FORM U-1 MANUFACTURERS' DATA REPORT FOR UNFIRED PRESSURE VESSELS

As required by the Provisions of the ASME Code Rules M & L JOB # 17357-1

1. Manufactured by MANNING & LEWIS ENG. CO., 675 RAHWAY AVE., UNION, N. J. 07083
(Name and address of manufacturer)

2. Manufactured for CLARK OIL & REFINING CORP BLUE ISLAND ILL.
(Name and address of Purchaser)

3. Type HORIZ (Horiz. or Vert.) Kind HEAT EXCH. (Tank, Jacketed, Heat Exch.) Vessel No. (5490) (Mfrs. Serial) ( ) (State & State No.) Natl. Bd. No. 2926 Yr. Built 1969

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 SA-240-304 (Kind and Spec. No.) T.S. 75000 (Fig. or F.B. & Spec. Min. T.S.) Nom. Tkns. 1875 in. Corr. Allow. .062 in. Dia. 2 Ft. 5 In. Lgth. 9 Ft. 9 3/8 In.

5. SEAMS: Long DBL. BUTT (Welded, Dbl., Single, Lap, Butt) H.T. NO (Yes or No)[1] R.T. SPOT (Spot or Complete) Sectioned NO (Yes or No) Efficiency 85 %
Girth GROOVE H.T. NO R.T. SPOT Sectioned NO No. of Courses 1
If riveted describe seams fully on reverse side of form

6. HEADS: (a) Material ____ T.S. ____ (b) Material ____ T.S. ____

	Location (Top, bottom, ends)	Thickness	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 ____ (Material, Spec. No., T.S., Size, Number) Other fastening ____ (Describe or Attach Sketch)

7. STAYBOLTS: ____ (Material) If hollow ____ (Size of Hole) Attachment ____ (Threaded, Welded) Pitch ____ (Horiz.) X ____ (Vert.) Diam. ____ (Nominal)

8. JACKET CLOSURE: ____
(DESCRIBE AS OGEE & WELD, BAR, ETC. IF BAR, GIVE DIMENSIONS. IF BOLTED, DESCRIBE OR SKETCH).

9. Constructed for max. allowable working press.[2] 75 psi. at max. temp. 275 °F. Min. temp. (when less than −20°) ____ °F. Hydrostatic / Pneumatic or Combination Test Press. 134 psi.

Items 10 and 11 to be completed for tube sections.

10. TUBE SHEETS: Stationary. Material SA-240-304 (Kind & Spec. No.) Dia. 30.25 (Subject to Pressure) In. Tkns. 1.1875 In. Attachment Welded (Welded, Bolted) (CLAMPED)
Floating. Material ____ (Kind & Spec. No.) Dia. ____ In. Tkns. ____ In. Attachment ____

11. TUBES: Material SA 249 TP 304 (Kind & Spec. No.) O.D. 3/4 In. Thickness 16 Inches or Gage Number 662 Type STRAIGHT (Straight or U)

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

12. SHELL: Material SA-285-C (Kind and Spec. No.) T.S. 55000 (Fig. or F.B. & Spec. Min. T.S.) Nom. Tkns. .312 Corr. Allow. .062 in. Dia. 2 Ft. 5 In. Lgth. 1 Ft. 5 3/16 In.

13. SEAMS: Long DBL BUTT (Welded, Dbl., Single, Lap, Butt) H.T. NO (Yes or No)[1] R.T. NO (Spot or Complete) Sectioned NO (Yes or No) Efficiency 85 %
Girth DBL BUTT H.T. NO R.T. NO Sectioned NO No. of courses 1
If riveted describe seams fully on reverse side of form

14. HEADS: (a) Material SA-285-C T.S. 55000 (b) Material SA-515-70 T.S. 70000 (c) Material ____ T.S. ____

	Location	Thickness	Crown Radius	Knuckle Radius	Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure (Convex or Concave)
(a)	~~Top, bottom~~, ends	5/16	24	2 1/2					CONCAVE
(b)	Channel	1.812						30.25	FLAT
(c)	Floating								

If removable, bolts used (a) SA-193-B7 125000 3/4-10 28 (Material, Spec No., T.S., Size, Number) (b) ____
(c) ____ Other fastening ____ (Describe or Attach Sketch)

15. Constructed for max. allowable working press.[2] 75 psi. at max. temp. 275 °F. Min. temp. (when less than −20°) ____ °F. Hydrostatic / Pneumatic or Combination Test Press. 113 psi.

Items below to be completed for all vessels where applicable.

16. SAFETY VALVE OUTLETS: Number ____ Size ____ Location ____

17. NOZZLES:

Purpose (Inlet, Outlet, Drain)	Number	Diam. or Size	Type	Material	Thickness	Reinforcement Material	How Attached
IN-OUT	2	6" 150#	FLANGED	SA-53-B	5/40		WELDED
INLET	1	10" 150#	"	SA-240-304	3/16		"
OUTLET	1	4" 150#	"	SA-312-304	5/40S		"
VENT	1	2" 150#	"	"	5/40S		"
DRAIN	1	3/4" 3000#	SCREWED	SA-182-F304	3000#		"
THERMO	6	3/4" 3000#	"	"	3000#		"
THERMO VENT DRAIN	6	3/4" 6000#	"	SA-105-II	6000#		"

[1] If POSTWELD HEAT-TREATED. [2] LIST UNDER REMARKS OTHER INTERNAL OR EXTERNAL PRESSURES WITH COINCIDENT TEMPERATURE WHEN APPLICABLE

FORM U-1 (back) M. & L. S.N. 5490

18. INSPECTION OPENINGS: Manholes, No. ____ Size ____ Location ____
Handholes, No. ____ Size ____ Location ____
Threaded, No. ____ Size ____ Location ____

19. SUPPORTS: Skirt ____ (Yes or No) Lugs ____ (Number) Legs 2 (Number) Other ____ (Describe) Attached WELDED TO SHELL (Where & How)

20. REMARKS: 29-120 CONDENSER WITH ACETONE IN THE SHELL AND WATER IN THE TUBES

(Brief description of purpose of the vessel, as Air Tank, After Cooler, Jacketed Cooker, etc. State contents of each part.)

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 unfired Pressure Vessels.

Date 9/9 19 69 Signed MANNING & LEWIS ENG. CO. By A L Gale
MANUFACTURER

Certificate of Authorization Expires DEC. 31 1970

CERTIFICATE OF SHOP INSPECTION

VESSEL MADE BY MANNING & LEWIS ENG. CO. at UNION, N. J.

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State or Province Nat'l Bd. and employed by COMMERCIAL UNION INSURANCE CO. of NEW YORK, N.Y. have inspected the pressure vessel described in this manufacturer's data report on ____ 19____, 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 8-8-69 19____

J S Eames Commissions NAT'L. BD. 3878
Inspector's Signature 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 or Province ____ 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____

____ Commissions ____
Inspector's Signature Nat'l Board or State and No.