

93273

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 Capital City Iron Works, Inc., 2804 Walmsley Blvd., Richmond, Va.
(Name and address of manufacturer)
2. Manufactured for Lummus Crest, Inc., Bloomfield, N. J. P. O. #2858-313
(Name and address of purchaser)
3. Location of installation FMC Corporation, Baltimore, MD
(Name and address)
4. Type Vert. 43490 - D-5079 1002 1985
(Horiz. or vert., tank) (Mfg'r's serial No.) (CRN) (Drawing) (Nat'l. Bd. No.) (Year built)
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 1983
Year
- Winter '84 None None
Addenda (date) Code Case No. Special service per UG-120(d)

Items 6-11 incl. to be completed for ~~non-jacketed vessels~~ jackets of jacketed vessels. ~~or vessels with removable jackets~~ * See U-2 Forms, T-16608-1, 2, & 3

6. Shell: * * * * *
Matl. (Spec. No., Grade) Nom. Thk. (in.) Corr. Allow. (in.) Diam. I.D. (ft & in.) Length (Overall) (ft & in.)
7. Seams: * * * * *
Long (Dbl., Sngl.) R.T. (Spot or Full) Eff. (%) H.T. Temp. (F)
Time Girth (Dbl., Sngl.) R.T. (Spot, Partial, or Full) No. of Courses
8. Heads: (a) Matl. * (b) Matl. *
(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)	Top	*	*	*	-	-	-	-	-	*
(b)	Bottom	*	*	*	-	-	-	-	-	*

If removable, bolts used (describe other fastenings) None
(Matl. Spec. No. Gr. Size No.)

9. Type of Jacket * Proof Test *
10. Jacket Closure * If bar, give dimensions * If bolted, describe or sketch
(Describe as ogee & weld, bar, etc.)
11. MAWP * psi at max. temp. * °F. Min. temp. (when less than -20° F) -
Hydro., ~~test~~ test press. * psi.

Items 12 and 13 to be completed for tube sections

12. Tubesheets: - - - - -
Stationary Matl. (Spec. No. Gr.) Diam. (in.) (Subject to pressure) Nom. Thk. (in.) Corr. Allow. (in.) Attach (Welded, Bolted)
Floating Matl. (Spec. No. Gr.) Diam. (in.) Nom. Thk. (in.) Corr. Allow. (in.) Attach
13. Tubes: - - - - -
Matl. (Spec. No. Gr.) O.D. (in.) Nom. Thk. (in. or Gauge) Number Type (Straight or U)

Items 14-17 incl. to be completed for inner chambers of jacketed vessels ~~or vessels with removable jackets~~ * See U-2 Forms T-16608-1, 2, & 3

14. Shell: * * * * *
Matl. (Spec. No., Grade) Nom. Thk. (in.) Corr. Allow. (in.) Diam. I.D. (ft & in.) Length (Overall) (ft & in.)
15. Seams: * * * * *
Long (Dbl., Sngl.) R.T. (Spot or Full) Eff. (%) H.T. Temp. (F)
Time Welded, Dbl. Butt Spot 1
Girth (Dbl., Sngl.) R.T. (Spot, Partial, or Full) No. of Courses
16. Heads: (a) Matl. * (b) Matl. *
(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)	Top	*	*	*	*	-	-	-	-	*
(b)	Bottom	*	*	*	*	-	-	-	-	*

If removable, bolts used (describe other fastenings) -
(Matl. Spec. No. Gr. Size No.)

17. MAWP 80 Int. & 14.7 Ext. psi at max. temp. 300 °F. Min. temp. (when less than -20° F) -
Hydro., ~~test~~ test press. 130 psi.

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18. Nozzles, Inspection and Safety Valve Openings:

Purpose (Inlet, Outlet, Drain, etc.)	No.	Diam. or Size	Type	Matl.	Nom. Thk.	Reinforcement Matl.	How Attached	Location
Manhole	1	20"	150#	SA-240, 304L	.375"	SA-240, 304L	Welded	Shell
Not Spec.	1	6"	"	SA-312, 304L	.432"	Inherent	"	
Outlet	2	4"	"	SA-182, 304L	S. Pad	"	"	
Inlet & Outlet	2	3"	"	SA-312, 304L	.300"	"	"	
Outlet	2	2"	"	"	.218"	"	"	
Inlet	1	1-1/2"	"	"	.200"	"	"	
Outlet	2	1-1/2"	"	SA-182, 304L	S. Pad	"	"	

19. Supports: Skirt No Lugs 4 Legs - Other - Attached Shell - Welded
 (Yes or no) (No.) (No.) (Describe) (Where and how)

20. Remarks: Manufacturer's Partial Data Reports properly identified and signed by Commissioned Inspectors have been furnished for the following items of the report: Dimpled Jacket, T-16608-1, 2, & 3 Paul Mueller Co.
 (Name of part, item number, mfr's. name and identifying stamp)

Catechol Shot Tank - No. T-4104

Nameplate bracket welded to vessel.

3 - Plate coils, N.B. 4496, 4497, 4498 Texas Div., Tranter, Inc.

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. 1283 expires Jan. 31, 19 87
 Date 8/7/85 Co. name Capital City Iron Works, Inc. Signed [Signature]
 (Manufacturer) (Representative)

CERTIFICATE OF SHOP INSPECTION

Vessel constructed by Capital City Iron Works, Inc. at Richmond, VA

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 VIRGINIA and employed by H. S. B. I. & I. Co. of Hartford, CT

8-7, 19 85, have inspected the pressure vessel described in this Manufacturer's Data Report on 8-7, 19 85, 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 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 8-7-85 Signed [Signature] Commissions NB-4568 PA2837 YR-49
 (Authorized Inspector) (Nat'l Board, State, Province and No.)

CERTIFICATE OF FIELD ASSEMBLY COMPLIANCE

We certify that the field assembly construction of all parts of this vessel conforms with the requirements of Section VIII, Division 1 of the ASME Boiler and Pressure Vessel Code.

"U" Certificate of Authorization No. _____ expires _____, 19 ____
 Date _____ Co. name _____ Signed _____
 (Assembler that certified and constructed field assembly) (By 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 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 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, Prov., and No.)

TX. DIV.
S/O 92100

FORM U-1A MANUFACTURER'S DATA REPORT FOR PRESSURE VESSELS
(Alternative Form for Single Chamber, Completely Shop-Fabricated Vessels Only)
As Required by the Provisions of the ASME Code Rules, Section VIII, Division 1

DWG. NO.
A-2-92100-1

1. Manufactured and certified by TEXAS DIVISION-TRANTER, INC., OLD BURK ROAD, WICHITA FALLS, TX
(Name and address of manufacturer)
2. Manufactured for CAPITAL CITY IRON WORKS RICHMOND, VA
(Name and address of purchaser)
3. Location of installation CAPITAL CITY IRON WORKS RICHMOND, VA
(Name and address)
4. Type VERTICAL P-33305-H & NA NA 4496 & 4497 1985
(Horiz. or vert. tank) (Mfr's serial No.) (CRN) (Drawing No.) (Nat'l Bd. No.) (Year built)
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 1983
Year

- to WINTER 84 NA NA
Addenda (Date) Code Case Nos. Special Service per UG-120(d)
- *EMBOSSING
6. SA414-A .0747 .012 11 15/16" 2'-5"
(Mat'l. (Spec. No., Grade)) (Nom. Thk. (in.)) (Corr. Allow. (in.)) (WIDTH OR Diam. I.D. (ft. & in.)) (Length (overall) (ft. & in.))
7. Seams: LAP RES NA 80 NA NA LAP RES NA NA
(Long. (Welded, Dbl., Sngl., Lap, Butt)) (R.T. (Spot or Full)) (Eff. (%)) (H.T. Temp. (°F)) (Time (hr)) (Grth (Welded, Dbl., Sngl., Lap, Butt)) (R.T. (Spot, Partial, or Full)) (No. of Courses)
8. Heads: (a) Mat'l. NA (b) Mat'l. NA
(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	Flange Diameter
(a)	NA								
(b)	NA								

If removable, bolts used (describe other fastenings) NA
(Mat'l., Spec. No., Gr., Size, No.)

9. MAWP 75 AND F.V. NA psi at max. temp. 354
Min. temp. (when less than -20°F) NA °F. Hydro. test pressure 113 psi.

10. Nozzles, inspection and safety valve openings:

Purpose (Inlet, Outlet, Drain)	No.	Diam. or Size	Type	Mat'l.	Nom. Thk.	Reinforcement Mat'l.	How Attached	Location
INLET	1	3/4"	SCRW'D CPLG	SA105	6000#	NA	WELDED	EMB.
OUTLET	1	3/4"	SCRW'D CPLG	SA105	6000#	NA	WELDED	EMB.

11. Supports: Skirt NA Lugs 4 Legs NA Other NA Attached WLD TO EMB
(Yes or no) (No.) (No.) (Describe) (Where and how)

12. Remarks: Manufacturer's Partial Data Reports properly identified and signed by Commissioned Inspectors have been furnished for the following items of the report: NA
(Name of part, item number, Mfr's. name and identifying stamp)

PLATECOIL TO CARRY: STEAM, FABRICATED UNDER APPENDIX 14 PARA 14-10.1
*COMPANION PLATE MAT'L: SA414-A NOM. THK. .0747 CORR. ALLOW: .012

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. 8698 expires DEC. 31, 1985.
Date 6-18-85 Co. name TEXAS DIV.-TRANTER, INC. Signed Charles E. Boles
(Manufacturer) (Representative)

CERTIFICATE OF SHOP INSPECTION

Vessel constructed by TEXAS DIVISION-TRANTER, INC. at WICHITA FALLS, TEXAS
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 TEXAS and employed by COMMERCIAL UNION INS. COS. OF MA.
have inspected the component described in this Manufacturer's Data Report on 06/19, 19 85, 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 06/19/85 Signed RE Boles Commissions NB 9220, TX 1053
(Authorized Inspector) (National Board and State, Prov. and No.)

TX. DIV.
S/O 92100

A.I. RECEIVED DATE 07/09/85 REPRESENTATIVE Charles E. Bates
FORM U-1A MANUFACTURER'S DATA REPORT FOR PRESSURE VESSELS DWG. NO. 222160
(Alternative Form for Single Chamber, Completely Shop-Fabricated Vessels Only) C-2-92100CH-2
As Required by the Provisions of the ASME Code Rules, Section VIII, Division 1 93273

1. Manufactured and certified by TEXAS DIVISION-TRANTER, INC., OLD BURK ROAD, WICHITA FALLS, TX
(Name and address of manufacturer)

2. Manufactured for CAPITAL CITY IRON WORKS RICHMOND, VA
(Name and address of purchaser)

3. Location of installation CAPITAL CITY IRON WORKS RICHMOND, VA
(Name and address)

4. Type VERTICAL P-33307-H NA NA 4498 1985
(Name of vessel) (Mfg. serial No.) (CRN) (Drawing No.) (Nat'l Bd. No.) (Year built)

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 1983
Year

to WINTER 84 NA NA
Addenda (Date) Code Case Nos. Special Service per UG 120(d)

*EMBOSSING SA414-A .0747 .012 18" O.D. PANCAKE NA
Mat'l (Spec. No., Grade) Nom. Thk. (in) Corr. Allow. (in) WIDTH OR Diam. I.D. (ft. & in) Length overall (ft. & in)

7. Seams: LAP RES NA 80 NA NA LAP RES & WLD NA NA
Long. (Welded, Dbl., Sngl., Lap, Butt) R T (Spot or Full) Eff. (%) H T Temp. (°F) Time (hr) Girth (Welded, Dbl., Sngl., Lap, Butt) R T (Spot, Partial, or Full) No. of Courses

8. Heads: (a) Mat'l. NA (b) Mat'l. NA
(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)	NA									
(b)	NA									

If removable, bolts used (describe other fastenings) NA
(Mat'l., Spec. No., Gr., Size, No.)

9. MAWP 75 AND F.V. NA psi at max. temp. 354 °F
Min. temp. (when less than -20°F) NA °F. Hydro. test pressure 113 psi.

10. Nozzles, inspection and safety valve openings:

Purpose (Inlet Outlet Drain)	No.	Diam. or Size	Type	Mat'l.	Nom. Thk.	Reinforcement Mat'l.	How Attached	Location
INLET	1	3/4"	SCRW'D CPLG	SA105	6000#	NA	WELDED	EMB.
OUTLET	1	3/4"	SCRW'D CPLG	SA105	6000#	NA	WELDED	EMB.

11. Supports: Skirt NA Lugs 4 Legs NA Other NA Attached WLD TO EMB
(Yes or no) (No.) (No.) (Describe) (Where and how)

12. Remarks: Manufacturer's Partial Data Reports properly identified and signed by Commissioned Inspectors have been furnished for the following items of the report: NA
(Name of part, item number, Mfg.'s. name and identifying stamp)

PLATECOIL TO CARRY: STEAM, FABRICATED UNDER APPENDIX 14 PARA 14-10.1
*COMPANION PLATE MAT'L: SA414-A NOM. THK. .0747 CORR. ALLOW: .012

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. 8698 expires DEC. 31, 1985.
Date 6-18-85 Co. name TEXAS DIV.-TRANTER, INC. Signed Charles E. Bates
(Manufacturer) (Representative)

CERTIFICATE OF SHOP INSPECTION

Vessel constructed by TEXAS DIVISION-TRANTER, INC. at WICHITA FALLS, TEXAS
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 TEXAS and employed by COMMERCIAL UNION INS. COS. OF MA.

have inspected the component described in this Manufacturer's Data Report on 06/19, 19 85, 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 06/19/85 Signed RE Cerny Commissions NB 9228, TX 1053
Authorized Inspector (National Board and State Provisions and No.)

FORM U-2 MANUFACTURERS' PARTIAL DATA REPORT

93273

**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**

CERTIFIED AND

1. (a) Manufactured by PAUL MUELLER COMPANY, 400 NORTH WARREN ST., SPRINGFIELD, MO USA 65802
(b) Manufactured for CAPITAL CITY IRON WORKS, INC., P.O. BOX 34548, RICHMOND, VA 25234

2. T-16608-1 N/A TP05565-D REV. A N/A 1985
(Mfgs. Ser. No. of Part) (CRN) (Dwg.) (Nat'l Bd. No. of Part) (Year Built)

3. (a) Drawing Prepared by PAUL MUELLER COMPANY (b) Description of Part Inspected SHELL WITH HEAT TRANSFER JACKET

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, 1983, and Addenda through W-84 and Code Case No. N/A
(Date) (Year)

5. Special Service per UG-120(d) N/A

6. Postweld Heat Treatment: Temperature N/A 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 SB168 INC. 600 Nominal Thickness 0.76 in. Corrosion Allowance 0 in. Diam. 6 ft. 0.5 in. Length 7 ft. 8 in.
(Spec. No., Grade) (Overall)

8. Seams: Longitudinal WLF R.T. NONE Efficiency 55 % H.T. Temp. N/A F Time _____ Girth WLF R.T. NONE No. of Courses 3
(Welded, Dbl., Sngl., Lap, Butt) (Spot or Full) (Welded, Dbl., Sngl., (Spot, Partial, or Full) Lap, Butt)

9. Heads: (a) Material _____ (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) _____
(Material, Spec. No., Gr., Size, No.)

10. Type of Jacket DIMPLED Proof Test PER UG101, 1200 PSI

11. Jacket Closure 9-5(A) If bar, give dimensions _____
(Describe as ogee & weld, bar, etc.)

If bolted, describe or sketch. _____

12. Constructed for max. allowable working pressure 75 & F.V. psi at max. temp. 354 F Max. temp. 354 F
- 20 F) F. Hydrostatic, XXXXXXXXXXXXXXX test pressure 113 psi.

Items 13 and 14 to be completed for tube sections

13. Tubesheets: Stationary — Material _____ Diam. _____
(Spec. No., Gr.) (Subject to pressure)

Nominal Thickness _____ in. Corrosion Allowance _____ in. Attachment _____
(Welded, Bolted)

Floating — Material _____ Diam. _____ in.
(Spec. No., Gr.)

Nominal Thickness _____ in. Corrosion Allowance _____ in.
Attachment _____

14. Tubes: Material _____ O.D. _____ in. Nominal Thickness _____ in. or gauge Number _____ Type _____
(Spec. No., Gr.) (Straight or "U")

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

15. Shell: Material SA240 304L Nominal Thickness 375 in. Corrosion Allowance 0.032 in. Diam. 6 ft. 0 in. Length 7 ft. 9 in.
(Spec. No., Gr.)

Seams: Longitudinal WDB R.T. SPOT Efficiency 85 % H.T. Temp. N/A F Time _____ Girth N/A R.T. _____ No. of courses 1
(Welded, Dbl., Sngl., Lap, Butt) (Spot or Full) (Welded, Dbl., Sngl., (Spot, Partial, or Full) Lap, Butt)

17. Heads: (a) Material _____ (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) _____
(Material, Spec. No., Gr., Size, No.)

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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

CERTIFIED AND

1. (a) Manufactured by PAUL MUELLER COMPANY, 400 NORTH WARREN ST., SPRINGFIELD, MO USA 65802
(Name and address of manufacturer of part)

(b) Manufactured for CAPITAL CITY IRON WORKS, INC., P.O. BOX 34548, RICHMOND, VA 25234
(Name and address of manufacturer of vessel)

2. T-16608-2 N/A TP05566-D REV. A N/A 1985
(Mfgs. Ser. No. of Part) (CRN) (Dwg.) (Nat'l Bd. No. of Part) (Year Built)

3. (a) Drawing Prepared by PAUL MUELLER COMPANY (b) Description of Part Inspected HEAD WITH HEAT TRANSFER JACKET

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, 1983, and Addenda through W-84 and Code Case No. N/A
(Date) (Year)

5. Special Service per UG-120(d) N/A

6. Postweld Heat Treatment: Temperature N/A 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 _____ Nominal Thickness _____ in. Corrosion Allowance _____ in. Diam. 5 ft. 8 in. Length 0 ft. 5 in.
(Spec. No., Grade) (Overall)

8. Seams:

Longitudinal WLF R.T. NONE Efficiency 55 % H.T. Temp. N/A F Time _____ Girth R.T. No. of Courses _____
(Welded, Dbl., Sngl., Lap, Butt) (Spot or Full) (Welded, Dbl., Sngl., Lap, Butt) (Spot, Partial, or Full)

9. Heads: (a) Material SB168 INC. 600

(Spec. No., Grade)

(b) Material _____

(Spec. No., Grade)

	Location (Top, Bottom, Ends)	NOMINAL Thickness	Corrosion Allowance	Crown Radius	Knuckle Radius	Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure (Convex or Concave)
(a)	TOP	.076	0	72.5"						CONVEX/CONCAVE
(b)										

If removable, bolts used (describe other fastenings) _____

(Material, Spec. No., Gr., Size, No.)

10. Type of Jacket DIMPLED

Proof Test PER UG101, 1200 PSI

11. Jacket Closure 9-5-(A)

(Describe as ogee & weld, bar, etc.)

If bar, give dimensions _____

If bolted, describe or sketch.

12. Constructed for max. allowable working pressure 75 & F.V. psi at max. temp. 354 F. (When less than -20 F) _____ F. Hydrostatic, _____ test pressure 113 psi.

Items 13 and 14 to be completed for tube sections

13. Tubesheets: Stationary — Material _____ Diam. _____

(Spec. No., Gr.)

(Subject to pressure)

Nominal Thickness _____ in. Corrosion Allowance _____ in. Attachment _____

(Welded, Bolted)

Floating — Material _____ Diam. _____ in.

(Spec. No., Gr.)

Nominal Thickness _____ in. Corrosion Allowance _____ in.

Attachment _____

14. Tubes: Material _____ O.D. _____ in. Nominal Thickness _____ in. or gauge Number _____ Type _____

(Spec. No., Gr.)

(Straight or "U")

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

15. Shell: Material _____ Nominal Thickness _____ in. Corrosion Allowance _____ in. Diam. 6 ft. 0 in. Length 1 ft. 2.87 in.

(Spec. No., Gr.)

Seams:

16. Longitudinal _____ R.T. _____ Efficiency _____ % H.T. Temp. _____ F Time _____ Girth _____ R.T. _____ No. of courses _____
(Welded, Dbl., Sngl., Lap, Butt) (Spot or Full) (Welded, Dbl., Sngl., Lap, Butt) (Spot, Partial or Full)

17. Heads: (a) Material SA240 304L

(Spec. No., Grade)

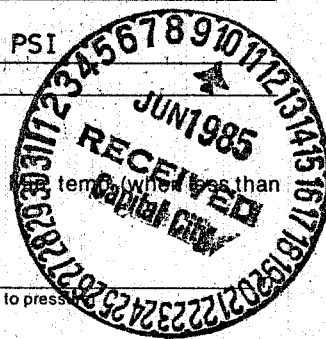
(b) Material _____

(Spec. No., Grade)

	Location (Top, Bottom, Ends)	NOMINAL Thickness	Corrosion Allowance	Crown Radius	Knuckle Radius	Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure (Convex or Concave)
(a)		.50"	.032	72"	5"					CONVEX/CONCAVE
(b)										

If removable, bolts used (describe other fastenings) _____

(Material, Spec. No., Gr., Size, No.)



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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

CERTIFIED AND

1. (a) Manufactured by PAUL MUELLER COMPANY, 400 NORTH WARREN ST., SPRINGFIELD, MO USA 65802
(Name and address of manufacturer of part)

(b) Manufactured for CAPITAL CITY IRON WORKS, INC., P.O. BOX 34548, RICHMOND, VA 25234
(Name and address of manufacturer of vessel)

2. T-16608-3 N/A TP05566-D REV. A. N/A 1985
(Mfgs. Ser. No. of Part) (CRN) (Dwg.) (Nat'l Bd. No. of Part) (Year Built)

3. (a) Drawing Prepared by PAUL MUELLER COMPANY (b) Description of Part Inspected HEAD WITH HEAT TRANSFER JACKET

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, 1983, and Addenda through W-84 and Code Case No. N/A
(Date) (Year)

5. Special Service per UG-120(d) N/A

6. Postweld Heat Treatment: Temperature N/A 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 _____ Nominal Thickness _____ in. Corrosion Allowance _____ in. Diam. 5 ft. 8 in. Length 0 ft. 7.5 in.
(Spec. No., Grade) (Overall)

8. Seams:
Longitudinal WLF R.T. NONE Efficiency 55 % H.T. Temp N/A F Time _____ Girth _____ R.T. _____ No. of Courses _____
(Welded, Dbl., Sngl., Lap, Butt) (Spot or Full) (Welded, Dbl., Sngl., (Spot, Partial, or Full) Lap, Butt)

9. Heads: (a) Material SB168 INC. 600 (b) Material _____
(Spec. No., Grade) (Spec. No., Grade)

	Location (Top, Bottom, Ends)	NOMINAL Thickness	Corrosion Allowance	Crown Radius	Knuckle Radius	Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure (Convex or Concave)
(a)	<u>BOTTOM</u>	<u>.076</u>	<u>0</u>	<u>72.5"</u>						<u>CONVEX/CONCAVE</u>
(b)										

If removable, bolts used (describe other fastenings) _____

(Material, Spec. No., Gr., Size, No.)

10. Type of Jacket DIMPLED Proof Test PER UG101, 1200 PSI

11. Jacket Closure 9-5-(A) If bar, give dimensions _____
(Describe as ogee & weld, bar, etc.)

If bolted, describe or sketch.

12. Constructed for max. allowable working pressure 75 & F.V. psi at max. temp. 354 F Mill temp. when tested _____
- 20 F) _____ F. Hydrostatic, pneumatic, or combination test pressure 113 psi.

Items 13 and 14 to be completed for tube sections

13. Tubesheets: Stationary — Material _____ Diam. _____
(Spec. No., Gr.) (Subject to pressure)

Nominal Thickness _____ in. Corrosion Allowance _____ in. Attachment _____
(Welded, Bolted)

Floating — Material _____ Diam. _____ in.
(Spec. No., Gr.)

Nominal Thickness _____ in. Corrosion Allowance _____ in.

Attachment _____

14. Tubes: Material _____ O.D. _____ in. Nominal Thickness _____ in. or gauge Number _____ Type _____
(Spec. No., Gr.) (Straight or "U")

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

15. Shell: Material _____ Nominal Thickness _____ in. Corrosion Allowance _____ in. Diam. 6 ft. 0 in. Length 1 ft. 8.7 in.
(Spec. No., Gr.)

Seams:

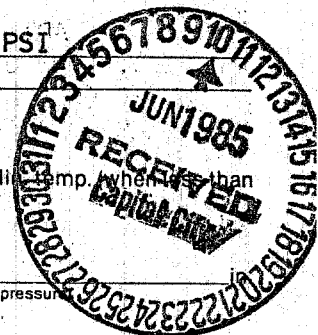
16. Longitudinal _____ R.T. _____ Efficiency _____ % H.T. Temp. _____ F Time _____ Girth _____ R.T. _____ No. of courses _____
(Welded, Dbl., Sngl., Lap, Butt) (Spot or Full) (Welded, Dbl., Sngl., (Spot, Partial, or Full) Lap, Butt)

17. Heads: (a) Material SA240 304L (b) Material _____
(Spec. No., Grade) (Spec. No., Grade)

	Location (Top, Bottom, Ends)	NOMINAL Thickness	Corrosion Allowance	Crown Radius	Knuckle Radius	Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure (Convex or Concave)
(a)		<u>.50</u>	<u>.032</u>	<u>72"</u>	<u>5"</u>					<u>CONVEX/CONCAVE</u>
(b)										

If removable, bolts used (describe other fastenings) _____

(Material, Spec. No., Gr., Size, No.)



93273

		NAT'L. BD. 1002 CERTIFIED BY CCIW		VESSEL NO. T-4104	
SHELL M.A.W.P.	INT. 80	EXT. 14.7	AT	300	
P.S.I.					
JACKET M.A.W.P.	INT. 75	EXT. 14.7	AT	354	
P.S.I.					
SHELL THK.	VESSEL .375	JACKET 14 GA.			
HEAD THK.	.500	14 GA.	SERIAL #	43490	
HEAD THK.	.500	14 GA.	YEAR	1985	
CATECHOL SHOT TANK					
LUMMUS P.O. NO. 2858-313					
CAPITAL CITY IRON WORKS INC. RICHMOND, VIRGINIA					$\frac{C}{C}$

93273

NATIONAL BOARD
CERTIFIED BY
MUELLER
VESSEL

MAX. W.P. [REDACTED] P.S.I. at [REDACTED] °F.

SERIAL NUMBER 116608-1

YEAR BUILT 1985

STEEL 111-DIPIED 304-1

HEAT TRANSFER SURFACE

MAX. W.P. 75 P.S.I. at 354 °F.

PAUL MUELLER COMPANY

P.O. BOX 828 / SPRINGFIELD, MISSOURI, U.S.A. 65801

9803105

NATIONAL BOARD

CERTIFIED BY
MUELLER
VESSEL

MAX. W.P. [REDACTED] P.S.I. at [REDACTED] °F.

SERIAL NUMBER 116608-2

YEAR BUILT 1985

STEEL 111-DIPIED 304-1

HEAT TRANSFER SURFACE

MAX. W.P. 75 P.S.I. at 354 °F.

PAUL MUELLER COMPANY

P.O. BOX 828 / SPRINGFIELD, MISSOURI, U.S.A. 65801

9803105

NATIONAL BOARD

CERTIFIED BY
MUELLER
VESSEL

MAX. W.P. [REDACTED] P.S.I. at [REDACTED] °F.

SERIAL NUMBER [REDACTED]

YEAR BUILT [REDACTED]

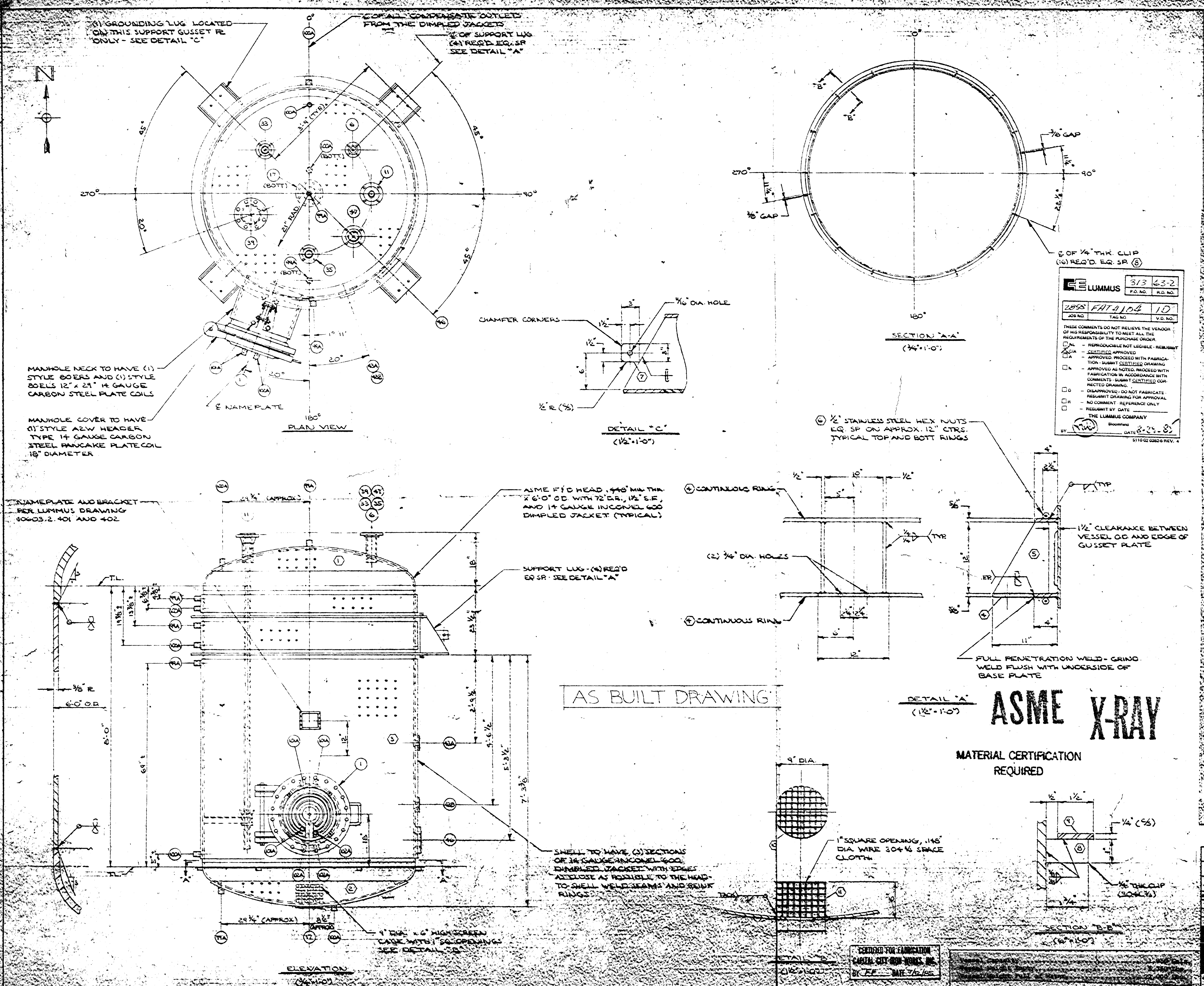
HEAT TRANSFER SURFACE

MAX. W.P. [REDACTED] P.S.I. at [REDACTED] °F.

MUELLER COMPANY

P.O. BOX 828 / SPRINGFIELD, MISSOURI, U.S.A. 65801

9803105



NOZZLE SCHEDULE					
NO.	SIZE	FLANGE	NECK	SERVICE	REMARKS
1	1"	20"	150° RF/50	MANHOLE	DET. D DIMPLED SCRB
6	1"	1/2"	150° RF/50	NITROGEN END	DET. M DIMPLED SCRB
11	1"	3"	150° RF/50	FEED FROM P-102	DET. M DIMPLED SCRB
17	1"	4"	150° RF STUD PAD	BOTT. OUTLET - R-104	DET. M DIMPLED SCRB
33	1"	2"	150° RF/50	RUPURE DISC	DET. U DIMPLED SCRB
35	1"	2"	150° RF/50	UTILITY COIL	DET. U DIMPLED SCRB
39	1"	6"	150° LUT	SPARE 1/2 COVER	DET. A DIMPLED SCRB
43 1/2	2"	1/2"	150° RF STUD PAD	TEMPERATURE WELL	DET. M DIMPLED SCRB
46	1"	4"	150° RF STUD PAD	EXTERNAL LEVEL	DET. U DIMPLED SCRB
47	1"	3"	150° RF/50	EXTERNAL LEVEL	DET. U DIMPLED SCRB
100A	5"	3/4"	6000° FULL SCRD CPLG	STEAM TO DIMPLED	
101A	5"	3/4"	6000° FULL SCRD CPLG	STEAM TO DIMPLED	
102A	5"	3/4"	6000° FULL SCRD CPLG	STEAM TO DIMPLED	

GENERAL NOTES	
1. General: Shell, Head, Neck, Flange, Gasket, Support Lugs, Dimpled Jacket, Panel Coil, Bolts, Nuts, Washers, Spacers, etc.	2. Material: Shell, Head, Neck, Flange, Gasket, Support Lugs, Dimpled Jacket, Panel Coil, Bolts, Nuts, Washers, Spacers, etc.
3. Design Data: Design Pressure, Design Temperature, Design Allowance, Specific Gravity, etc.	4. Testing: Hydrostatic Test, etc.
5. Welding: All welding to be done by ASME Code qualified welders only, and in accordance with ASME Section VIII, Division 1, Subpart C, and ASME Section IX.	6. Inspection: Inspection shall be made at the time of construction and after completion.
7. Painting: The vessel shall be painted with a high quality paint.	8. Shipping: The vessel shall be shipped in a safe and sound condition.
9. Operation: The vessel shall be operated in accordance with the operating instructions.	10. Maintenance: The vessel shall be maintained in accordance with the maintenance instructions.
11. Safety: The vessel shall be operated in a safe and sound condition.	12. Documentation: The vessel shall be documented in accordance with the documentation requirements.
13. Certification: The vessel shall be certified in accordance with the certification requirements.	14. Approval: The vessel shall be approved in accordance with the approval requirements.

MATERIAL CERTIFICATION REQUIRED	
1. Shell, Head, Neck, Flange, Gasket, Support Lugs, Dimpled Jacket, Panel Coil, Bolts, Nuts, Washers, Spacers, etc.	2. Material: Shell, Head, Neck, Flange, Gasket, Support Lugs, Dimpled Jacket, Panel Coil, Bolts, Nuts, Washers, Spacers, etc.
3. Design Data: Design Pressure, Design Temperature, Design Allowance, Specific Gravity, etc.	4. Testing: Hydrostatic Test, etc.
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CAPITAL CITY IRON WORKS INCORPORATED	
1. Shell, Head, Neck, Flange, Gasket, Support Lugs, Dimpled Jacket, Panel Coil, Bolts, Nuts, Washers, Spacers, etc.	2. Material: Shell, Head, Neck, Flange, Gasket, Support Lugs, Dimpled Jacket, Panel Coil, Bolts, Nuts, Washers, Spacers, etc.
3. Design Data: Design Pressure, Design Temperature, Design Allowance, Specific Gravity, etc.	4. Testing: Hydrostatic Test, etc.
5. Welding: All welding to be done by ASME Code qualified welders only, and in accordance with ASME Section VIII, Division 1, Subpart C, and ASME Section IX.	6. Inspection: Inspection shall be made at the time of construction and after completion.
7. Painting: The vessel shall be painted with a high quality paint.	8. Shipping: The vessel shall be shipped in a safe and sound condition.
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