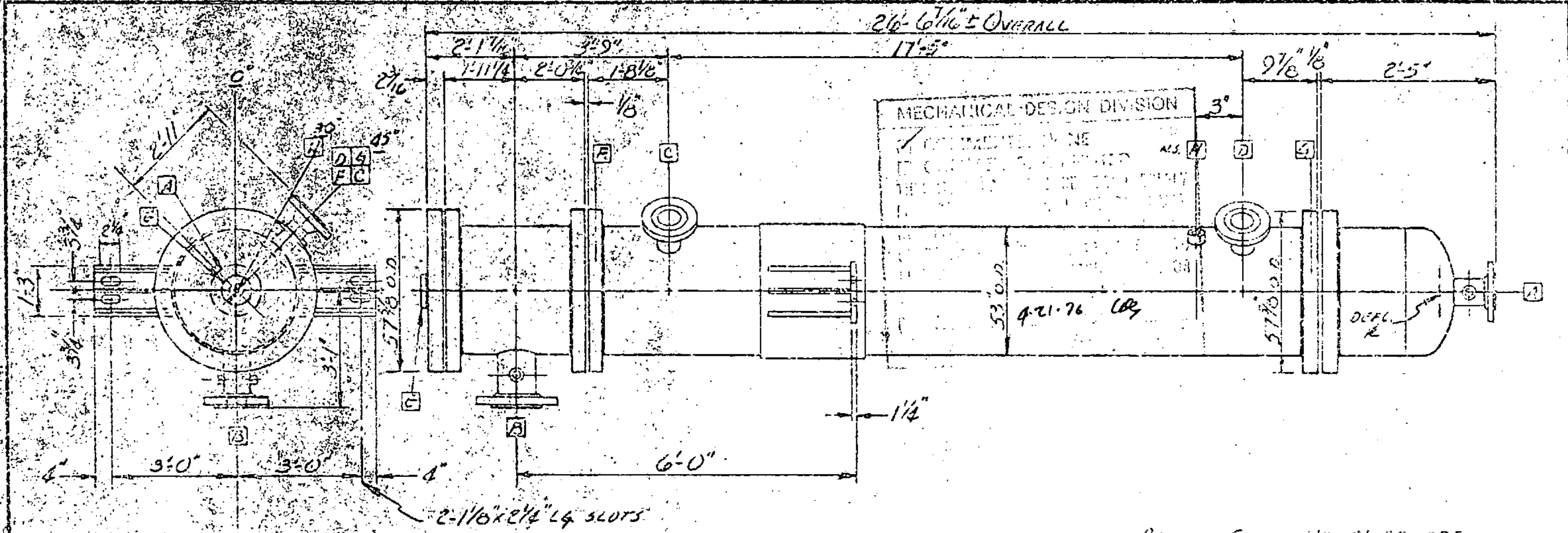
FOREIGN PRINT FILE
HOUSTON CHEMICAL COMPANY
DIVISION OF
PPG INDUSTRIES, INC.
BEAUMONT, TEXAS 77704

JOB. NO. DATE 8-17-76 P.O. 1607-009
DEPT. GLYCOL EQPT. NO. 21-08-025
VENDOR HUGHES ANDERSON
MFR.
EQPT. USED FOR STRIPPER REBOILER

100288



CLIENT EQUIP. No. 21-08-025

NOTE !
H-A TO FURNISH STUDS, NUTS & GASKET FOR NOZZLE "B".

FOR: HOUSTON CHEMICAL CO.
BEAUMONT, TEXAS

DESIGN DATA	SHELL	TUBES
DESIGN PRESS (M.A.W.P.)	75 PSI	75 PSI
TEST PRESS.	115 PSI	115 PSI
DESIGN TEMPRATURE	340 °F	290 °F
CORROSION ALLOWANCE	1/16"	—
NUMBER OF PASSES	1	1
TUBE SURFACE (EFF.)	7135 SQ. FT.	
TUBES: 1109 - 1" Ø x 16 BWG AVG SA-249 304		

ESTIMATED WEIGHT EACH	
DRY	WET
39,000 LBS	53,600 LBS

NOZZLE DATA

MARK	SIZE	RATING	FACING	SERVICE
A	6"	150#	R.F.*	INLET
B	24"	150#	R.F.*	OUTLET
C	12"	150#	R.F.	INLET
D	4"	150#	R.F.	OUTLET
E	1"	150#	R.F.*	VENT & BLIND
F	3/4"	—	N.P.T.	VENT & PLUG
G	3/4"	—	N.P.T.	DRAIN & PLUG
H	3/4"	3,000#	CPLG	VENT & PLUG

NOZZLES A,B,C, & D EQUIPPED WITH 2-3/4-6,000# CPLGS. (PLUGGED).

*125 RMS FINISH ON FLANGE FACE.

GENERAL NOTES

1. DESIGN & CONSTRUCTION SHALL BE IN ACCORDANCE WITH:
   (A) SECTION VIII 1974 EDITION OF THE ASME CODE, DIV. 1 & SO STAMPED BY NATIONAL BOARD
   (B) TEMA "B".
   (C) CUST. SPEC'S.
2. ALL BOLT HOLES TO STRADDLE ℄s.
3. SPOT X-RAY CHANNEL & SHELL.
4. ONE SPARE SET OF GASKETS REQ'D.
5. CHLORIDE CONTENT SHALL NOT EXCEED 25 PPM FOR TEST WATER ON STN. STL. PARTS.
6. Near white blast/SSPC-SP10 on all carbon stl. nozzles, flanges, supports & channel cover and apply one coat of inorganic zinc rich primer (PPG #UC-46745 & 46) 3 mils min. D.F.T. 1st coat to be high solids epoxy (PPG #UC-42203) light gray 5 mils min. D.F.T. Top coat to be Aquapon (PPG #UC-42207) white 2 mils min. D.F.T.

CERTIFIED CORRECT FOR FABRICATION
BY: J.A. Hanson DATE: 10/21/75

CUST.: SCIENTIFIC DESIGN CO.	
DEST.: BEAUMONT, TEXAS	
CUST. P.O.: 1607-009	
ITEM: E-1407	
SERVICE: STRIPPER REBOILER	
SERIAL: 1825	
FILE: 291-75	

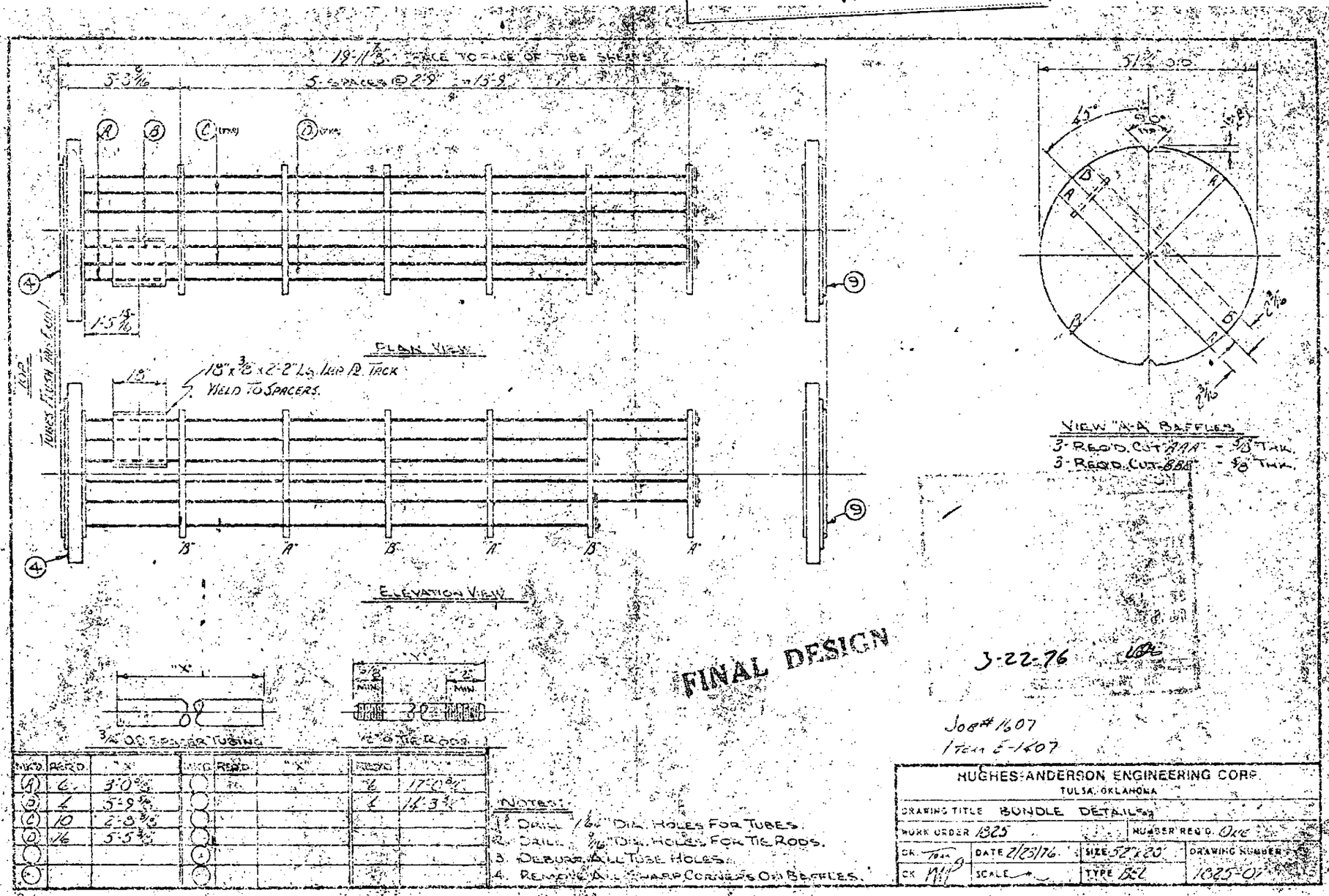
HUGHES-ANDERSON ENGINEERING CORP.
TULSA, OKLAHOMA

DRAWING TITLE: OUTLINE DIMENSIONAL			
WORK ORDER: 1825		NUMBER REQ'D: ONE	
DR. KEN	DATE 10/20/75	SIZE 52" x 20'	DRAWING NUMBER
CK. JIM	SCALE NONE	TYPE BEL	1825-01

(0) Rev. ℄ to ℄ of C & D, overall length, tube lg. was 16' / Cust. 10/24/75 Ken (1) Rev. size of B, Up tubes / Cust. Dwg. 11/17/75 Ken (3) Delete Noz. Cplg's / Cust. 12/12/75 Ken (4) Gen. Rev. / Cust. 12/24/75 (5) Rev. Note #6 3/22/76 Ken 08

FINAL DESIGN

100288



MK'S	REQ'D	"X"
A	6	3'-0 3/4"
B	4	5'-9 3/16"
C	10	2'-8 3/16"
D	16	5'-5 3/16"

MK'S	REQ'D	"X"
1	6	17'-0 1/4"
2	4	14'-3 1/4"

Notes:
1. Drill 1/64" Dia. Holes For Tubes.
2. Drill 1/16" Dia. Holes For Tie Rods.
3. Deburr All Tube Holes.
4. Remove All Sharp Corners On Baffles.

HUGHES-ANDERSON ENGINEERING CORP.
TULSA, OKLAHOMA

DRAWING TITLE BUNDLE DETAILS			
WORK ORDER 1625		NUMBER REQ'D. One	
DR. TOM	DATE 2/25/76	SIZE 22" x 30"	DRAWING NUMBER 1625-01
CK. WHP	SCALE	TYPE BSL	

T9

FORM U-1 MANUFACTURERS' DATA REPORT FOR PRESSURE VESSELS
As Required by the Provisions of the ASME Code Rules, Section VIII, Division 1

1. Manufactured by Hughes-Anderson Engr. Corp. Tulsa, Oklahoma
(Name and address of manufacturer)

2. Manufactured for Scientific Design Co. New York, New York
(Name and address of purchaser)

3. Location of Installation Houston Chemical Co. Beaumont, Texas
(Name and address)

4. Type Vert. (Horiz., or vert. tank) Vessel No. 1825 (Mfgr's Serial No.) (CRN) 1825-01-13 (Drawing)
454 (Nat'l Bd No.) Year Built 1976

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 Rules, Section VIII, Division 1 1974 (Year) and Addenda to Summer 75 (Date) and Code Case no. _____

Special service per UG-120(d) _____

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, mfgr's name and identifying stamp)

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

6. Shell: Material SA-516-70 (Spec. No., Grade) Nominal Thickness 1/2 in. Corrosion Allowance 1/16 in.
Diam. 4 ft 5 in. Length 19 ft 6-3/4 in.

CERTIFICATE OF 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.

Date 8-2-76 Signed Hughes-Anderson Engr. Corp (Manufacturer) by [signature] (Representative)

"U" Certificate of Authorization No. 11979 expires December 31, 1976

CERTIFICATE OF SHOP INSPECTION

Vessel made by Hughes-Anderson Engr. Corp at Tulsa, Oklahoma

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State or Province of Illinois and employed by Commercial Union Ins. Co. of Boston, Mass. have inspected the pressure vessel described in this Manufacturers' Data Report on 8-26- 1976, 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 8-26-76
Signed C. L. Cooley (Inspector) Commissions NB #5745 (Nat'l Board, State, Province and No.)

CERTIFICATE OF COMPLIANCE FOR FIELD WORK

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.

Date _____ Signed _____ (Manufacturer) by _____ (Representative)

"U" Certificate of Authorization No. _____ expires _____, 19____

CERTIFICATE OF FIELD ASSEMBLY INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or 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 this 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 Board, State, Province and No.)

#10288

FORM U-1 (BACK)

7. Seams: Longitudinal Dbl. Butt (Welded, Dbl., Sngl, Lap, Butt) R.T. Spot (Spot or Full) Efficiency 85 %

H.T. Temp ____ F Time ____ Girth Dbl. Butt Welded (Welded, Dbl, Sngl, Lap, Butt)

R.T. Spot (Spot, Partial, or Full) No. of Courses 2

8. Heads: (a) Material ____ (Spec. No., Grade) (b) Material ____ (Spec. No., Grade)

Location (Top, Bottom, Ends)	Minimum Thickness	Corrosion Allowance	Crown Radius	Knuckle Radius	Elliptical Ratio
(a)					
(b)					

Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure (Convex or Concave)
(a)			
(b)			

If removable, bolts used (describe other fastenings) ____ (Material, Spec. No., Gr., Size, No.)

9. Type of Jacket ____ Proof Test ____

10. Jacket Closure ____ (Describe as ogee & weld, bar, etc.) If bar, give dimensions ____

If bolted, describe or sketch.

11. Constructed for max. allowable working pressure 75 psi at max. temp. 340° F Min. temp. (when less than –20 F) ____ F. Hydrostatic, ~~pneumatic~~ test pressure 115 psi.

Items 12 and 13 to be completed for tube sections

12. Tubesheets: Stationary—Material SA-515-70 (Spec. No. Gr.) Diam. 52-1/8 (Subject to pressure) in.

Nominal Thickness 2-5/8* in. Corrosion Allowance 0 in. Attachment Welded (Welded, Bolted)

Stationary ~~Floating~~ Material SA-515-70 (Spec. No., Gr.) Diam. 52-1/8 in.

Nominal Thickness 2-5/8* in. Corrosion Allowance 0 in.

Attachment Welded

13. Tubes: Material SA-249-304 (Spec. No., Gr.) O.D. 3/4 in. Nominal Thickness 16 BWG ~~gauge~~ (Avg.)

Number 1,409 Type Straight (Straight or "U")

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

14. Shell: Material SA-240-304 (Spec. No., Gr.) Nominal Thickness 1/2 in. Corrosion Allowance 0 in.

Diam. 4 ft 5 in. Length 4 ft 0 in.

15. Seams: Longitudinal Dbl. Butt (Welded, Dbl, Sngl, Lap, Butt) R.T. Spot (Spot or Full) Efficiency 85 %

H.T. Temp ____ F Time ____ Girth Dbl. Butt Welded (Welded, Dbl, Sngl, Lap, Butt)

R.T. Spot (Spot, Partial or Full) No. of courses 1

16. Heads: (a) Material SA-515-70 (Spec. No., Grade) (b) Material SA-240-304 (Spec. No., Grade)

Location (Top, Bottom, Ends)	Minimum Thickness	Corrosion Allowance	Crown Radius	Knuckle Radius	Elliptical Ratio
(a) Top	2-1/2"**	In Clad			
(b) Bottom	.1373"	0			

Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure (Convex or Concave)
(a)		53-3/4"	Flat
(b)			Concave

If removable, bolts used (describe other fastenings) SA-193-B7;3/4";56 (Material, Spec. No., Gr., Size, No.)

17. Constructed for max. allowable working pressure 75 psi at max temp. 290° F. Min. temp. (when less than –20 F) ____ F. Hydrostatic, ~~pneumatic~~ test pressure 115 psi.

Items below to be completed for all vessels where applicable

18. Safety Valve Outlets: Number ____ Size ____ Location ____

19. Nozzles:

Purpose (Inlet, Outlet, Drain)	Number	Diam. or Size	Type	Material	Nominal Thickness	Reinforcement Material	How Attached	
Chan In	1	6"-150#	RF-SO	SA-240-TP-304	Sch. 80S	None	Welded	
Chan Out	1	24"-150#	RF-SO	SA-240-TP-304	X-STG.	None	Welded	
Shell In	1	12"-150#	RF-WN	SA-53-B	X-STG.	None	Welded	
Shell Out	1	4"-150#	RF-WN	SA-53-B	Sch. 80	None	Welded	

20. Inspection Openings:

Manholes No. ____ Size ____ Location ____

Handholes No. ____ Size ____ Location ____

Threaded No. ____ Size ____ Location ____

21. Supports: Skirt ____ (Yes or no) Lugs Two (No.) Legs ____ (No.) Other ____ (Describe)

Attached Welded To Shell (Where and how)

22. Remarks: Stripper Reboiler

* = Thk. Includes 3/8" Thk. 308L Overlay

** = Thk. Includes 1/8" Thk. 304 S.S. Liner

FOREIGN PRINT FILE
HOUSTON CHEMICAL COMPANY
DIVISION OF
PPG INDUSTRIES, INC.
BEAUMONT, TEXAS 77704
JOB. NO. ____ DATE 3/26/77 P.O. 467009
EQPT. NO. 21-08-025
VENDOR ____
MFR ____
EQPT. USED FOR 2:1 Stripper Reboiler
E-1407

HUGHES ANDERSON ENGINEERING CORP

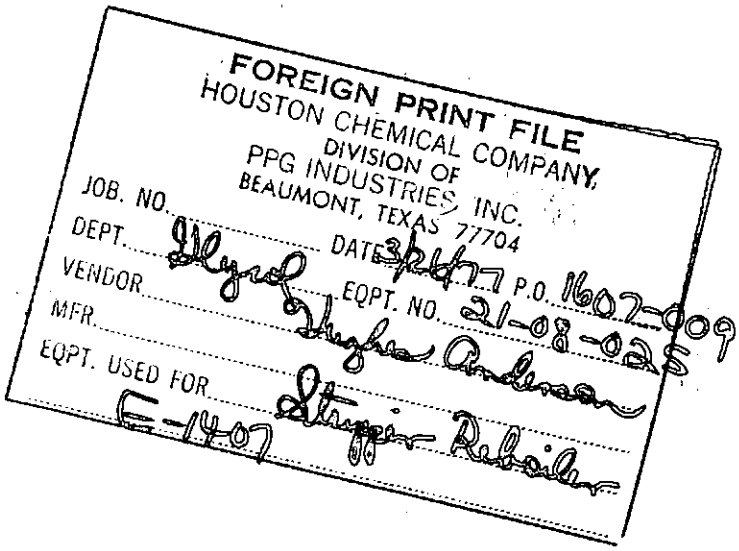
STRIPPER REBOILER

U
W
RT 3
CU

	454	ITEM NO.	E-1407
	1607-009	SERVICE NO.	1825
SIZE	52" X 20'	TYPE	BEL
SURFACE	7135		
	SPOT CHANNELS & SHELL		

	8/76		115
	75	340	115
	75	290	115

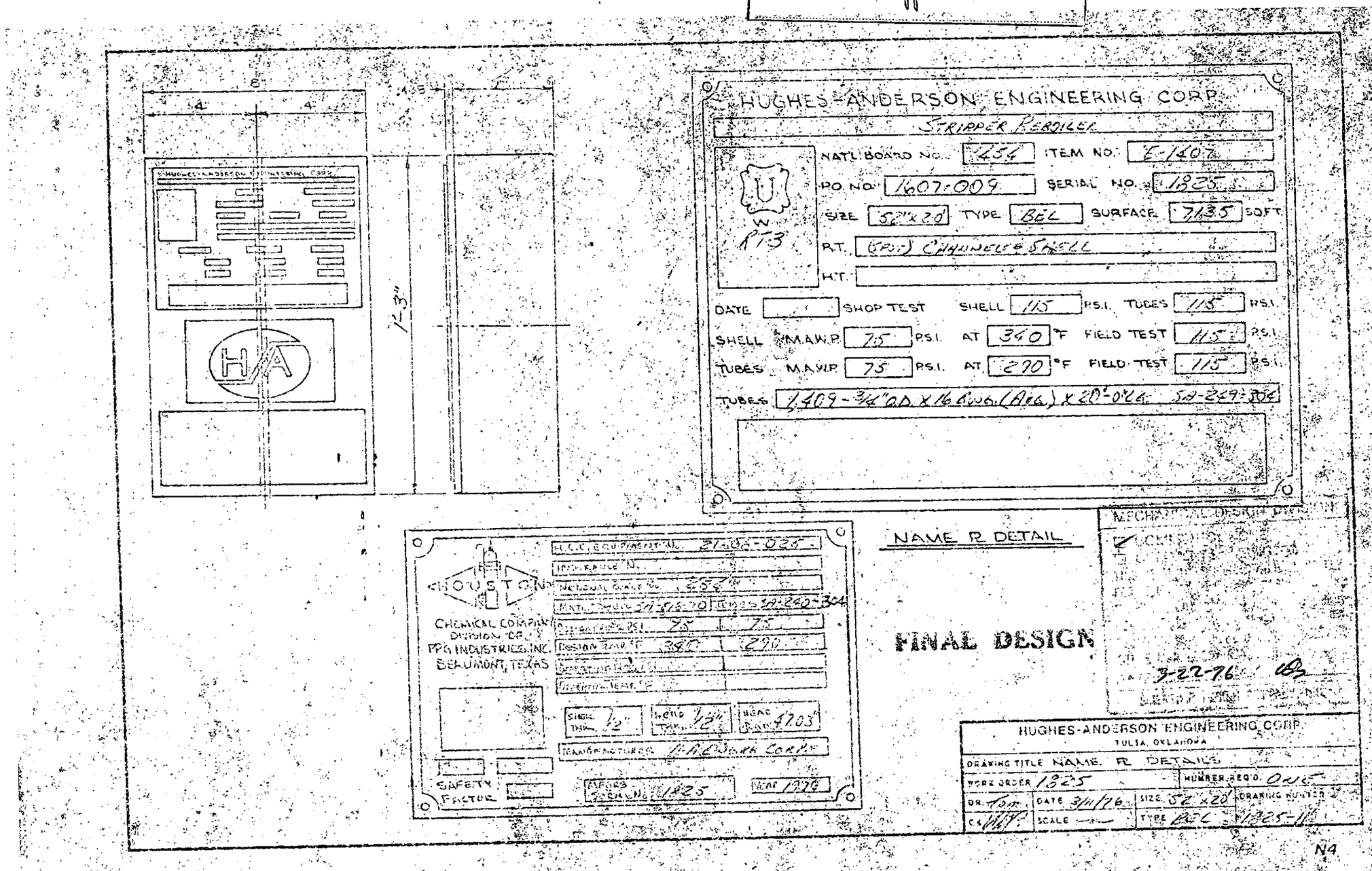
1409-¾ O.D. X 16 BWG. AVG. X 20'-0" LG. SA-249-304


FOREIGN PRINT FILE
HOUSTON CHEMICAL COMPANY,
DIVISION OF
PPG INDUSTRIES, INC.
BEAUMONT, TEXAS 77704
JOB. NO.
DEPT. Lloyd Hughes Anderson
DATE 3/4/77 P.O. 1602-009
VENDOR
EQPT. NO. 21-08-025
MFR.
EQPT. USED FOR Stripper Rebuild
E-1407

FOREIGN PRINT FILE
HOUSTON CHEMICAL COMPANY
DIVISION OF
PPG INDUSTRIES, INC.
BEAUMONT, TEXAS 77704

JOB. NO. ..... DATE 2/18/77 P.O. 1607-009
DEPT. Glycol EQPT. NO. 21-08-025
VENDOR Hughes-Anderson
MFR. .....
EQPT. USED FOR Stripper Reboiler

100288



FORM R-1, REPORT OF WELDED ☒ REPAIR OR ☐ ALTERATION 100288
as required by the provisions of the National Board Inspection Code

1. Work performed by Exell, Inc. (name of repair or alteration organization) 10573 (P.O. no., job no., etc.)
690 Franklin Street, Beaumont, TX 77701 (address)

2. Owner P.D.Glycol (name)
P. O. Box 3785, Beaumont, TX 77704 (address)

3. Location of installation P.D.Glycol (name)
Gulf States Utilities Rd., Beaumont, TX 77701 (address)

4. Unit identification: Exchanger (boiler, pressure vessel) Name of original manufacturer Hughes Anderson Eng. Corp.

5. Identifying nos.: 1825 (mfr's. serial no.) 454 (original National Board no.) - (jurisdiction no.) Item #E-1407 (other) 1976 (year built)

6. Description of work: Installed (1) 10"-150# RFSO Flange (SA-182-F304L) and 10" nozzle (use back, separate sheet, or sketch if necessary)
pipe (SA-312-TP304L) in channel.
Dye Penetrant examination was satisfactory.
Shop hydrotest was satisfactory.

Pressure test, if applied _____ psi

7. Replacement Parts. Attached are Manufacturers' Partial Data Reports properly identified and signed by Authorized Inspectors for the following items of this report:

(name of part, item number, mfr's. name and identifying stamp)

8. Remarks:

This form may be obtained from The National Board of Boiler and Pressure Vessel Inspectors, 1055 Crupper Ave., Columbus, OH 43229 NB-66 Rev. 5