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JOB # 81-234 FORM U-1 MANUFACTURERS' DATA REPORT FOR PRESSURE VESSELS ITEM # 192
As Required by the Provisions of the ASME Code Rules, Section VIII, Division 1 PBU-E-2210

1. Manufactured by SOUTHERN HEAT EXCHANGER CORPORATION; TUSCALOOSA, ALABAMA
(Name and address of manufacturer)

2. Manufactured for UNION CARBIDE CORP., SOUTH CHARLESTON, WEST VIRGINIA
(Name and address of purchaser)

3. Location of Installation UNION CARBIDE CORP. INSTANT, WEST VIRGINIA
(Name and address)

4. Type Vessel No. 81-234 NONE SM-1013 3483 Year Built 1982
(Horiz. or vert. Tank) (Mfg's Serial No.) (CRN) (Drawing) (Nat'l Brd No.)

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 1980 and Addenda to SUPPLEMENT 1 and Code Case no. NONE
(Date) (Year)

Special service per UG-120(d) LETHAL SERVICE TUBE SIDE - UW-2 (a)
Manufacturers' Part Data Reports properly identified and signed by Commissioned Inspectors have been furnished for the following items of the report: NONE
(Name of part, item number, mfg'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-156 PNom. Thickness 3/8 in. Corrosion Allowance 1/8 in. Diam. 1 ft. 2 in. Length 6 ft. 11 7/8 in.
(Spec No., Grade) (Overall)

7. Seams: Longitudinal SHLS R.T. Efficiency 100 % H.T. Temp NONE F Time --- Girth NONE R.T. No. of Courses 1
(Dbl., Sngl.) (Spot or Full) (Dbl., Sngl.) (Spot, Partial, or Full)

8. Heads: (a) Material NONE (b) Material ---
(Spec No., Grade) (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) NONE
(Material, Spec. No., Gr., Size, No.)

9. Type of Jacket NONE Proof Test ---

10. Jacket Closure NONE If bar, give dimensions --- If bolted, describe or sketch.
(Describe as ogee & weld, bar, etc.)

11. Constructed for max. allowable working pressure 117 psi at max. temp. 400 F Min. temp. (when less than -20 F) --- F.
Hydrostatic, pneumatic, or other test pressure 180 psi.

Items 12 and 13 to be completed for tube sections

12. Tubesheets: Stationary Material SA-156 PNom. Diam. 18 1/2 in. Nominal Thick. 1/2 in. Corrosion Allow. 1/8 in. Attachment WELDED
(Spec No., Gr.) (Subject to pressure) (Welded, Bolted)

Floating Material NONE Diam. --- in. Nominal Thick. --- in. Corrosion Allow. --- in. Attachment ---
(Spec No., Gr.)

13. Tubes: Material SA-213-304 O.D. 5/8 in. Nominal Thickness 16 gauge Number 208 Type STRAIGHT
(Spec No., Gr.) (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 Nominal Thickness 3/16 in. Corrosion Allowance 0 in. Diam. 1 ft. 2 in. Length 2 ft. 4 3/4 in.
(Spec No., Gr.) (In. Diam.) (In.) (In.)

15. Seams: Longitudinal FULL R.T. Efficiency 100 % H.T. Temp NONE F Time --- Girth FULL R.T. FULL No. of courses 1
(Dbl., Sngl.) (Spot or Full) (Dbl., Sngl.) (Spot, Partial, or Full)

16. Heads: (a) Material SA-240-304 (TOP BOTTOM) (b) Material SA-240-304 (BOTTOM ACCUMULATOR)
(Spec No., Grade) (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	5/16	0	---	---	2:1	---	---	---	CONCAVE
(b) ENDS	3/16	0	---	---	2:1	---	---	---	CONCAVE

If removable, bolts used (describe other fastenings) SA-193-B7/194-2H (16) 3/4"-10
(Material, Spec. No., Gr., Size, No)

17. Max. allowable working pressure 62 psi at max temp. 400 F. Min. temp. --- F. Hydro. test pressure 957 psi.

Items below to be completed for all vessels where applicable

18. Safety Valve Outlets: Number NONE Size --- Location ---

10. Nozzles:

Purpose (Inlet, Outlet, Drain)	Number	Diam or Size	Type	Material	Nominal Thickness	Reinforcement Material	How Applied
INLET/OUTLET (S/S)	2	4"	FLG.	SA-106-B	.357"	INHERENT	WELDED
VENT/ DRAIN	2	1"	FLG.	SA-106	.6003"		
MIDWAY (T/S)	1	24"	FLG.	SA-240-304	.3125"		
PROCESS IN	1	10"		SA-240-304	.1875"		
PROCESS OUT	1	4"		SA-312-304 SEAMLESS	.257"		
SEE ATTACHED FORM FOR REMAINS NOZZLE ON TUG'S SIDE							

20. Inspection Openings:

Manholes No. NONE Size 24" Location SIDE OF ACCUMULATOR (SEE LINE 19)
 Handholes No. NONE Size _____ Location _____
 Threaded No. NONE Size _____ Location _____

21. Supports: Skirt NO Lugs NO Legs NO Other TWO LEGS (W/RT) Attached TO SHELL, WELDED CAPS @ BOTTOM
(Yes or no) (No) (No) (Describe) (Where and how)

22. Remarks: UG-46(a) SHELL SIDE. LINE 12: SA-516-70 CLAD WITH SA-240-304

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 July 19, 1982 Signed SOUTHERN HEAT EXCHANGER by J.W. RICE
(Manufacturer) (Representative)

"U" Certificate of Authorization No. 7037 expires FEBRUARY 28, 1985

CERTIFICATE OF SHOP INSPECTION

Vessel made by SOUTHERN HEAT EXCHANGER at TUSCALOOSA, ALABAMA

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 COMPANY

of BOSTON, MA have inspected the pressure vessel described in this Manufacturers' Data

Report on 8/31, 1982, 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 8/31/82
 Signed J.W. RICE Commissions 2446
(Inspector) (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 _____ by _____
(Manufacturer) (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 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 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 _____ Commissions _____
(Authorized Inspector) (Nat'l Board, State, Province and No.)

Job # 81-234
 Item # PBD-E-2210

APPENDIX W - NONMANDATORY

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 Form U-4

FORM U-4 MANUFACTURERS' DATA REPORT SUPPLEMENTARY SHEET
 As Required by the Provisions of the ASME Code Rules, Section VIII, Division 1

1. Manufactured by SOUTHERN HEAT EXCHANGER CORP., TUSCALOOSA, ALA.
(Name and address of manufacturer)
 2. Manufactured for UNION CARBIDE CORP., SOUTH CHARLESTON, WEST VIRGINIA
(Name and address of purchaser)
 3. Location of installation UNION CARBIDE CORP., INSTITUTE, WEST VIRGINIA
(Name and address)
 4. Type VERTICAL HEAT EXCHANGER Vessel Number 81-234 NONE SM-1813-2 3483
(Tank, etc.) (Mfg. Serial No.) (CRN) (Dwg) (Nat'l Dwg No.)
- Year Built 1982

Data Report
 Item Number

Remarks

PURPOSE (INLET, OUTLET, ETC.)	NUMBER	DIA. OR SIZE	TYPE	MATERIAL	NO. THK	REINF. MAT'L.	HOW ATTACHED
LIQUID LEVEL	2	1/2"	FLS.	SA-312-304	.200"	INHERENT	WELDED
OUTLET	1	2"			.218"		
SPARE	3	2"					
TEMP. IND./P.I.	2	1/2"			.145"		
RECYCLE	1	1/2"					
INST. CONN.	4	1"	C.R.G.	SA-182 F304	3000#		

Date July 19, 1982 SOUTHERN HEAT EXCHANGER CORP. Signed J.W. Pyle
(Manufacturer) J.W. PYLE

Date 8/31/82
 Authorized Inspector's Signature [Signature] Commission 21146
(Natl. Board, State, Province and No.)