

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

As Required by the Provisions of the ASME Code Rules, Section VIII, Division 1

1. Manufactured and certified by Paul Mueller Company, 1600 W. Phelps, Springfield, Missouri, 65802  
(Name and address of Manufacturer)

2. Manufactured for Mueller Field Operations, Inc., PO Box 828, Springfield, Missouri, 65801-0828  
(Name and address of Purchaser)

3. Location of installation Not Known  
(Name and address)

4. Type Vertical Distillation Column 357210-89  
(Horiz., vert., or sphere) (Tank, separator, jkt. vessel, heat exh., etc.) (Mfg's serial No.)

N/A PC13297 Rev.D 43140 2007  
(CRN) (Drawing No.) (Nat'l. Bd. No.) (Year built)

5. ASME Code, Section VIII, Div. 1 2004/ A05 N/A N/A  
Edition and Addenda (date) Code Case No. Special Service per UG-120(d)

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

6. Shell (a) No. of course(s): 3 (b) Overall length (ft. & in.): 24' 4.0"

| Course(s) |               |                    | Material            | Thickness |       | Long. Joint (Cat. A) |                  |      | Circum. Joint (Cat. A, B, & C) |                  |      | Heat Treatment |      |
|-----------|---------------|--------------------|---------------------|-----------|-------|----------------------|------------------|------|--------------------------------|------------------|------|----------------|------|
| No.       | Diameter, in. | Length (ft. & in.) | Spec./Grade or Type | Nom.      | Corr. | Type                 | Full, Spot, None | Eff. | Type                           | Full, Spot, None | Eff. | Temp.          | Time |
| 1         | 14" OD        | 3' 5.75"           | SA312-304L          | .188      | 0     | 1                    | NONE             | 70%  | 1                              | NONE             | 70%  | N/A            | N/A  |
| 1         | 14" OD        | 13' 6.625"         | SA312-304L          | .188      | 0     | 1                    | NONE             | 70%  | N/A                            | N/A              | N/A  | N/A            | N/A  |
| 1         | 14" OD        | 7' 2.75"           | SA312-304L          | .188      | 0     | 1                    | NONE             | 70%  | 1                              | NONE             | 70%  | N/A            | N/A  |

7. Heads: (a) SA240-304L (b) SA240-304L  
(Mat'l Spec. No., Grade or Type) (H.T. - Time & Temp.) (Mat'l Spec. No., Grade or Type) (H.T. - Time & Temp.)

|     | Location (Top, Bottom, Ends) | Thickness |       | Radius |         | Elliptical Ratio | Conical Apex Angle | Hemispherical Radius | Flat Diameter | Side to Pressure |         | Category A |                  |      |
|-----|------------------------------|-----------|-------|--------|---------|------------------|--------------------|----------------------|---------------|------------------|---------|------------|------------------|------|
|     |                              | Min.      | Corr. | Crown  | Knuckle |                  |                    |                      |               | Convex           | Concave | Type       | Full, Spot, None | Eff. |
| (a) | TOP                          | .146      | 0     | 14"    | 1.375   | N/A              | N/A                | N/A                  | N/A           | X                | X       | S          | None             | 85%  |
| (b) | BOTTOM                       | .146      | 0     | 14"    | 1.375   | N/A              | N/A                | N/A                  | N/A           | X                | X       | S          | None             | 85%  |

If removable, bolts used (describe other fastening) N/A  
(Mat'l, Spec. No., Grade, Size, No.)

8. Type of jacket N/A Jacket closure N/A  
(Describe as ogee & weld, bar, etc.)

If bar, give dimensions N/A If bolted, describe or sketch.

9. MAWP 50 15 psi at max. temp. 450 450 °F Min. design metal temp. -20 °F at 50 psi.  
(internal) (external) (internal) (external)

10. Impact test EXEMPT PER UHA-51(d,e,f) at test temperature of N/A °F.  
(Indicate yes or no and the component(s) impact tested)

11. Hydro., pneu., or comb. test press. Hydro. at 72 psi Proof test N/A

Items 12 and 13 to be completed for tube sections.

12. Tubesheet: N/A N/A N/A N/A N/A  
Stationary (Mat'l Spec. No.) Dia., in. (subject to press.) Nom. thk., in. Corr. Allow., in. Attachment (welded or bolted)

N/A N/A N/A N/A N/A  
Floating (Mat'l Spec. No.) Dia., in. Nom. thk., in. Corr. Allow., in. Attachment

13. Tubes: N/A N/A N/A N/A N/A  
Mat'l Spec. No., Grade or Type O. D., in. (Nom. thk., in. or gauge) Number Type (Straight or U)

Items 14-18 incl. to be completed for inner chambers of jacketed vessels or channels of heat exchangers.

14. Shell (a) No. of course(s): N/A (b) Overall length (ft. & in.): N/A

| Course(s) |               |                    | Material            | Thickness |       | Long. Joint (Cat. A) |                  |      | Circum. Joint (Cat. A, B, & C) |                  |      | Heat Treatment |      |
|-----------|---------------|--------------------|---------------------|-----------|-------|----------------------|------------------|------|--------------------------------|------------------|------|----------------|------|
| No.       | Diameter, in. | Length (ft. & in.) | Spec./Grade or Type | Nom.      | Corr. | Type                 | Full, Spot, None | Eff. | Type                           | Full, Spot, None | Eff. | Temp.          | Time |
|           | N/A           | N/A                | N/A                 | N/A       | N/A   | N/A                  | N/A              | N/A  | N/A                            | N/A              | N/A  | N/A            | N/A  |

15. Heads: (a) N/A (b) N/A  
(Mat'l Spec. No., Grade or Type) (H.T. - Time & Temp.) (Mat'l Spec. No., Grade or Type) (H.T. - Time & Temp.)

|     | Location (Top, Bottom, Ends) | Thickness |       | Radius |         | Elliptical Ratio | Conical Apex Angle | Hemispherical Radius | Flat Diameter | Side to Pressure |         | Category A |                  |      |
|-----|------------------------------|-----------|-------|--------|---------|------------------|--------------------|----------------------|---------------|------------------|---------|------------|------------------|------|
|     |                              | Min.      | Corr. | Crown  | Knuckle |                  |                    |                      |               | Convex           | Concave | Type       | Full, Spot, None | Eff. |
| (a) | N/A                          | N/A       | N/A   | N/A    | N/A     | N/A              | N/A                | N/A                  | N/A           |                  |         | N/A        | N/A              | N/A  |

If removable, bolts used (describe other fastening) N/A  
(Mat'l, Spec. No., Grade, Size, No.)

16. MAWP N/A N/A psi at max. temp. N/A N/A °F Min. design metal temp. N/A °F at N/A psi.  
 (internal) (external) (internal) (external)

17. Impact test N/A at test temperature of N/A °F  
 (Indicate yes or no and the component(s) impact tested)

18. Hydro., pneu., or comb. test press. N/A Proof test N/A

19. Nozzles, inspection, and safety valve openings:

| Purpose (Inlet, Outlet, Drain, etc.) | No. | Diameter or Size | Flange Type | Material   |            | Nozzle Thickness |       | Reinforcement Material | How Attached |           | Location (Insp. Open.) |
|--------------------------------------|-----|------------------|-------------|------------|------------|------------------|-------|------------------------|--------------|-----------|------------------------|
|                                      |     |                  |             | Nozzle     | Flange     | Nom.             | Corr. |                        | Nozzle       | Flange    |                        |
| UNKNOWN                              | 1   | 3.0"             | CL150FLG    | SA312-304L | SA182-304L | SCH40            | 0     |                        | UW16.1(l)    | UW16.1(k) |                        |
| UNKNOWN                              | 3   | 2.0"             | CL150FLG    | SA312-304L | SA182-304L | SCH40            | 0     |                        | UW16.1(l)    | UW16.1(k) |                        |
| UNKNOWN                              | 4   | 2.0"             | CL150FLG    | SA312-304L | SA182-304L | SCH40            | 0     |                        | UW16.1(c)    | UW16.1(k) |                        |
| UNKNOWN                              | 1   | 1.5"             | CL150FLG    | SA312-304L | SA182-304L | SCH40            | 0     |                        | UW16.1(c)    | UW16.1(k) |                        |
| UNKNOWN                              | 1   | 6.0"             | CL150FLG    | SA312-304L | SA182-304L | SCH40            | 0     |                        | UW16.1(l)    | UW16.1(k) |                        |

20. Supports: Skirt No Lugs 4 Legs N/A Others N/A Attached SIDE WELDED  
 (Yes or no) (No.) (No.) (Describe) (Where and how)

21. Manufacturer's Partial Data Reports properly identified and signed by Commissioned Inspectors have been furnished for the following items of the report:  
N/A  
 (List the name of part, item number, mfg's. name and identifying number)

22. Remarks:

Vessel is a 14" Distillation Column. Vessel has four 14" CL150FLG made from SA-182-304L. Flanges used for the bolting attachment of the top section to the mid shell section, mid shell section to the bottom section. Flange bolted with S/S SA193 GR. B8SCREW CAP HH 1.0-8NC X 4.5"LG/SA194 GR 8NUT HEAVY HEX 1-8NC S/S.

**CERTIFICATE OF SHOP 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. U Certificate of Authorization No. 5594 Expires October 27, 2007

Date 02/14/2007 Name Paul Mueller Company Signed [Signature]  
 (Manufacturer) (Representative)

**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 OK, KS, MO and employed by HSB CT, of Hartford, CT have inspected the pressure vessel described in this Manufacturer's Data Report on February 15, 2007, 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 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 02/15/2007 Signed [Signature] Commissions 7376A, OK652, KS356, MO0132  
 (Authorized Inspector) (Nat'l Board incl. endorsements, State, Province and No.)

**CERTIFICATE OF FIELD ASSEMBLY COMPLIANCE**

We certify that the statements made in this report are correct and that the field assembly construction of all parts of this vessel conforms with the requirements of ASME Code, Section VIII, Division 1. U Certificate of Authorization No. \_\_\_\_\_ Expires \_\_\_\_\_

Date \_\_\_\_\_ Name \_\_\_\_\_ Signed \_\_\_\_\_  
 (Assembler) (Representative)

**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 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 to the best of my knowledge and belief, the Manufacturer has constructed and assembled this pressure vessel in accordance with the 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 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 \_\_\_\_\_ Signed \_\_\_\_\_ Commissions \_\_\_\_\_  
 (Authorized Inspector) (Nat'l Board incl. endorsements, State, Province and No.)