

FORM U-1 MANUFACTURER'S DATA REPORT FOR UNFIRED PRESSURE VESSELS

#104058

As Required by the Provisions of the ASME Code Rules

1. Manufactured by STRUTHERS WELLS GULFPORT, INC., Gulfport, Mississippi 66-94-6219
(Name and address of Manufacturer)

2. Manufactured for HERCULES, INC. WILMINGTON, DEL.
(Name and address of Purchaser)

3. Type HORIZ. Kind HEAT EXCH. Vessel No. 4-6219-1 Nat'l Bd. No. 480 Yr. Built 1967
(Horiz. or Vert.) (Tank, Jacketed, Heat Exch.) (Mfrs' Serial) (State & State No.)

Items 4-9 incl. to be completed for single wall vessels such as air tanks, jackets of jacketed vessels, or shells of heat exchangers.

4. Shell: Material A-285-C T. S. 55,000 Nominal 7/16 Thickness 3 in. Allowance 1/16 in. Diam. 3 ft. in. Length 15 ft. in. Efficiency 85 %
(Kind and Spec. No.) (Fig. or F. B. & lowest T. S.) (Yes or No) (Spot or Complete) (Yes or No) (If riveted describe seams fully on reverse side of form.)

5. Seams: Long DBL. BUTT H. T. NO X. R. SPOT Sectioned NO No. of Courses 3
(Welded, Dbl., Single, Lap, Butt) (Yes or No) (Spot or Complete) (Yes or No)

6. Heads: (a) Material T. S. (b) Material T. S.
(Top, bottom, ends) Thickness 3 in. Location ENDS SEE TUBESHEETS Crown Radius NO Knuckle Radius NO Elliptical Ratio NO Conical Apex angle NO Hemispherical Radius NO Flat Diameter NO Side to Pressure (Convex or Concave)

7. Staybolts: NO If hollow NO Attachment NO Pitch NO X NO Diam. NO
(Material) (Size of Hole) (Threaded, Welded) (Horiz.) (Vert.) (Nominal)

8. Jacket Closure: NO (Describe as ogee & weld, bar, etc. If bar, give dimensions. If bolted, describe or sketch.)

9. Constructed for {Int.} pressure of 200 psi. Max. Temp. 600 °F. Subzero NO °F. Hydrostatic Test 300 psi.
{Ext.}

Items 10 and 11 to be completed for tube sections.

10. Tube Sheets: Stationary. Material A-212-B Diam. 38 in. Thickness 3-5/8 in. Attachment WELOED
(Kind & Spec. No.) (Subject to Pressure) (Welded, Bolted)

11. Tubes: Material A-240(T-316) CLAD Diam. 1 1/2 in. Thickness .065(AVG.) inches or gage. Number 348 Type STRAIGHT
(Kind & Spec. No.) (Straight or U)

Items 12-15 incl. to be completed for inner chambers of jacketed vessels, or channels of heat exchangers.

12. Shell: Material A-240(T-316) T. S. 75,000 Nominal 7/8 Thickness 0 in. Allowance 0 in. Diam. 3 ft. in. Length 0 ft. in. Efficiency 85 %
(Kind and Spec. No.) (Fig. or F. B. & lowest T. S.) (Yes or No) (Spot or Complete) (Yes or No) (If riveted describe seams fully on reverse side of form.)

13. Seams: Long DBL. BUTT H. T. NO X. R. SPOT Sectioned NO No. of Courses 1
(Welded, Dbl., Single, Lap, Butt) (Yes or No) (Spot or Complete) (Yes or No)

14. Heads: (a) Material A-212-B T. S. 60,000 (b) Material T. S. (c) Material T. S.
(Top, bottom, ends) Thickness 5 1/2 in. Location W/2 A-240-TP316 LINERS TACK WELOED Crown Radius NO Knuckle Radius NO Elliptical Ratio NO Conical Apex angle NO Hemispherical Radius NO Flat Diameter 48-1/8 in. Side to Pressure (Convex or Concave)

15. Constructed for {Int.} pressure of 600 psi. Max. Temp. 600 °F. Subzero NO °F. Hydrostatic Test 1055 psi.
{Ext.}

Items below to be completed for all vessels where applicable.

16. Safety Valve Outlets: Number NONE Size NO Location NO

17. Nozzles: Purpose (Inlet, Outlet, Drain) CHAN. INLET Number 2 Diam. or Size 3"-600# Type RTJ LWN Material A-182-(TP316) Thickness NO Reinforcement Material NO How Attached WELOED
(Inlet, Outlet, Drain) (Number) (Diam. or Size) (Type) (Material) (Thickness) (Reinforcement Material) (How Attached)

18. Inspection Openings: Handholes, No. NO Size NO Location NO
Threaded, No. NO Size NO Location NO

19. Supports: Skirt NO Lugs NO Legs NO Other NO (Describe) NO

20. Remarks: SHELL BELLOWS TYPE EXP. JOINT TYPE 321 STL NLS. W/A-285-C WELD STUBS
ACID PREHEATER SHELL SIDE P-CYMENT, TUBE SIDE ORGANICS
(Brief description of purpose of the vessel, as Air Tank, After Cooler, Jacketed Cooler, etc. State contents of each part.)

SHELL INLET
& OUTLET

2
2

4" 300# RFVN FLGS.
4" SCH. 80 (337) PIPE

A-181-1
A-106-B

WELDED
WELDED

#104058

We certify that the statements made in this report are correct and that all details of design, material, construction, and workmanship of this unfired pressure vessel conform to the ASME Code for Unfired Pressure Vessels.

Date OCTOBER 25, 19 67 Signed STRUTHERS WELLS GULFPORT, INC. By [Signature]
(Manufacturer)

Certificate of Authorization Expires December 31st 19 70 #7847

CERTIFICATE OF SHOP INSPECTION

VESSEL MADE BY STRUTHERS WELLS GULFPORT, INC. at Gulfport, Mississippi

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State of _____ and employed by HARTFORD STEAM BOILER INSP. & INS. CO. of HARTFORD, CONN.

have inspected the pressure vessel described in this manufacturer's data report on OCTOBER 25, 19 67, and state that to the best of my knowledge and belief, the manufacturer has constructed this pressure vessel in accordance with the applicable sections of the ASME Boiler and Pressure Vessel Code.

By signing this certificate neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the pressure vessel 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 OCTOBER 25, 19 67

[Signature]
Inspector's Signature

Commissions

NB#907

Nat'l Board or State and No.

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 of _____ and employed by _____ of _____

have compared the statements in this manufacturer's 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 the applicable sections of the ASME Boiler and Pressure Vessel Code. 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 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 _____ 19 _____

[Signature]
Inspector's Signature

Commissions

Nat'l Board or State and No.

#104058

VFFH 5100
E-406-19 JB #4-6219STRUTHERS WELLS CORPORATION CULFPORT, MISS.
HEAT EXCHANGER CONSTRUCTION SHEETPURCHASER HERCULES, INCORPORATED WILMINGTON, DELAWARE
EQUIPMENT ACID PREHEATER INSTALLATION WILMINGTON, N.C.ORDER NUMBER
66-94-6219PURCHASERS ORDER
#336-026-01090-11-000
FCD. ITEM#E-203-10/1
& E-2203-10/11

NO. REQ'D. 4 SIZE 38" I.D. x 19'-3" O.A.L. CODE SIZE 38-16NX112-1CH

MADE
T.E.B. CHECKED
J.M.

SHELL SIDE 200# TEST PRESS. 300# MAX. TEMP. 600°F CORR. ALL 1/16"

REVISIONS

TUBE SIDE 600# TEST PRESS. 1055# MAX. TEMP. 600°F CORR. ALL -----

FLUID SHELL SIDE P-CYME NE FLUID TUBE SIDE ORGANICS

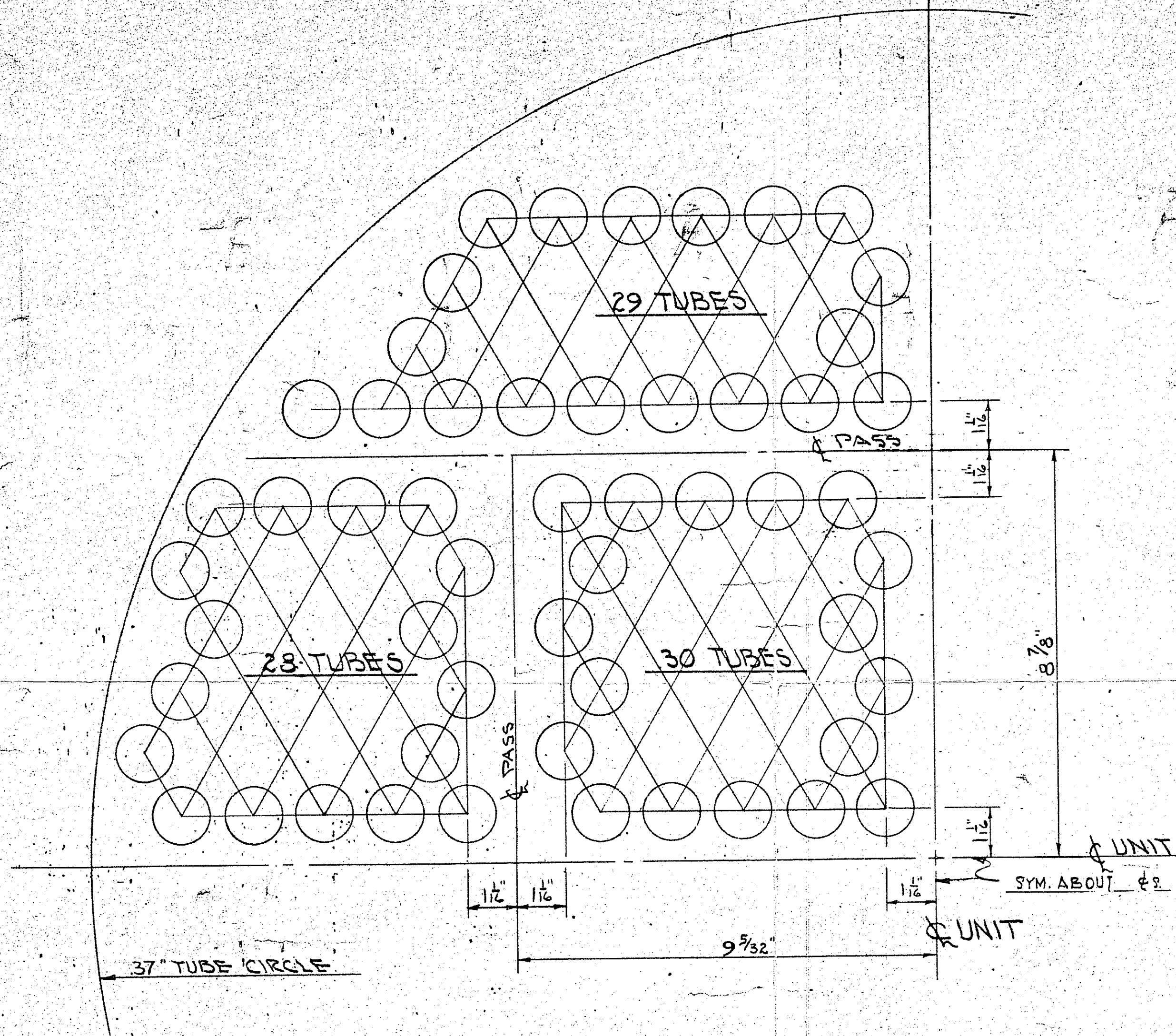
NO. TUBES 348 - 1 1/2" O.D. #16BWG WALL WELDED SA-249-TP-316 STNLS.

MANUF. CODE ASME SECT. VIII INSPECTION CUST. & HART. STAMP NATIONAL BD.

PART	DRAWING NO.	MATERIAL	ASME SPEC.	REMARKS
SETTING PLAN	66-94-6219-B1			
SHELL	D1	FBX STL.	SA-285-C	F208X
SHELL NOZZLES	D1	FORG. STL. SMLS. STL.	SA-101-1 SA-105-B	SIZE (2) 4"x300# R.F.W.N.
SHELL COVER				FLGS.
CHANNEL	D1	STNLS. STL.	SA-240-TP-316	FLGS. SA-105-11 W/316 OVERLAY
CHAN. NOZZLES	D1	FORG. STNLS. STNLS. STL.	SA-182-F-316 SA-312-TP-316	SIZE (2) 3"x(1) 1" x 600# R.J.
CHANNEL COVER	D1	FBX STL. W/ STNLS. LINER	SA-212-B W/ SA-240-TP-316	
CHANNEL COVER				PATT. NO.
TUBE SHEETS	D1	FBX STL. CLAD	SA-212-B W/316-CLAD	3/8" THK. CLAD
TUBE LAYOUT	C1			1-9/16" TRIANG.
TUBE GROOVING	D1			DOUBLE
CROSS BAFFLES	D1		NO. 30 THK. 1/4" CUT 4-R.P.M.	PITCH EVEN DRILL REAM 1-9/32
SUPPORT PLATES			NO. THK. CUT	PITCH DRILL REAM
BAFFLE				
HEAD RINGS				
SPACERS				
TIE RODS	D1	STL.	C-1020	1/2" Ø
SPACERS	D1	STL.	SA-214	3/4" Ø
GASKETS	A2 & D1	STNLS. JACKET ASB. FILLED	316 STNLS.	1/8" THK.
BOLTS	D1	ALLOY	SA-193-B7	
NUTS	D1	STL.	SA-194-2H	*ITEM NO'S. TO BE PLAINLY
SHELL SUPPORTS	B1 & D1	STL.	SA-7	PRINTED ON EQUIPMENT (2" HIG
NAME PLATE & ATTACHMENT	A-14400	STNLS. STL.	18-8 H.R.	
WELDING	SW2A8			
	SW2A4			
	SW3A2			
FLANGING	NONE		HEAT TREAT:	NONE
WELDING	65 CODE			
WELD FINISH	NORMAL			
X-RAY	SPOT		SHIP. INST. SHIP INTACT, PROTECT ALL OPENINGS.	
SURFACE FINISH	SANDELAST & PAINT SUPPORTS ONLY.		SPECIAL INST.	

66-94-6219C1

POSITION "X"



HERCULES INC.
CUST. ORD. NO. 336-026-01090-11-000-PCD
ACID PREHEATER
S.W. ORD. NO. 66-94-6219
FOUR (4) UNITS REQ'D.

348 TUBES 1/4" O.D. TUBES @ 1 9/16" Δ PITCH
12 PASS
SEE TUBESHEET & BAFFLE DETAILS
FOR DRILLING

104058

B.P.F. NO.	37331	DATE	3/31/67
SHEET	3	APPARATUS NO.	3-203-10,11
PROJECT & ACCOUNT	26001	2001	2014
ORDER NO.	334-026-01090		
PLANT	Wilmington		
APPROVED	<i>H. A. Atkinson</i>		

REV. Δ	CKD:	REV. Δ	CKD:
TUBE LAYOUT			
DRAWN: H.R.B.	12-15	66-94-6219C1 GULFPORT, MISS.	
CHECKED: <i>JM</i>	2-24		
APPROVED:			
SCALE: 1/2" = 1"	DATE		

