ'D



THEORETICAL COURSE LENGTH

CERTIFIED	ENG.		
CUSTOMER E.I.DUPONT DE NEMOURS & COMPANY, INC.			
CUSTOMER P.O. NO. LPBC-96110U			
ITEM NO.		PROJ. NO. 6432	
PLANT BEAUMONT, TEXAS			
EN NO. 5116-7307-15			

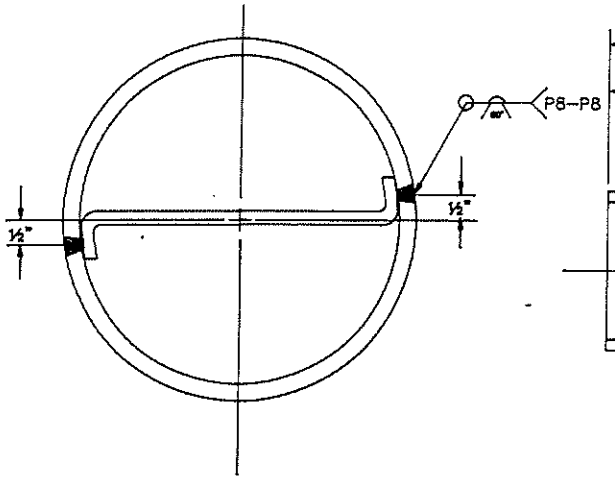
TEMA SIZE AND TYPE

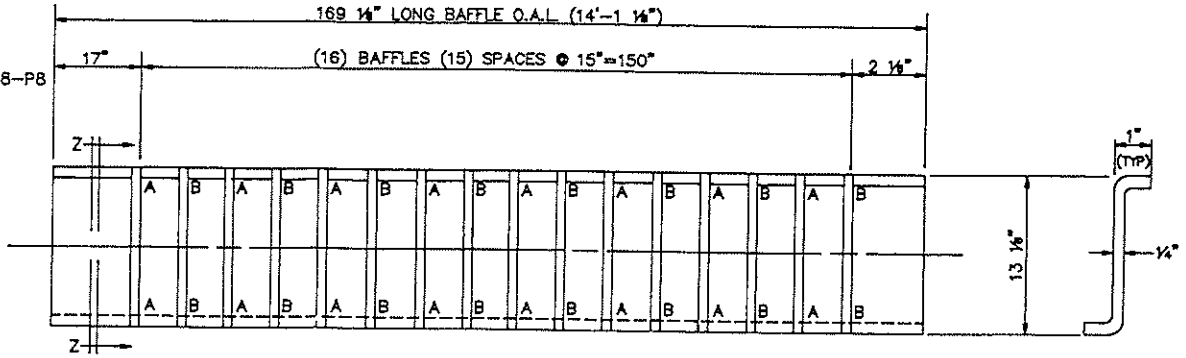
(1) 13-192 BFM VACUUM JET AFTER CONDENSER

SOUTHERN HEAT EXCHANGER CORP.

P.O. BOX 030008 TUSCALOOSA, AL. 35403

DATE 04/01/89	ORDER NO.	DWG. NO. SP-2099-2
BY B. HUFF	89-037	SHEET 3 OF 5

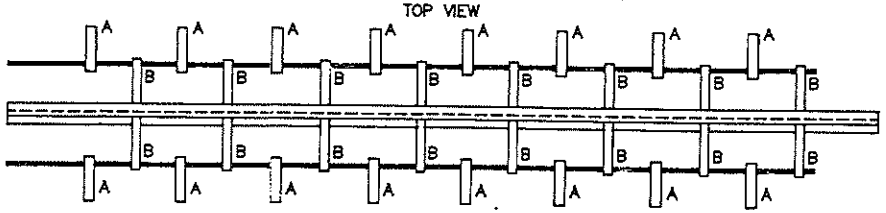




VIEW Z–Z

CROSS BAFFLE TO LONG BAFFLE DETAIL

TOP VIEW



CROSS BAFFLE TO LONG BAFFLE DETAIL

SIDE VIEW

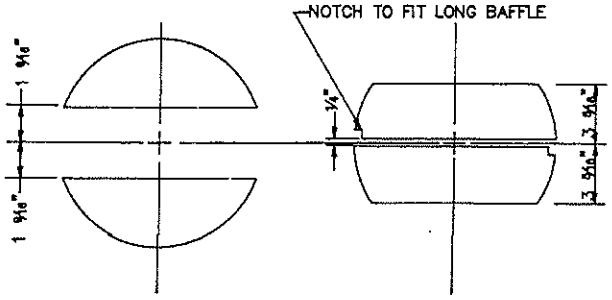
C.ST'L

316L S.ST'L

APR 8 1991

BPF 285566

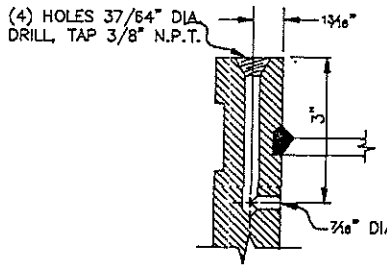
STREET # 4



BAFFLE A–A

BAFFLE B–B

CROSS BAFFLE DETAIL



TUBESHEET VENT DETAIL

FABRICATION RELEASE

FOR GENERAL CONFORMITY TO DIMENSIONS & MATERIALS SPECIFIED

☒ APPROVED

☐ APPROVED AS NOTED

☐ NOT APPROVED

BY DUPONT FOR THIS ORDER E. I. DUPONT DE NEMOURS & CO

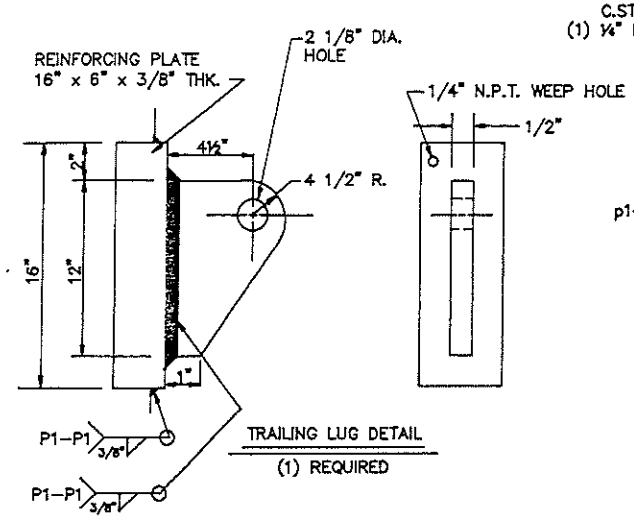
22 Apr 91

CERTIFIED	ENG.	
CUSTOMER E.I.DUPONT DE NEMOURS & COMPANY, INC.		
CUSTOMER P.O. NO. LPBC–96110U		
ITEM NO.		PROJ. NO. 6432
PLANT BEAUMONT, TEXAS		
EN NO. 5116–7307–15		
TEMA SIZE AND TYPE		
(1) 13–192 BFM VACUUM JET AFTER CONDENSER		

SOUTHERN HEAT EXCHANGER CORP.

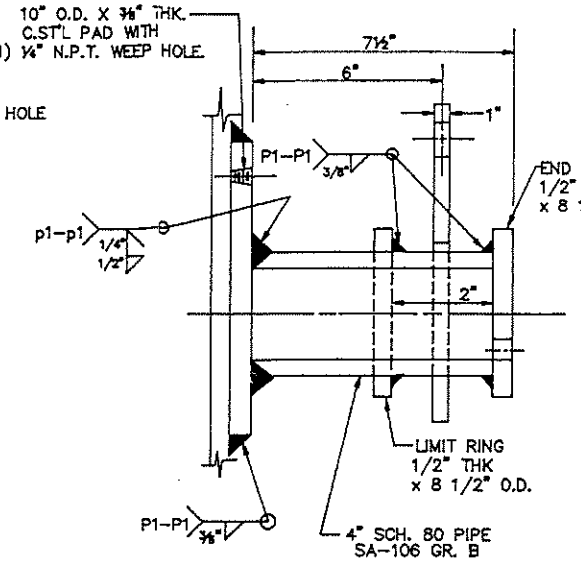
P.O. BOX 030008 TUSCALOOSA, AL. 35403

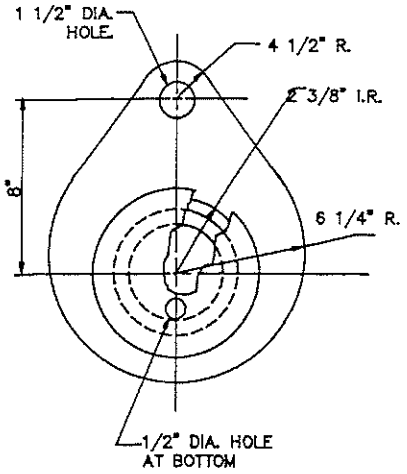
DATE 04/01/89	ORDER NO.	DWG. NO. SP–2099–2
BY B. HUFF	89–037	SHEET 4 OF 5



TRAILING LUG DETAIL

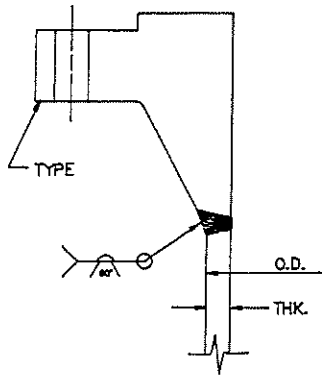
(1) REQUIRED





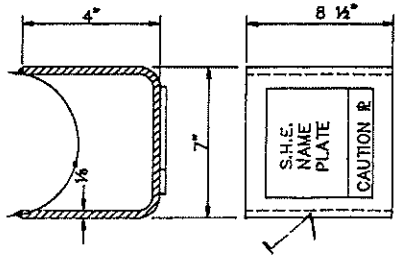
TRUNNION DETAIL

(2) REQUIRED



RFWN NOZZLE DETAIL

S.H.E. MARK	TYPE	O.D.	THK.	MAT'L
U/V	3" 300#	3 ½"	.216"	S.ST'L
W1/W2	4" 150#	4 ½"	.337"	C.ST'L
E3/Z	1" 300#	1.315"	.133"	S.ST'L
Y	6" 300#	6 ⅝"	.280"	S.ST'L



NAME PLATE BRACKET DETAIL

NOTE: NAME ℞ MUST BE ATTACHED USING 304 S. ST'L DRIVE SCREWS.

FABRICATION RELEASE

FOR GENERAL CONFORMITY TO DIMENSIONS & MATERIALS SPECIFIED

- ☒ APPROVED
- ☐ APPROVED AS NOTED
- ☐ NOT APPROVED

BY DUPONT FOR THIS ORDER E. I. DUPONT DE NEMOURS & CO

2-21-91

DATE

C.ST'L

304 S.ST'L

APR 8 1991

BPF 265566

5

CERTIFIED	ENG.	
CUSTOMER E.I.DUPONT NEMOURS & COMPANY, INC.		
CUSTOMER P.O. NO. LPBC-96110W		
ITEM NO.		PROJ. NO. 6432
PLANT BEAUMONT, TEXAS		
EN. NO. 5116-7307-15		
TEMA SIZE AND TYPE: (1) 13-192 BFM VACUUM JET AFTER CONDENSER		
SOUTHERN HEAT EXCHANGER CORP. P.O. BOX 030008 TUSCALOOSA, AL. 35403		
DATE 08-10-89	ORDER NO.	DWG. NO. SP-2099-2
BY N.B.Y.	89-037	SHEET 5 OF 5

89-037 as required by the provisions of the ASME Code rules, Section VIII, Division 1 5116-7307-15

1. Manufactured and certified by Southern Heat Exchanger Corp. 400 65th St. E., Tuscaloosa, AL (name and address of manufacturer)
2. Manufactured for E.I. duPont de Nemours & Co. Inc. Wilmington, De. (name and address of purchaser)
3. Location of installation E. I. duPont de Nemours & Co. Inc. Beaumont, Tx. (name and address)
4. Type Ht. Exch. (if horiz. or vert., tank) 89-037 (mfr's. serial no.) — (CRN) SP-2099-2 (drawing no.) 5790 (Nat'l. Bd. no.) 1990 (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: 1986 (year)

A87 (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: SA-106 B (mat'l. (spec. no., grade)) .375" (nom. thickness (in.)) .125" (corr. allow. (in.)) 1'-1.250" (dia. ID (ft. & in.)) 15'-11.875" (length (overall) (ft. & in.))
7. Seams: Smls. (long. (dbl., sngl.)) — (RT (spot or full)) 85% (eff. (%)) — (HT temp. (°F)) — (time) SNGL. BUTT (girth (dbl., sngl.)) SPOT (RT(spot, partial, or full)) 2 (no. of courses)
8. Heads: (a) SA-516-70 (mat'l. (spec. no., grade)) (b) — (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)	BOTTOM	.3125"	.125"	(2) SETS	28" O.D. FLANGED & FLUED HEADS					FLAT
(b)										

If removable, bolts used (describe other fastenings): LINE 7. (mat'l., spec. no., gr., size, no.)

9. Type of jacket: None Proof test: —
10. Jacket closure: None (describe as ogee & weld, bar etc.) If bar, give dimensions: — If bolted, describe or sketch.
11. MAWP 75 (psi) at max. temp. 400 (°F) Min design metal temp.: 15 (°F) at 75 (psi) Hydro., ~~pneu. or comb.~~ test pressure 115 (psi)

Items 12 and 13 to be completed for tube sections.

12. Tubesheets: SA-240-316L (stationary mat'l. (spec. no., gr.)) 18" (dia. (in.) (subject to pressure)) 1.9125" (nom. thickness (in.)) 0 (corr. allow. (in.)) WELDED. (attachment (welded, bolted))
— (floating mat'l. (spec. no., gr.)) — (dia. (in.)) — (nom. thickness (in.)) — (corr. allow. (in.)) — (attachment)
13. Tubes: SA-249-316L (mat'l. (spec. no., gr.)) .750" (OD (in.)) 16 (nom. thickness (min. or gauge)) 92 (no.) STRAIGHT (type (straight or U))

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

14. Shell: SA-240-316L (mat'l. (spec. no., gr.)) .250" (nom. thickness (in.)) 0 (corr. allow. (in.)) 1'-1.50" (dia. ID (ft. & in.)) 1'-6.375" (length (overall) (ft. & in.))
15. Seams: SNGL. BUTT (long (dbl., sngl.)) SPOT (RT (spot or full)) 85% (eff. (%)) — (HT temp. (°F)) — (time) SNGL. BUTT (girth (dbl., sngl.)) — (RT (spot, partial, or full)) 1 (no. of courses)
16. Heads: (a) SA-240-316L (mat'l. (spec. no., grade)) (b) — (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)	TOP/BOTTOM	.250"	0			2:1				CONCAVE
(b)										

If removable, bolts used (describe other fastenings): SA-193-B7 (24) EA. 5/8"-11. (mat'l., spec. no., gr., size, no.)

17. MAWP 225 (psi) at max. temp. 400 (°F) Min design metal temp.: 15 (°F) at 225 (psi) Hydro., ~~pneu. or comb.~~ test pressure 340 (psi)

This form may be obtained from The National Board of Boiler and Pressure Vessel Inspectors, 1055 Crupper Ave., Columbus, OH 43229. NB Rc.

NB #5790

18. 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
IN-OUT	1-1	4"-150#	REWLD	SA-106 B	.337"	INTEGRAL	WELDING	SHELL
IN	1	4"-300#	"	SA-312 316	.237"	"	"	BONNET
OUT	2	3"-"	"	"	.216"	"	"	"
IN	1	1"-"	"	"	.133"	"	"	"
VENT	1	1"-"	"	"	.133"	"	"	"

19. Supports: Skirt NO (yes or no) Lugs 4 (no.) Legs (no.) Other (describe) Attached SHELL, WELDED. (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: — (name of part, item number, mfr's. name and identifying stamp)

"UG-44(a)" "UG-20(f)"

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. 7037 expires Feb. 28, 19 91.

Date 04-20-90 Name Southern Heat Exchanger Corp. (manufacturer) Signed Daniel F. Noland (representative)

CERTIFICATE OF SHOP INSPECTION

Vessel constructed by Southern Heat Exchanger Corporation at Tuscaloosa, AL.

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 Commercial Union Insurance Co. of Boston, MA have inspected the pressure vessel described in this Manufacturers' Data Report on 04-20, 19 90 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 04-20-90 4/28/90 Signed B M Brooks (Authorized Inspector) B. M. Brooks Commissions NB5446 NY 2182 (Nat'l. Bd. (incl. endorsements) state, prov. and no.)

CERTIFICATE OF FIELD ASSEMBLY COMPLIANCE

We certify that the field assembly construction of all parts of this vessel conforms with the requirements of Section VIII, Division 1 of the ASME BOILER AND PRESSURE VESSEL CODE.

"U" Certificate of Authorization no. — expires —, 19—.

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

THERMAL RATING - SHELL AND TUBE HEAT EXCHANGERS

F.A.A. No. 7307-15 Quantity 1 Cooler [Condenser] Vaporizer Heater

Project No. 6432 Plant BEAUMONT Rated by H. F. HUBLEIN Date 1/18/89

This is not a complete specification. See Standard Engineering Specification SC7E, "Shell and Tube Heat Exchanger Procurement Work Sheet" for additional information which must be furnished vendor.

VACUUM JET AFTER Condenser

MATERIALS
Tubes: 316 L S/S

CONSTRUCTION
Type Name: [Fixed tube sheet] U-tube External floating head
Internal floating head Kettle reboiler

Type Figure: [SC1E Figure 2A] 2B 2C 3A 3B 3C 3D 4A 4B 5A 5B 5C 5D 6A 6B 6C
With Weir Without Weir

TEMA Type Designation: BFM

Position: [Vertical] Horizontal Inclined _____ degrees

Top (~~Front~~) head: [Bonnet] Channel Cone Elbow
Bottom (~~Rear~~) head: [Bonnet] Channel Baffle Funnel separator Cone
Elbow Cover plate

Shell expansion joint: [Required] Not required

	Tube Side	Shell Side
Design temperature	°C	°C
Design pressure	psig	psig
Fluid	Boiling liquid [Gas + Condensing vapor]	Boiling [liquid Nonpulsating] Gas Condensing vapor

SIZE

No. shells per unit	1	Finned tube	— in.
No. tube passes per shell	2	Tube OD	0.25 in.
Outside area per shell	290 sq ft	Tube wall thick.	.065 in.
Outside area per unit	290 sq ft	Tube pitch	1. in.
Nominal shell ID	13 in.	Tube pattern	[Triangular] Rotated square
No. tubes per shell	92		Square
Tube length	16 ft	Baffle pitch	10 in.
		Baffle cut	23 * % of dia.
Shell Type E [F] J		Baffle type	Segmental Double Segmental
		No. pairs of sealing devices	

CONNECTIONS (Per SC1E Par. 20)

~~Front~~ top head	8 " inlet	3" VENT " outlet		"	
~~Rear~~ bottom head	" inlet	2" LIQ " outlet		"	
Shell	4 " inlet	4 " outlet		"	

PERFORMANCE PER UNIT

	Tube Side	Shell Side
Load	944400 Pcu/hr	—
Fluid	PROCESS	WATER
Total fluid in	2024 ~~gpm~~ lb/hr	200 gpm ~~lb/hr~~
Condensate out	1954 lb/hr	— lb/hr
Vapor out	70 lb/hr	— lb/hr
Inlet temperature	122.8 °C	30.6 °C
Outlet temperature	38 °C	40 °C
Normal operating pressure	1 psig ~~mmHg abs~~	— psig-mmHg abs
Pressure drop	0.4 psi ~~mmHg~~	6 psi ~~mmHg~~

* SEE ATTACHED SKETCH

Rev. 1/72

G-46 REV. 5-77 ENGINEERING DUPONT COMPUTATION SHEET SHEET NO

TITLE OF PROJ OR STUDY " TYPE SHELL PROJ OR STUDY NO 6432

SUBJECT VACUUM JET AFTER Condenser WORKS BEAUMONT

7307-15 COMPUTER H.F. Hublein DATE 11 18 19 89