

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

PO# _____

As Required by the Provisions of the ASME Boiler and Pressure Vessel Code Rules, Section VIII, Division 1

Tag and/or Project _____

1. Manufactured and certified by Taylor Forge Engineered Systems, Inc., 6333 N. Erie Ave., Tulsa, Oklahoma, 74117, USA
(Name and address of Manufacturer)

2. Manufactured for KP ENGINEERING, 5555 OLD JACKSONVILLE HWY, TYLER, Texas, 75703, USA
(Name and address of Purchaser)

3. Location of installation UNKNOWN
(Name and address)

4. Type Horizontal HEAT EXCHANGER 1203-04
(Horizontal, vertical, or sphere) (Tank, separator, jkt. vessel, heat exch., etc.) (Manufacturer's serial number)

N/A 1203-04-A1 REV 7 3040 2016
(CRN) (Drawing number) (National Board number) (Year built)

5. ASME Code, Section VIII, Div. 1 2015/ N/A N/A N/A
[Edition and Addenda, if applicable (date)] (Code Case Number) [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) Number of course(s) 2 (b) Overall length 19' 7.750"

| Course(s) | | | Material | Thickness | | Long. Joint (Cat. A) | | | Circum. Joint (Cat. A, B, & C) | | | Heat Treatment | |
|-----------|----------|-----------|---------------------|-----------|--------|----------------------|------------------|------|--------------------------------|------------------|------|----------------|------|
| No. | Diameter | Length | Spec./Grade or Type | Nom. | Corr. | Type | Full, Spot, None | Eff. | Type | Full, Spot, None | Eff. | Temp. | Time |
| 2 | 40.0" ID | 9' 9.875" | SA516-70N | 1.250" | 0.125" | 1 | FULL | 1 | 1 | FULL | 1 | N/A | N/A |

Body Flanges on Shells

| No. | Type | ID | OD | Flange Thk | Min Hub Thk | Material | How Attached | Location | Bolting | | | |
|-----|------|-------|---------|------------|-------------|----------|--------------|----------|-------------|------------------|----------------------|-----------------|
| | | | | | | | | | Num & Size | Bolting Material | Washer (OD, ID, thk) | Washer Material |
| 1 | RFWN | 40.0" | 49.625" | 5-7/16" | 1-1/4" | SA350LF2 | WELDED | END | 52 - 1-3/8" | SA193B7 | N/A | N/A |

7. Heads: (a) SA516-70N (b) N/A
(Material spec. number, grade or type) (H.T. - time and temp.) (Material spec. number, grade or type) (H.T. - time and 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) | END | 0.9542" | 0.125" | N/A | N/A | 2:1 | N/A | N/A | N/A | X | X | S | None | NA |
| (b) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | | | N/A | N/A | N/A |

Body Flanges on Heads

| No. | Location | Type | ID | OD | Flange Thk | Min Hub Thk | Material | How Attached | Bolting | | | |
|-----|----------|------|-----|-----|------------|-------------|----------|--------------|------------|------------------|----------------------|-----------------|
| | | | | | | | | | Num & Size | Bolting Material | Washer (OD, ID, thk) | Washer Material |
| (a) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | | N/A | N/A | N/A |

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

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

9. MAWP 675 psi -15 psi at max. temp. 725 °F 725 °F Min. design metal temp. -20 °F at 675 psi
(Internal) (External) (Internal) (External)

10. Impact test NO at test temperature of NA
[Indicate yes or no and the component(s) impact tested]

11. Hydro., pneu., or comb. test pressure Hydro. at 1067 psi Proof test N/A

Items 12 and 13 to be completed for tube sections.

12. Tubesheet (1) SA350-LF2 43.750" 6.250" 0.250" BOLTED
[Stationary (material spec. no.)] [Diameter (subject to press.)] (Nominal thickness) (Corr. allow.) Attachment (welded or bolted)

N/A N/A N/A N/A N/A
[Floating (material spec. no.)] (Diameter) (Nominal thickness) (Corr. allow.) (Attachment)

13. Tubes SA214 1" 0.109" 313 U
(Material spec. no., grade or type) (O. D.) (Nominal thickness) (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) 1 (b) Overall length 0' 24.1875"

| Course(s) | | | Material | Thickness | | Long. Joint (Cat. A) | | | Circum. Joint (Cat. A, B, & C) | | | Heat Treatment | |
|-----------|----------|------------|---------------------|-----------|--------|----------------------|------------------|------|--------------------------------|------------------|------|----------------|------|
| No. | Diameter | Length | Spec./Grade or Type | Nom. | Corr. | Type | Full, Spot, None | Eff. | Type | Full, Spot, None | Eff. | Temp. | Time |
| 1 | 40.0" ID | 2' 0.1875" | SA516-70 | 1" | 0.125" | 1 | FULL | 1 | 1 | FULL | 1 | 1150° | 1 HR |

Body Flanges on Shells

| No. | Type | ID | OD | Flange Thk | Min Hub Thk | Material | How Attached | Location | Bolting | | | |
|-----|------|-----|---------|------------|-------------|----------|--------------|----------|-------------|------------------|----------------------|-----------------|
| | | | | | | | | | Num & Size | Bolting Material | Washer (OD, ID, thk) | Washer Material |
| 1 | RFWN | 40" | 48.125" | 4-5/8" | 1" | SA105 | WELDED | END | 52 - 1-3/8" | SA193-B7 | N/A | N/A |
| 1 | RFWN | 40" | 49.625" | 5-7/8" | 1" | SA105 | WELDED | END | 52 - 1-3/8" | SA193-B7 | N/A | N/A |

15. Heads: (a) FLAT HEAD SA-51670N (Material spec. number, grade or type) (H.T. - time and temp.) (b) N/A (Material spec. number, grade or type) (H.T. - time and temp.)

| (a) | 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. |
| | END | 4.5" | 0.125" | N/A | N/A | N/A | N/A | N/A | 48-1/8" | | | N/A | N/A | N/A |

Body Flanges on Heads

| No. | Location | Type | ID | OD | Flange Thk | Min Hub Thk | Material | How Attached | Bolting | | | |
|-----|----------|------|-----|-----|------------|-------------|----------|--------------|------------|------------------|----------------------|-----------------|
| | | | | | | | | | Num & Size | Bolting Material | Washer (OD, ID, thk) | Washer Material |
| 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 |

16. MAWP 526 psi (Internal) -15 psi (External) at max. temp. 425 °F (Internal) 425 °F (External) Min. design metal temp. -20 °F at 526 psi

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

18. Hydro., pneu., or comb. test pressure Hydro. at 684 psi Proof test N/A

19. Nozzles, inspection, and safety valve openings:

| Purpose (Inlet, Outlet, Drain, etc.) | No. | Diameter or Size | Type | Material | | Nozzle Thickness | | Reinforcement Material | Attachment Details | | Location (Insp. Open.) |
|--------------------------------------|-----|------------------|------|----------|--------|------------------|--------|------------------------|--------------------|--------|------------------------|
| | | | | Nozzle | Flange | Nom. | Corr. | | Nozzle | Flange | |
| SH INLET | 1 | 12" | RFWN | SA106B | SA105 | 0.688" | 0.125" | SA516-70N | UW16.1C | WELDED | |
| SH OUTLET | 1 | 6" | RFWN | SA106B | SA105 | 0.432" | 0.125" | SA516-70N | UW16.1C | WELDED | |
| CH INLET | 1 | 10" | RFWN | SA106B | SA105 | 0.844 | 0.125" | INTEGRAL | UW16.1C | WELDED | |
| CH OUTLET | 1 | 14" | RFWN | SA106B | SA105 | 0.0938" | 0.125" | INTEGRAL | UW16.1C | WELDED | |
| SH AUXILIARY | 1 | 1" | RFWN | SA106B | SA105 | 0.358" | 0.125" | INTEGRAL | UW16.1C | WELDED | |
| SH AUXILIARY | 1 | 1" | RFWN | SA106B | SA105 | 0.358" | 0.125" | INTEGRAL | UW16.1C | WELDED | |
| CH AUXILIARY | 1 | 1" | RFWN | SA106B | SA105 | 0.358" | 0.125" | INTEGRAL | UW16.1C | WELDED | |
| CH AUXILIARY | 1 | 1" | RFWN | SA106B | SA105 | 0.358" | 0.125" | INTEGRAL | UW16.1C | WELDED | |
| SH VENT | 1 | 1" | RFWN | SA106B | SA105 | 0.358" | 0.125" | INTEGRAL | UW16.1C | WELDED | |

20. Supports: Skirt No (Yes or no) Lugs 5 (Number) Legs 2 (Number) Others N/A (Describe) Attached WELDED TO CHANNEL, SHELL AND COVER (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 (list the name of part, item number, Manufacturer's name, and identifying number):


N/A

22. Remarks

Length of tubes: 20' 0"
IMPACTS EXEMPT PER UG-20 (f) UCS-66
over pressure protection per UG-125 (a) (2)

CERTIFICATE OF SHOP COMPLIANCE

We certify that the statements in this report are correct and that all details of design, material, construction, and workmanship of this vessel conform to the ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. U Certificate of Authorization Number 47294 Expires March 12, 2017

Date 07/07/2016 Name Taylor Forge Engineered Systems, Inc. Signed 
 (Manufacturer) (Representative)

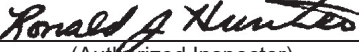
CERTIFICATE OF SHOP INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and employed by

The Hartford Steam Boiler Inspection and Insurance Company of Connecticut, of Hartford, CT

have inspected the pressure vessel described in this Manufacturer's Data Report on June 30, 2016, and state that,

to the best of my knowledge and belief, the Manufacturer has constructed this pressure vessel in accordance with ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. By signing this certificate neither the Inspector nor his/her employer makes any warranty, expressed or implied, concerning the pressure vessel described in this Manufacturer's Data Report. Furthermore, neither the Inspector nor his/her 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 07/07/2016 Signed  Commissions: 11448AB, OK713
 (Authorized Inspector) [National Board (incl. endorsements)]

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 BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. U Certificate of Authorization Number _____ 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 employed by _____,

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 BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. The described vessel was inspected and subjected to a hydrostatic test of _____. By signing this certificate neither the Inspector nor his/her employer makes any warranty, expressed or implied, concerning the pressure vessel described in this Manufacturer's Data Report. Furthermore, neither the Inspector nor his/her 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 _____ Commission _____
 (Authorized Inspector) [National Board (incl. endorsements)]