

94-011

FORM U-1 MANUFACTURER'S DATA REPORT FOR PRESSURE VESSELS As Required by the Provisions of the ASME Code Rules, Section VIII, Division 1 E-1210-8

Manufactured and certified by Southern Heat Exchanger Corporation 6100 Old Montgomery Hwy.,
Manufactured for GLITSCH TECHNOLOGY CORP. (Name and address of Manufacturer) Tuscaloosa, AL 35405

Location of installation CAPE INDUSTRIES WILMINGTON, NC (Name and address of Purchaser) #104342
Type: HORIZ Heat Exchanger 94-011 — SB-1624-A 7734 1994
(Horiz., vert., ~~other~~) (Tank, separator, jkt. vessel, heat exh., etc.) (Mfg's serial No.) (CRN) (Drawing No.) (Marl. Bd. No.) (Year built)
ASME Code, Section VIII, Div. 1 1992, A92

Edition and Addenda (date)

Code Case No.

Special Service per UG-120(d)

Forms 6 - 11 incl. to be completed for single wall vessels, jackets of jacketed vessels, shell of heat exchangers, or chamber of multi-chamber vessels.

Shell (a) No. of course(s): 3 (b) Overall length (ft & in.): 18'-11.50"

OD	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
	2	20"	8'-0"	SA-240-316L	3/8"	1/8"	1	SPOT	85%	1	NONE	—	—	
	1	20"	2'-11.50"	"	3/8"	1/8"	1	"	"	1	"	—	—	

Heads: (a) <u>SA-240-316L</u> (Marl Spec. No., Grade or Type) H.T. - Time & Temp										(b) (Marl 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) CENTER	3/8"	1/8"	(2) 30" O.D.	FLANGED & FUSED HEADS						✓				
(b)														

If removable, bolts used (describe other fastening)

WELDED

(Marl Spec. No., Grade, size, No.)

3. Type of jacket NONE Jacket closure _____ (Describe as ogee & weld, bar, etc.)
If bar, give dimensions _____
4. MAWP 150 psi at max. temp. 550 °F Min. design metal temp. 20 °F at 150 psi.
(internal) (external) (internal) (external)

5. Impact test NO UTD-SI(2) (Indicate yes or no and the component(s) impact tested)
6. Hydro. ~~test press.~~ 225 Proof test —

Items 12 and 13 to be completed for tube sections.
7. Tubesheet: SA-240-316L 20" 1.625" .125" WELDED
Stationary (Marl Spec. No.) Dia., in. (subject to press.) Nom. thk., in. Corr. Allow., in. Attachment (welded or bolted)

8. Tubes: SA-249-317L .750" A 341 STRAIGHT
Marl 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.
9. Shell (a) No. of course(s): 2 (b) Overall length (ft & in.): 3'-2"

OD	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
	2	20"	1'-7"	SA-106 B	3/8"	1/8"	5	NONE	85%	—			—	

15. Heads: (a) <u>SA-516-70</u> (Marl Spec. No., Grade or Type) H.T. - Time & Temp										(b) (Marl Spec. No., Grade or Type) H.T. - Time & Temp				
Location (Top, Bottom, Ends)	Thickness		Radius		Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter U	Side to Pressure		Category A			
	Min.	Corr.	Crown	Knuckle					Convex	Concave	Type	Full, Spot, None	Eff.	
(b) ENDS	1.625	1/8"						24.375						

If removable, bolts used (describe other fastening)

SA-193-B7 (24) EA. 3/4"-10.

(Marl Spec. No., Grade, Size, No.)

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.

NOTES

1. EST. WT. EMPTY: 6452# FULL: 9113# BDL: —

2. ALL BOLT HOLES STRADDLE NORMAL CENTERLINES.

3. PLYWOOD COVERS ON ALL OPEN NOZZLES WITH FULL FACE RED RUBBER GASKETS BOLTED IN PLACE WITH A FULL COMPLIMENT OF BLACK IRON BOLTS.

4. 25 MAIN GASKET SURFACES.

5. PAINT: SANDBLAST O.S. PER SP-6. C.S.T'L ONLY: APPLY (1) PRIME COAT OF CARBOLINE CARBOZINC 11HS, 3-5 MILS D.F.T. APPLY (1) INTERMEDIATE COAT OF CARBOLINE 890, 4-7 MILS D.F.T. APPLY (1) FINISH COAT OF CARBOLINE 134HS, 2-3 MILS D.F.T. TOTAL D.F.T. OF 9 TO 15 MILS. PER SPEC. 11CS-696. S.S.T'L ONLY: APPLY (1) PRIME COAT OF GUDDEN GLID GUARD SILICONE HI-TEMP 554B. APPLY A SECOND COAT OF THE SAME FOR TOTAL MINIMUM OF 1.5 MILS D.F.T. PER SPEC. 11CS-674.

6. SPOT RADIOGRAPHY WAS SPECIFIED; HOWEVER, THERE IS NOT A PLACE TO TAKE A SPOT.

7. MATERIAL OF FOREIGN ORIGIN SHALL BE IDENTIFIED TO BUYER BEFORE USE AND AGREED TO BY BUYER.

8. COAT ALL EXPOSED GASKET SURFACES WITH RUST VETO HEAVY.

9. PAINT P.O. NUMBER AND EQUIPMENT NUMBER ON THE SHELL IN 3" HIGH LETTERS WITH HIGHLY VISIBLE PAINT.

10. SPARE GASKETS TO BE BOXED AND LABELED WITH PURCHASE ORDER NUMBER & EQUIPMENT NUMBER IN 3" HIGH LETTERS.

11. INSIDE OF UNIT SHALL BE CLEAN, DRY AND FREE OF FOREIGN MATERIAL AND LOOSE SCALE.

12. MARKING INKS, CRAYONS, OR PAINTS THAT CONTAIN CHLORINE, CARBON, OR HARMFUL METALS OR METAL SALTS SUCH AS ZINC, LEAD, OR COPPER WHICH MAY CAUSE CORROSIVE ATTACK WHEN THE PART IS HEATED SHALL NOT BE USED. WAX CRAYON OR VEGETABLE DYE MARKERS ARE ACCEPTABLE.

13. TUBES ARE TO BE COLD DRAWN WITH 15% MINIMUM WALL REDUCTION.

14. ALL 317L MATERIAL MUST MEET THE CHEMICAL AND PHYSICAL PROPERTIES OF SA-240 317L.

NON-PRESSURE PARTS

SUPPORTS	SA-36
BAFFLES / SUPPORTS	316L S.S.T'L
TIE RODS / SPACERS	316L S.S.T'L
LIFT LUGS	SA-36
GUSSETS	SA-240 316L
NAME PLATE BRACKET	SA-240 316L
INSULATION RINGS	316L S.S.T'L

NATIONAL BOARD NO. LATER
CERTIFIED BY
SOUTHERN HEAT EXCHANGER CORP.
TUSCALOOSA, ALABAMA

U
W
RT4

SHELL SIDE
MAWP 150 PSI AT 550 °F.
MDMT 20 °F AT 150 PSI
TUBE SIDE
MAWP 150 PSI AT 400 °F.
MDMT 20 °F AT 150 PSI

SHECO SER. NO. 94-011 YEAR 1994
CUST. ORDER 21697
CUST. ITEM E-1210-8

ANSI NOZZLE SCHEDULE

	SIZE	RATE	FACE	NOZZLE NECK	SERVICE
				TUBE SIDE	
A	10"	150#	RFWN	STD. WT.	COOLING WATER SUPPLY
B	10"	150#	RFWN	STD. WT.	COOLING WATER RETURN
G1	1"	6000#	THD.	VOGT, CPLT. PLUGGED	DRAIN
H1	1"	6000#	THD.	VOGT, CPLT. PLUGGED	DRAIN
				SHELL SIDE	
C	3"	300#	L.J.	SCH. 80	RECYCLE SOLVENT INLET
D	3"	300#	L.J.	SCH. 80	RECYCLE SOLVENT OUTLET
★ G2	¾"	300#	RFWN	SCH. 160	VENT
★ H2	1 ½"	300#	RFWN	SCH. XX-STG	DRAIN

★ PROVIDE WITH BLIND, BOLTING, AND FLEXITALIC STYLE CGI 316 S.S.T'L SPIRAL WOUND GASKET WITH TFE FILLER.

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) W-97(GTAW)

ASME CODE REQUIREMENTS

	SHELL SIDE	TUBE SIDE
DESIGN PRESSURE PSIG	150	150
DESIGN TEMPERATURE (MAX/MIN) °F	550/20	400/20
HYDRO. TEST PRESSURE (HOLD 2 HOURS) PSIG	225	225
CORROSION ALLOWANCE (EXCEPT TUBES)	1/8"	1/16"
POSTWELD HEAT TREATMENT	NONE	NONE
RADIOGRAPHIC EXAMINATION	SPOT	NONE (6)
METAL TEMP. (TEMA 7th ED.) °F	509/70/315	79/85/180

ASME CODE STAMP / NAT'L BD. REG IS REQUIRED.

CUSTOMER INSPECTION IS REQUIRED

SPECIFICATIONS: 1992 ASME CODE SECT. VIII DIV. 1 ADDENDA-A92

SPECIAL SERVICE: NONE CODE CASE: NONE PARTIAL DATA REPORTS: NONE

TEMA (B) UG-20(f) UHA-51(e)

TUBES: SA-249 317L (13) (14) WALL: AVG.

NO. 341 O.D. ¾" BWG. 14 LENGTH: 20'-0"

TUBESHEETS: SA-240 316L

PART	SHELL SIDE	TUBE SIDE
VESSEL	SA-240 316L	SA-106 GR. B
COVERS		SA-516 GR. 70
FORMED HEADS	SA-240 316L	
BODY FLANGES		SA-516 GR. 70
NOZZLE FLANGES	SA-105/SA-182 F 316L	SA-105
NOZZLE PIPE	SA-312 316L	SA-106 GR. B
STUDS/NUTS	SA-193-B7/SA-194-2H	SA-193-B7/SA-194-2H
GASKETS	FLEXITALIC CGI WITH TFE FILLER	KLINGER C4401 SEE SHEET 5 FOR DETAIL
INSULATION (BY OTHERS)	2 ½"	NONE

FOR YOUR RECORDS

REVISIONS DESIGNED

RELEASED FOR CONSTRUCTION

AS BUILT

04/13/94 CORRECTED ORIENTATION. DATE APR 25 1994

03/17/94 REMOVE HYDRO VENT AND DRAIN

03/02/94 GENERAL REVISIONS

CERTIFIED ENG. 00A 4/13/94

CUSTOMER GLITSCH TECHNOLOGY CORP.

CUSTOMER P.O. NO. 21697

ITEM NO. E-1210-8 PROJ. NO. 6K-1512

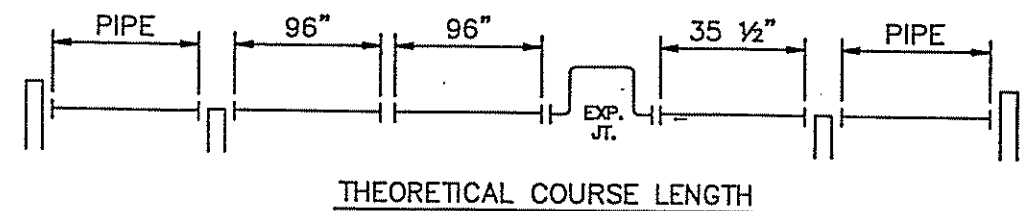
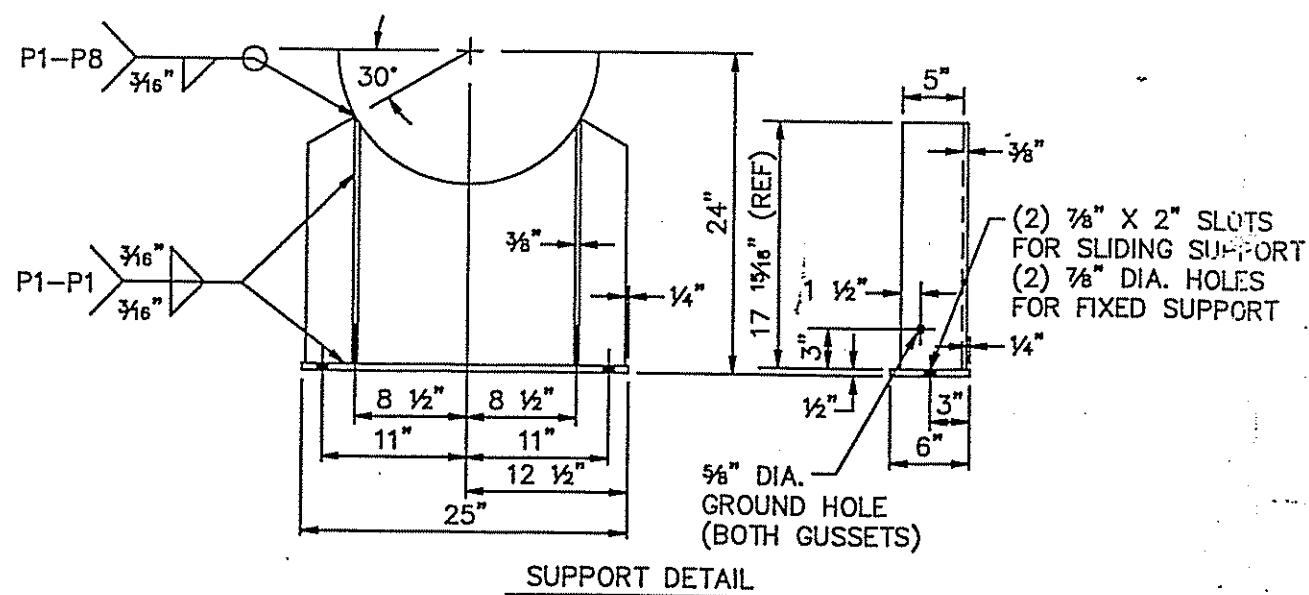
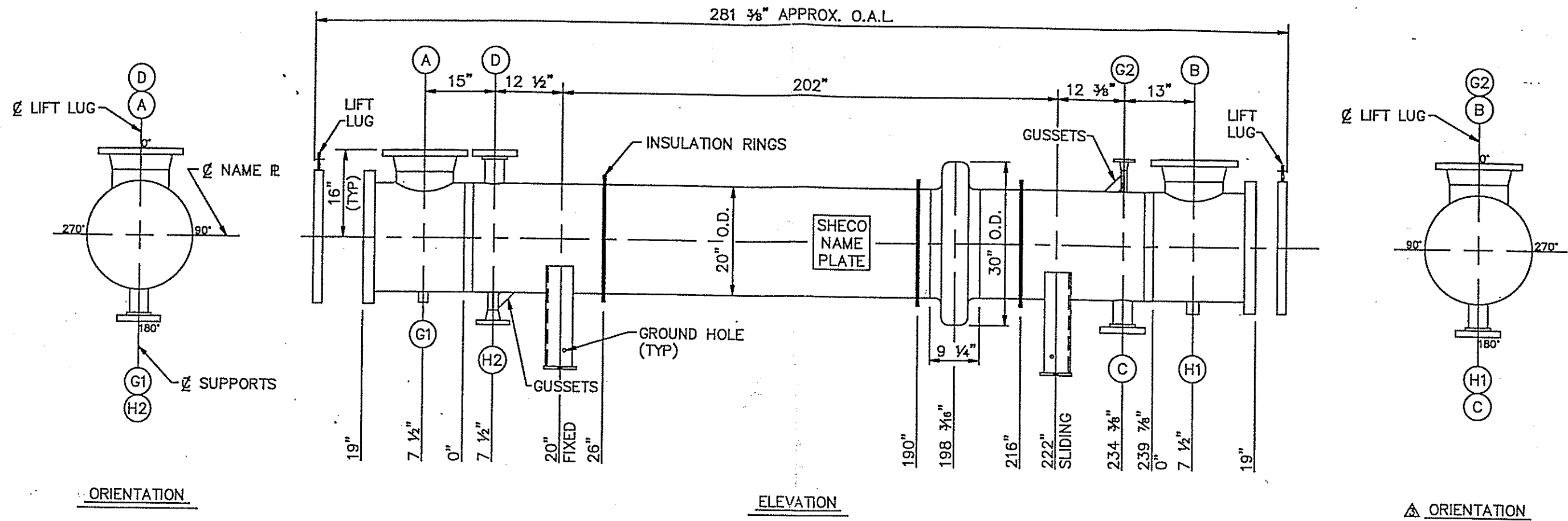
PLANT WILMINGTON, NC

TEMA SIZE AND TYPE
(1) 19-240 NEN SOLVENT COOLER

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

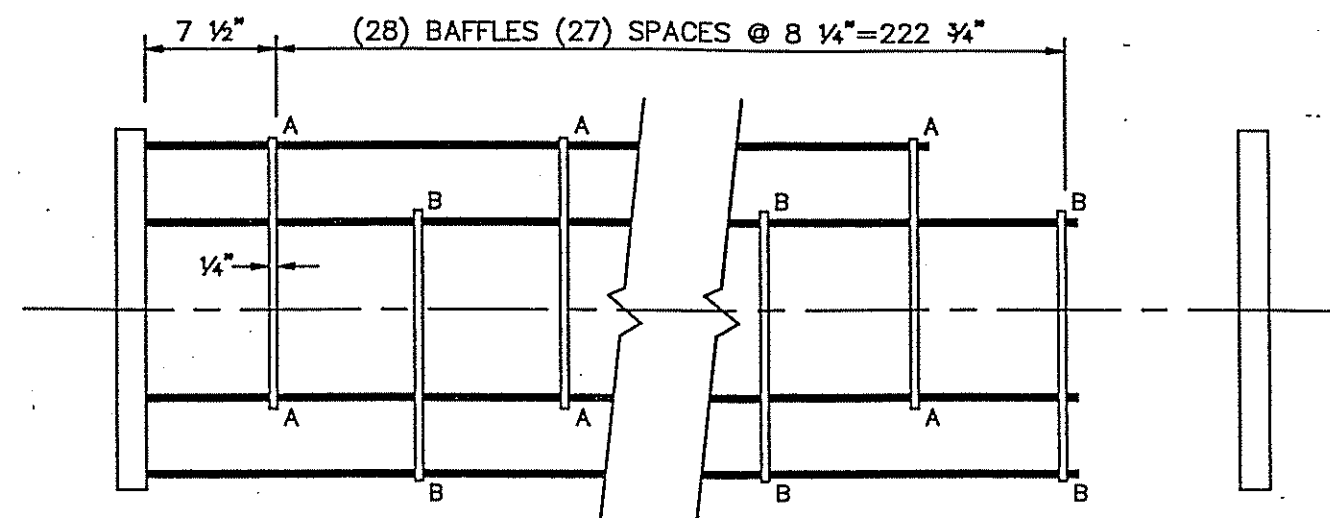
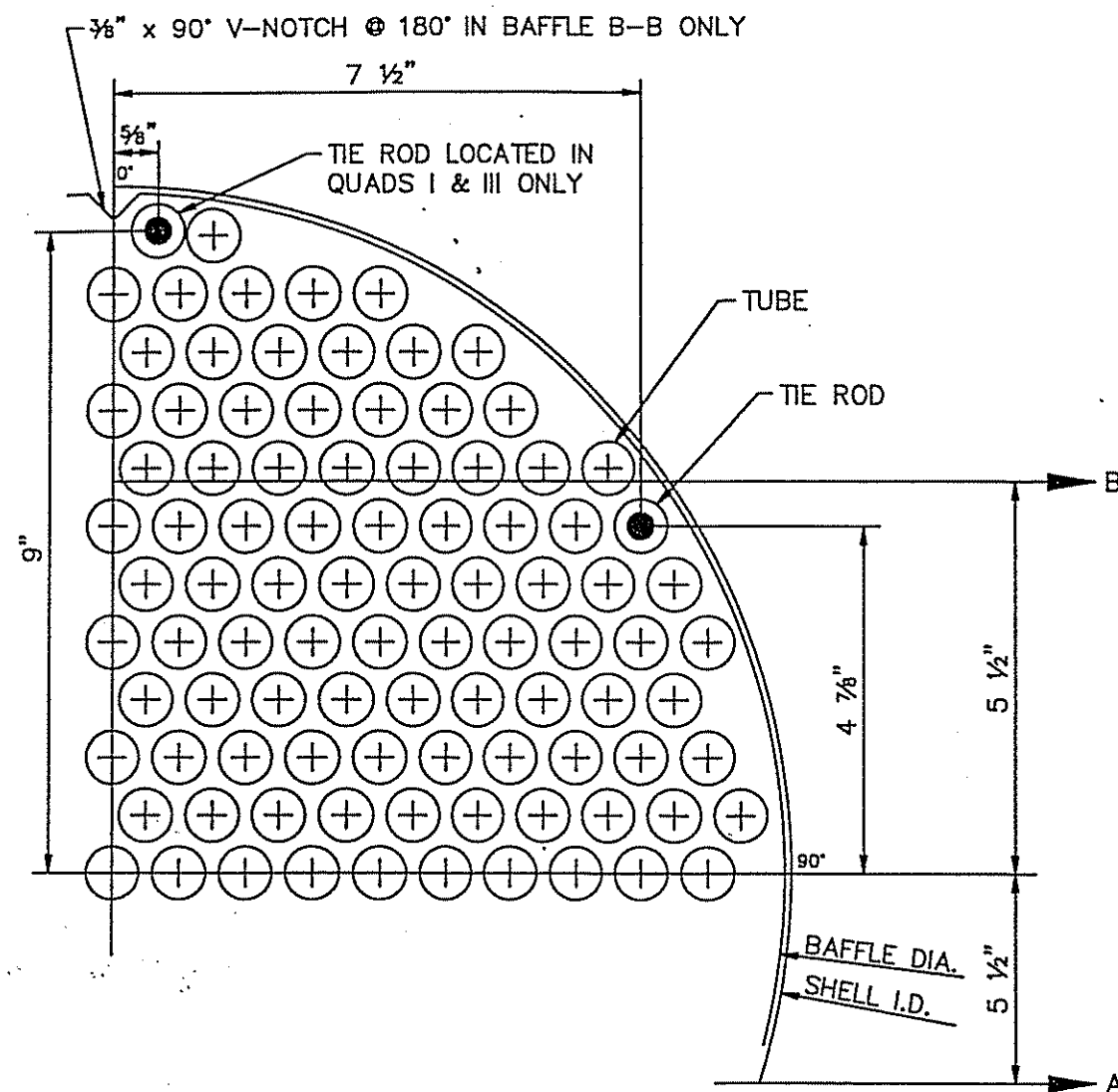
DATE 02/07/94 ORDER NO. DWG. NO. SB-1624-3
BY T.E.M. 94-011 SHEET 1 OF 5

104342



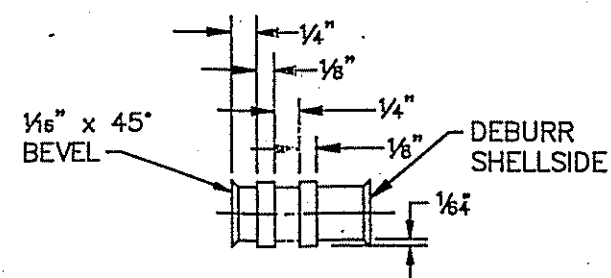
- C.ST'L
- 316L S.ST'L
- 317L S.ST'L

CERTIFIED	ENG. 80A 4/13/94	
CUSTOMER GLITSCH TECHNOLOGY CORP.		
CUSTOMER P.O. NO. 21697		
ITEM NO. E-1210-8	PROJ. NO. 6K-1512	
PLANT WILMINGTON, NC		
TEMA SIZE AND TYPE (1) 19-240 NEN SOLVENT COOLER		
SOUTHERN HEAT EXCHANGER CORP. P.O. BOX 030008 TUSCALOOSA, AL. 35403		
DATE 02/07/94	ORDER NO.	DWG. NO. SB-1624-3
BY T.E.M.	94-011	SHEET 2 OF 5



BUNDLE DETAIL

TUBE O.D.	$\frac{3}{4}$ "
NO. OF TUBES	341
SIZE OF TUBE HOLE IN TUBESHEET	0.760"
SIZE OF TUBE HOLE IN BAFFLE	$\frac{25}{32}$ "
PITCH	$1\frac{5}{16}$ " 30° TRI.
TIE ROD O.D.	$\frac{3}{8}$ "
NO. OF TIE RODS	6
TIE ROD HOLE SIZE IN TUBESHEET	$\frac{7}{16}$ " x $\frac{1}{2}$ " DP. (SEAL WELD)
TIE ROD HOLE SIZE IN BAFFLE	$\frac{7}{16}$ "
SPACER O.D.	$\frac{3}{4}$ "
DUMMY TUBE O.D.	-
NO. OF DUMMY TUBES	-
DUMMY TUBE HOLE SIZE IN BAFFLES	-
O.T.L.	18.8319"
BAFFLE DIA.	19.0625"
BAFFLE CUT ALTERNATES	(14) A-A, (14) B-B



TUBE HOLE DETAIL

	C.S.T'L
	316L S.S.T'L
	317L S.S.T'L

CERTIFIED	ENG. XOA 4/13/94	
CUSTOMER	GLITSCH TECHNOLOGY CORP.	
CUSTOMER P.O. NO.	21697	
ITEM NO.	E-1210-8	PROJ. NO. 6K-1512
PLANT	WILMINGTON, NC	
TEMA SIZE AND TYPE		
(1) 19-240 NEN SOLVENT COOLER		
SOUTHERN HEAT EXCHANGER CORP.		
P.O. BOX 030008 TUSCALOOSA, AL. 35403		
DATE 02/07/94	ORDER NO.	DWG. NO. SB-1624-3
BY T.E.M.	94-011	SHEET 4 OF 5