

FORM U-2 MANUFACTURERS' PARTIAL DATA REPORT
A part of a Pressure Vessel Fabricated by One Manufacturer for Another Manufacturer
As Required by the Provisions of the ASME Code Rules, Section VIII, Division 1

- 1(a) Manufactured by Shell & Tube Incorporated Tulsa, Oklahoma
(Name and address of manufacturer of part)
- (b) Manufactured for American Smelting & Refining Co. Tacoma, Washington
(Name and address of manufacturer of vessel)
2. Manufacturer's Serial No. of Part S-950-CRN Drawing No. * Nat'l Bd. No. 430** Year Built 1979
3. (a) Drawing Prepared by * Shell & Tube, Inc. Dwgs. S-950-1-A Thru H
(b) Description of Part Inspected Replacement Fixed Tubesheet Shell & Bundle **
4. The chemical and physical properties of all parts meet the requirements of material specifications of the ASME Boiler and Pressure Vessel Code. The construction, and workmanship conform to ASME Rules, Section VIII, Division 1 1977
(Year)
- and Addenda through 12-31-78 and Code Case No. _____
(Date)
5. Special Service per UG-120(d) _____ ** Original Nat'l. Brd. Req. No.: 59
6. Postweld Heat Treatment: Temperature _____ F. Time _____
- Items 7-12 incl. to be completed for single wall vessels, jackets of jacketed vessels, or shells of heat exchangers
7. Shell: Material SA-106-B Nominal Thickness .375 in. Corrosion allowance 1/16 in.
(Spec. No., Grade)
- Diam. 1 4 8 in. Length 29 ft 8-1/2 in.
8. Seams: Longitudinal None, Smls. R.T. None Efficiency 60 %
(Welded, Dbl., Sngl., Lap. Butt) (Spot or Full)
- H.T. Temp. _____ F Time _____ Girth Welded, Sngl. Butt w/back up
(Welded Dbl., Sngl., Lap. Butt)
- R.T. None No. of Courses 1
(Spot, Partial, or Full)
9. Heads (a) Material _____ (Spec. No., Grade) (b) Material _____

	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.)

10. Type of Jacket _____ Proof Test _____
 11. Jacket Closure _____ If bar, give dimensions _____
 (Describe as edges & weld, bar, etc.)
 If bolted, describe or sketch.
 12. Constructed for max. allowable working pressure 75 psi at max. temp. 200° F Min. temp.
 (when less than -20 F) F. Hydrostatic, pneumatic, or combination test pressure 115 psi.

Items 13 and 14 to be completed for tube sections

- | | | | | |
|---------------------------------------|-----------------------------------|---------------------|-------------------------------|-------------------|
| 13. Tubesheets: Stationary — Material | SA-182-F316L
(Spec. No., Gr.) | Diam. | 21
(Subject to pressure) | in. |
| Nominal Thickness | 1-3/4 | Corrosion Allowance | 3/16 | in. |
| Attachment | | | Welded
(Welded, Bolted) | |
| Floating — Material | | Diam. | | in. |
| | (Spec. No., Gr.) | | | |
| Nominal Thickness | | in. | Corrosion Allowance | in. |
| Attachment | | | | |
| 14. Tubes: Material | SA-249-316ELC
(Spec. No., Gr.) | O.D. 3/4 | in. | Nominal Thickness |
| | | | | 18 in. or gauge |
| Number | 270 | Type | Straight
(Straight or "U") | |

Items 15-18 incl. to be completed for inner chambers of jacketed vessels or channels of heat exchangers

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|-------------------------|--|--------------------------------|--|-------------------|--|--------------------------------|--|-------------------------|--|----------------|--|
| 15. Shell: Material | | (Spec. No., Grade) | | Nominal Thickness | | in. | | Corrosion Allowance | | in. | |
| Diam. | | ft. | | in. | | ft | | in. | | | |
| 16. Seams: Longitudinal | | (Welded, Dbl. Sngl. Lap. Butt) | | R.T. | | (Spot or Full) | | Efficiency | | % | |
| H.T. Temp | | F | | Time | | Girth | | R.T. | | No. of courses | |
| | | | | | | (Welded, Dbl. Sngl. Lap. Butt) | | (Spot, Partial or Full) | | | |

FORM U-2 (BACK)

17. 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.)
 18. Constructed for max. allowable working pressure 150 psi at max. temp. 200°F. Min. temp. (when less than -20 F. Hydrostatic, pneumatic, or combination test pressure _____ psi.

Items below to be completed for all vessels where applicable

19. Safety Valve Outlets: Number _____ Size _____ Location _____
 20. Nozzles:

Purpose (Inlet, Outlet, Drain)	Number	Diam. or Size	Type	Material	Nominal Thickness	Reinforcement Material	How Attached
Shell In & Out	1/1	8"-150#	RFSO	SA-106-B	SCH 80	Weld	Welded
V & D	1/1	1"	CPLG.	SA-105	6000#	Weld	Welded

21. Inspection Openings:
 Manholes No. _____ Size _____ Location _____
 Handholes No. _____ Size _____ Location _____
 Threaded No. 4 Size 3/4" Location Nozzles (Describe)
 22. Supports: Skirt No Lugs None Legs None Other 2 Saddles
 Attached Shell, Welded (Where and how)
 23. Remarks: Fixed Tubesheet Shell & Bundle, Size: 19-360 Item: 41D28510
P.O.#: 3716-8

CERTIFICATE OF COMPLIANCE

We certify that the statements made in this report are correct and that all details of material, construction, and workmanship of this vessel conform to the ASME Code for Pressure Vessels, Section VIII, Division 1.

Date 1/25/79 Signed Shell & Tube Incorporated by Kon Slupman
 (Manufacturer) (Representative)

"U" Certificate of Authorization No. 7704 expires Feb. 28, 19 79

CERTIFICATE OF SHOP 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 Arkansas and employed by Commercial Union Ins. Co. of Boston, Mass.

have inspected the part of a pressure vessel described in this Manufacturer's Partial Data Report on 1-26 19 79, and state that, to the best of my knowledge and belief, the Manufacturer has constructed this part in accordance with the ASME Boiler and Pressure Vessel Code, Section VIII, Division 1.

By signing this certificate neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the part described in this Manufacturers' Partial 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 1-26-79
 Signed Raymond L. Coats Commissions N.B. #7375
 (Authorized Inspector) (Nat'l Board, State, Province, and No.)