

113222

DV

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

National Board Number

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

1. Manufactured and certified by Hudson Products Corporation, 9660 Grunwald Road, Beasley, Texas, 77417 (Name and address of Manufacturer)

2. Manufactured for ATLANTIC COAST PIPELINE, LLC., PO Box 25459, Richmond, Virginia, 23260 (Name and address of Purchaser)

3. Location of installation ATLANTIC COAST PIPELINE, LLC., NORTHHAMPTON, North Carolina (Name and address)

4. Type Horizontal Air Cooled Heat Exchanger S16286-11A-B-2 (Horizontal, vertical, or sphere) (Tank, separator, jkt. vessel, heat exch., etc.) (Manufacturer's serial number)

N/A S16286-1, REV 3 32270 2018 (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) 1 (b) Overall length 7' 0.0625"

Table with columns: Course(s), Material, Thickness, Long. Joint (Cat. A), Circum. Joint (Cat. A, B, & C), Heat Treatment. Includes sub-columns for Diameter, Length, Spec./Grade or Type, Nom., Corr., Type, Full, Spot, None, Eff., Temp., Time.

Body Flanges on Shells

Table with columns: No., Type, ID, OD, Flange Thk, Min Hub Thk, Material, How Attached, Location, Bolting (Num & Size, Bolting Material, Washer (OD, ID, thk), Washer Material).

7. Heads: (a) SA-516, 70N, 1125-1175F - 2:00 HR (Material spec. number, grade or type) (H.T. - time and temp.) (b) SA-516, 70N, 1125-1175F - 2:00 HR (Material spec. number, grade or type) (H.T. - time and temp.)

Table with columns: Location (Top, Bottom, Ends), Thickness (Min., Corr.), Radius (Crown, Knuckle), Elliptical Ratio, Conical Apex Angle, Hemispherical Radius, Flat Diameter, Side to Pressure (Convex, Concave), Category A (Type, Full, Spot, None, Eff.).

Body Flanges on Heads

Table with columns: Location, Type, ID, OD, Flange Thk, Min Hub Thk, Material, How Attached, Bolting (Num & Size, Bolting Material, Washer (OD, ID, thk), Washer Material).

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 1527 psi N/A at max. temp. 130 °F N/A Min. design metal temp. -20 °F at 1527 psi (Internal) (External) (Internal) (External)

10. Impact test No, per UG-20 (f). at test temperature of N/A [Indicate yes or no and the component(s) impact tested]

11. Hydro., pneu., or comb. test pressure Hydro at 2443 psi Proof test N/A

Items 12 and 13 to be completed for tube sections.

12. Tubesheet SA-516, 70N 11.750" x 84.0625" 1.6250 0.0625 Welded [Stationary (material spec. no.)] [Diameter (subject to press.)] (Nominal thickness) (Corr. allow.) Attachment (welded or bolted) N/A N/A N/A N/A [Floating (material spec. no.)] (Diameter) (Nominal thickness) (Corr. allow.) (Attachment)

13. Tubes SA-249 T304L 1.000 0.065 178 Straight (Material spec. no., grade or type) (O. D.) (Nominal thickness) (Number) [Type (Straight or U)]

Manufactured by Hudson Products Corporation, 9660 Grunwald Road, Beasley, Texas, 77417  
 Manufacturer's Serial No. S16286-11A-B-2 CRN N/A National Board No. 32270

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 N/A

| 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       |
|           | <u>N/A</u> | <u>N/A</u> | <u>N/A</u>          | <u>N/A</u> | <u>N/A</u> | <u>N/A</u>           | <u>N/A</u>       | <u>N/A</u> | <u>N/A</u>                     | <u>N/A</u>       | <u>N/A</u> | <u>N/A</u>     | <u>N/A</u> |

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 |            |
| <u>N/A</u> | <u>N/A</u> | <u>N/A</u> | <u>N/A</u> | <u>N/A</u> | <u>N/A</u>  | <u>N/A</u> | <u>N/A</u>   | <u>N/A</u> | <u>N/A</u> | <u>N/A</u>       | <u>N/A</u>           | <u>N/A</u>      | <u>N/A</u> |

15. Heads: (a) N/A (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.)

| 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.       |            |
| <u>N/A</u>                   | <u>N/A</u> | <u>N/A</u> | <u>N/A</u> | <u>N/A</u> | <u>N/A</u>       | <u>N/A</u>         | <u>N/A</u>           | <u>N/A</u>    | <u>N/A</u>       | <u>N/A</u> | <u>N/A</u> | <u>N/A</u>       | <u>N/A</u> | <u>N/A</u> |

Body Flanges on Heads

| Location   | Type       | ID         | OD         | Flange Thk | Min Hub Thk | Material   | How Attached | Bolting    |                  |                      |                 |            |
|------------|------------|------------|------------|------------|-------------|------------|--------------|------------|------------------|----------------------|-----------------|------------|
|            |            |            |            |            |             |            |              | Num & Size | Bolting Material | Washer (OD, ID, thk) | Washer Material |            |
| <u>N/A</u> | <u>N/A</u> | <u>N/A</u> | <u>N/A</u> | <u>N/A</u> | <u>N/A</u>  | <u>N/A</u> | <u>N/A</u>   | <u>N/A</u> | <u>N/A</u>       | <u>N/A</u>           | <u>N/A</u>      | <u>N/A</u> |

16. MAWP N/A N/A at max. temp. N/A N/A Min. design metal temp. N/A at N/A  
 (Internal) (External) (Internal) (External)

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

18. Hydro., pneu., or comb. test pressure N/A 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 |                        |
| <b>INLET / OUTLET</b>                | 4   | 8" 900#          | RFWN     |            | SA-105 | SCH 160          | 0.0625 | None                   |                    | UW16.1 |                        |
| <b>VENT/DRAINS</b>                   | 2   | 1" - 6000#       | COUPLING | SA-105     |        |                  | 0.0625 | None                   | UW-16.1            |        |                        |
| <b>TRANSITION - INLET/OUTLET</b>     | 4   | 8"               | Pipe     | SA-234 WPB |        | SCH 160          | 0.0625 | None                   | UW-16.1            |        |                        |

20. Supports: Skirt \_\_\_\_\_ Lugs N/A Legs N/A Others N/A Attached N/A  
 (Yes or no) (Number) (Number) (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 (list the name of part, item number, Manufacturer's name, and identifying number):

(2) Header Boxes (Inlet Header & Return Header) Manufactured by: Hudson Products de Mexico S.A. De C.V. Carretera Villa de Garcia No. 3840 Santa Catarina, Nuevo Leon C.P. 66350 . Serial Number MPD-985 (Front Header) and Serial Number MPD-996 (Back Header) per Drawing S16286-1, REV 3.

22. Remarks

Length of tubes: 60' 0.0"  
Two Rectangular Headers - Front and Back Headers: 7.375" x 11.750" x 84.0625" / 7.375" x 11.750" x 84.0625"  
Service: Gas Cooler  
ITEM: D2.C2 CASE2  
Overall Dimension: 11.750" x 84.0625" x 731"  
Designed/Built in Accordance with Section VIII, Div. 1, Appendix 13. Length of Tubes: 720" (60').

Manufactured by Hudson Products Corporation, 9660 Grunwald Road, Beasley, Texas, 77417

Manufacturer's Serial No. S16286-11A-B-2 CRN N/A National Board No. 32270

**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 8728 Expires December 31, 2018

Date 05/10/2018 Name Hudson Products Corporation 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 employed by The Hartford Steam Boiler Inspection and Insurance Company, of Hartford, CT

have inspected the pressure vessel described in this Manufacturer's Data Report on May 10, 2018, 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 05/17/2018 Signed [Signature] Commissions: 12056, TX1622  
(Authorized Inspector) (National Board Authorized Inspector Commission number)

**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 pressure 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 Authorized Inspector Commission number)

**FORM U-2 MANUFACTURER'S PARTIAL DATA REPORT**  
**A Part of a Pressure Vessel Fabricated by One Manufacturer for Another Manufacturer**  
**As Required by the Provisions of the ASME Boiler and Pressure Vessel Code Rules, Section VIII, Division 1**

1/2

1. Manufactured and certified by Hudson Products De Mexico, S.A. De C.V. Carretera Villa De Garcia No.3840 Santa Catarina Nuevo Leon C.P. 66350 Mexico  
(Name and address of Manufacturer)
2. Manufactured for Hudson Products Corporation 9660 Grunwald Rd. Beasley T.X 77417 U.S.A  
(Name and address of Purchaser)
3. Location of installation Unknown  
(Name and address)
4. Type HEADER BOX MPD-985 ----  
(Description of vessel part (shell, two-piece head, tube bundle)) (Manufacturer's serial number) (CRN)
- S16286-1 ( FRONT HEADER) Rev.3 Hudson Products Corporation 2018  
(National Board number) (Drawing number) (Drawing prepared by) (Year built)
5. ASME Code, Section VIII, Div. 1 2017 ---- ----  
(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) 1 (b) Overall length 84.0625"

| No.  | Course(s)           |          | Material<br>Spec./Grade or Type | Thickness |        | Long. Joint (Cat. A) |                  |      | Circum. Joint (Cat. A, B & C) |                  |      | Heat Treatment |        |
|------|---------------------|----------|---------------------------------|-----------|--------|----------------------|------------------|------|-------------------------------|------------------|------|----------------|--------|
|      | Diameter            | Length   |                                 | Nom.      | Corr.  | Type                 | Full, Spot, None | Eff. | Type                          | Full, Spot, None | Eff. | Temp.          | Time   |
| 2    | 84.0625" x 11.7500" | 84.0625" | SA-516 Gr 70 N                  | 1.625"    | 0.0625 | ----                 | ----             | ---- | ----                          | ----             | ---- | 1148°F         | 2.0 HR |
| 2    | 84.0625" x 3.8125"  | 84.0625" | SA-516 Gr 70 N                  | 0.875"    | 0.0625 | ----                 | ----             | ---- | ----                          | ----             | ---- | 1148°F         | 2.0 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 |      |
| ----                   | ---- | ---- | ---- | ----       | ----        | ----     | ----         | ----     | ----       | ----             | ----                 | ----            | ---- |
| ----                   | ---- | ---- | ---- | ----       | ----        | ----     | ----         | ----     | ----       | ----             | ----                 | ----            | ---- |
| ----                   | ---- | ---- | ---- | ----       | ----        | ----     | ----         | ----     | ----       | ----             | ----                 | ----            | ---- |
| ----                   | ---- | ---- | ---- | ----       | ----        | ----     | ----         | ----     | ----       | ----             | ----                 | ----            | ---- |

7. Heads: (a) SA-516 Gr 70 N 1148 ° F ---- 2.0 HRS (b) SA-516 Gr 70 N 1148 ° F ---- 2.0 HRS  
(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 | Hemis. Radius | Flat Diameter | Side to Pressure |         | Category A |                  |      |
|-----|------------------------------|-----------|--------|--------|---------|------------------|--------------------|---------------|---------------|------------------|---------|------------|------------------|------|
|     |                              | Min.      | Corr.  | Crown  | Knuckle |                  |                    |               |               | Convex           | Concave | Type       | Full, Spot, None | Eff. |
| (a) | END                          | 0.875"    | 0.0625 | ----   | ----    | ----             | ----               | ----          | 3.81"X9.68"   | ----             | ----    | ----       | ----             | ---- |
| (b) | END                          | 0.875"    | 0.0625 | ----   | ----    | ----             | ----               | ----          | 3.81"X9.68"   | ----             | ----    | ----       | ----             | ---- |

| Body Flanges on Heads |          |      |      |      |            |             |          |              |            |                  |                      |                 |      |
|-----------------------|----------|------|------|------|------------|-------------|----------|--------------|------------|------------------|----------------------|-----------------|------|
|                       | Location | Type | ID   | OD   | Flange Thk | Min Hub Thk | Material | How Attached | Bolting    |                  |                      |                 |      |
|                       |          |      |      |      |            |             |          |              | Num & Size | Bolting Material | Washer (OD, ID, thk) | Washer Material |      |
| (a)                   | ----     | ---- | ---- | ---- | ----       | ----        | ----     | ----         | ----       | ----             | ----                 | ----            | ---- |
| (b)                   | ----     | ---- | ---- | ---- | ----       | ----        | ----     | ----         | ----       | ----             | ----                 | ----            | ---- |

8. Type of jacket ---- Jacket closure ----  
(Describe as ogee and weld, bar, etc.)

If bar, give dimensions. If bolted, describe or sketch. ----

9. MAWP 1527 Psig ---- at max. temp. 130° F ---- Min. design metal temp. -20°F at 1527 Psig  
(Internal) (External) (Internal) (External)

10. Impact test ---- at test temperature of ----  
(Indicate yes or no and the component(s) impact tested)

11. Hydro., pneu., or comb. test pressure ---- Proof test ----

Items 12 and 13 to be completed for tube sections.

12. Tubesheet SA-516 Gr 70 N 82.3125" X 10.000" 1.625" 0.0625 WELDED  
(Stationary (material spec. no.)) (Diameter (subject to press.)) (Nominal thickness) (Corr. allow.) (Attachment (welded or bolted))

- ---- ---- ---- ----  
(Floating (material spec. no.)) (Diameter) (Nominal thickness) (Corr. allow.) (Attachment)

13. Tubes ---- ---- ---- ---- ----  
(Material spec. no., grade or type) (O.D.) (Nominal thickness) (Number) (Type (straight or U))

J.A.P.H. Apr-19-18  
 R. Leal APR-19-18  
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FORM U-2

Manufactured by Hudson Products De Mexico, S.A. De C.V. Carretera Villa De Garcia No.3840 Santa Catarina Nuevo Leon C.P. 66350 Mexico

Manufacturer's Serial No. MPD-985 CRN National Board No.

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) (b) Overall length

| Courses(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 |
| ----       | ----     | ----   | ----                | ---- | ----      | ----  | ----                 | ----             | ---- | ----                          | ----             | ---- | ----           | ---- |
| ----       | ----     | ----   | ----                | ---- | ----      | ----  | ----                 | ----             | ---- | ----                          | ----             | ---- | ----           | ---- |
| ----       | ----     | ----   | ----                | ---- | ----      | ----  | ----                 | ----             | ---- | ----                          | ----             | ---- | ----           | ---- |

| 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 |      |      |
| ----                   | ---- | ---- | ---- | ----       | ----        | ----     | ----         | ----     | ----       | ----             | ----                 | ----            | ---- | ---- |
| ----                   | ---- | ---- | ---- | ----       | ----        | ----     | ----         | ----     | ----       | ----             | ----                 | ----            | ---- | ---- |
| ----                   | ---- | ---- | ---- | ----       | ----        | ----     | ----         | ----     | ----       | ----             | ----                 | ----            | ---- | ---- |
| ----                   | ---- | ---- | ---- | ----       | ----        | ----     | ----         | ----     | ----       | ----             | ----                 | ----            | ---- | ---- |

15. Heads: (a) (Material spec. number, grade, or type) (H.T. — time and temp.) (b) (Material spec. number, grade, or type) (H.T. — time and temp.)

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

| Body Flanges on Heads |          |      |      |      |            |             |          |              |            |                  |                      |                 |      |      |
|-----------------------|----------|------|------|------|------------|-------------|----------|--------------|------------|------------------|----------------------|-----------------|------|------|
|                       | Location | Type | ID   | OD   | Flange Thk | Min Hub Thk | Material | How Attached | Bolting    |                  |                      |                 |      |      |
|                       |          |      |      |      |            |             |          |              | Num & Size | Bolting Material | Washer (OD, ID, thk) | Washer Material |      |      |
| (a)                   | ----     | ---- | ---- | ---- | ----       | ----        | ----     | ----         | ----       | ----             | ----                 | ----            | ---- | ---- |
| (b)                   | ----     | ---- | ---- | ---- | ----       | ----        | ----     | ----         | ----       | ----             | ----                 | ----            | ---- | ---- |

16. MAWP (Internal) (External) at max. temp. (Internal) (External) Min. design metal temp. at

17. Impact test at test temperature of (Indicate yes or no and the component(s) impact tested)

18. Hydro., pneu., or comb. test pressure Proof test

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  |                        |
| NOZZLE VENT                          | 1    | NPS-1            | CPLNG* | SA-105   | ----   | 0.475"           | 0.0625 | ----                   | UW16.1(a)          | ----    | ----                   |
| NOZZLE IN                            | 2    | NPS-8            | ***    | SA-234   | SA-105 | 0.906"           | 0.0625 | ----                   | UW16.1(a)          | 2-4 (6) | ----                   |
| ----                                 | ---- | ----             | ----   | ----     | ----   | ----             | ----   | ----                   | ----               | ----    | ----                   |
| ----                                 | ---- | ----             | ----   | ----     | ----   | ----             | ----   | ----                   | ----               | ----    | ----                   |
| ----                                 | ---- | ----             | ----   | ----     | ----   | ----             | ----   | ----                   | ----               | ----    | ----                   |
| ----                                 | ---- | ----             | ----   | ----     | ----   | ----             | ----   | ----                   | ----               | ----    | ----                   |

20. Identification of part(s)

| Name of Part | Quantity | Line No. | Mfr's. Identification No. | Mfr's. Drawing No. | CRN  | National Board No. | Year Built |
|--------------|----------|----------|---------------------------|--------------------|------|--------------------|------------|
| ----         | ----     | ----     | ----                      | ----               | ---- | ----               | ----       |
| ----         | ----     | ----     | ----                      | ----               | ---- | ----               | ----       |
| ----         | ----     | ----     | ----                      | ----               | ---- | ----               | ----       |

21. Supports: Skirt (Yes or no) Lugs (Number) Legs (Number) Others Support (2) (Describe) Attached Welded Cover (Where and how)

22. Remarks  
 Design Calculations by other, Impact Test Exempt Per UG-20 (f), Non-Lethal Service. Hydrostatic test not performed.  
 Manufactured According Seccion VIII Div 1.. \* COUPLING CL6000. \*\*\*RFWN CL900.

FORM U-2 /

32270 J.A.P.N Apr-19-18  
R.Loul APR-19-18  
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Manufactured by Hudson Products De Mexico, S.A. De C.V. Carretera Villa De Garcia No.3840 Santa Catarina Nuevo Leon C.P. 66350 Mexico  
Manufacturer's Serial No. MPD-985 CRN ---- National Board No. ----

**CERTIFICATE OF SHOP/FIELD COMPLIANCE**

We certify that the statements in this report are correct and that all details of material, construction, and workmanship of this pressure vessel part conform to the ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1.

U or PRT Certificate of Authorization number 37163 Expires December 19, 2019  
Date April-17-2018 Name Hudson Products De Mexico, S.A. De C.V. Signed [Signature]  
(Manufacturer) (Representative)

**CERTIFICATE OF SHOP/FIELD 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 Hartford C.T. have inspected the pressure vessel part described in this Manufacturer's Data Report on April 19, 2018, and state that, to the best of my knowledge and belief, the Manufacturer has constructed this pressure vessel part 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 part 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 APR-19-18 Signed [Signature] Commissions 15190  
(Authorized Inspector) (National Board Authorized Inspector Commission number)

NB# 32270

J.A.P. on Apr-19-18

R. Leal APR-19-18

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

1. Manufactured and certified by Hudson Products De Mexico, S.A. De C.V. Carretera Villa De Garcia No.3840 Santa Catarina Nuevo Leon C.P. 66350 Mexico

(Name and address of Manufacturer)

2. Manufactured for Hudson Products Corporation 9660 Grunwald Rd. Beasley T.X 77417 U.S.A

(Name and address of Purchaser)

3. Location of installation Unknown

(Name and address)

4. Type HEADER BOX MPD-996

(Description of vessel part (shell, two-piece head, tube bundle))

(Manufacturer's serial number)

(CRN)

(National Board number)

S16286-1 (BACK HEADER) Rev.3

(Drawing number)

Hudson Products Corporation

(Drawing prepared by)

2018

(Year built)

5. ASME Code, Section VIII, Div. 1 2017

(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) 1 (b) Overall length 84.0625'

Table with columns: Course(s), Material, Thickness, Long. Joint (Cat. A), Circum. Joint (Cat. A, B & C), Heat Treatment. Rows include diameter, length, spec/grade, nominal and corrected thickness, joint type, and temperature/time.

Body Flanges on Shells

Table with columns: No., Type, ID, OD, Flange Thk, Min Hub Thk, Material, How Attached, Location, Bolting (Num & Size, Bolting Material, Washer), Washer Material.

7. Heads: (a) SA-516 Gr 70 N 1148 F 2.0 HRS (b) SA-516 Gr 70 N 1148 F 2.0 HRS

(Material spec. number, grade or type) (H.T. — time and temp.)

(Material spec. number, grade or type) (H.T. — time and temp.)

Table with columns: Location, Thickness, Radius, Elliptical Ratio, Conical Apex Angle, Hemis. Radius, Flat Diameter, Side to Pressure, Category A.

Body Flanges on Heads

Table with columns: Location, Type, ID, OD, Flange Thk, Min Hub Thk, Material, How Attached, Bolting (Num & Size, Bolting Material, Washer), Washer Material.

8. Type of jacket Jacket closure

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

If bar, give dimensions. If bolted, describe or sketch.

9. MAWP 1527 Psig at max. temp. 130 F Min. design metal temp. -20 F at 1527 Psig

(Internal) (External)

(Internal) (External)

10. Impact test at test temperature of

(Indicate yes or no and the component(s) impact tested)

11. Hydro., pneu., or comb. test pressure Proof test

Items 12 and 13 to be completed for tube sections.

12. Tubesheet SA-516 Gr 70 N 82.3125" X 10.000" 1.625" 0.0625 WELDED

(Stationary (material spec. no.))

(Diameter (subject to press.))

(Nominal thickness)

(Corr. allow.)

(Attachment (welded or bolted))

(Floating (material spec. no.))

(Diameter)

(Nominal thickness)

(Corr. allow.)

(Attachment)

13. Tubes (Material spec. no., grade or type) (O.D.) (Nominal thickness) (Number) (Type (straight or U))

FORM U-2

J.A.P.H Apr-19-18  
 R. L. L. APR-19-18  
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Manufactured by Hudson Products De Mexico, S.A. De C.V. Carretera Villa De Garcia No.3840 Santa Catarina Nuevo Leon C.P. 66350 Mexico

Manufacturer's Serial No. MPD-996 CRN National Board No.

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) (b) Overall length

| Courses |          |        | 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 |
| ----    | ----     | ----   | ----               | ----      | ----  | ----                 | ----             | ---- | ----                          | ----             | ---- | ----           | ---- |
| ----    | ----     | ----   | ----               | ----      | ----  | ----                 | ----             | ---- | ----                          | ----             | ---- | ----           | ---- |
| ----    | ----     | ----   | ----               | ----      | ----  | ----                 | ----             | ---- | ----                          | ----             | ---- | ----           | ---- |

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 |      |
| ---- | ---- | ---- | ---- | ----       | ----        | ----     | ----         | ----     | ----       | ----             | ----                 | ----            | ---- |
| ---- | ---- | ---- | ---- | ----       | ----        | ----     | ----         | ----     | ----       | ----             | ----                 | ----            | ---- |
| ---- | ---- | ---- | ---- | ----       | ----        | ----     | ----         | ----     | ----       | ----             | ----                 | ----            | ---- |
| ---- | ---- | ---- | ---- | ----       | ----        | ----     | ----         | ----     | ----       | ----             | ----                 | ----            | ---- |

15. Heads: (a) (Material spec. number, grade, or type) (H.T. — time and temp.) (b) (Material spec. number, grade, or type) (H.T. — time and temp.)

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

Body Flanges on Heads

|     | Location | Type | ID   | OD   | Flange Thk | Min Hub Thk | Material | How Attached | Bolting    |                  |                      |                 |      |
|-----|----------|------|------|------|------------|-------------|----------|--------------|------------|------------------|----------------------|-----------------|------|
|     |          |      |      |      |            |             |          |              | Num & Size | Bolting Material | Washer (OD, ID, thk) | Washer Material |      |
| (a) | ----     | ---- | ---- | ---- | ----       | ----        | ----     | ----         | ----       | ----             | ----                 | ----            | ---- |
| (b) | ----     | ---- | ---- | ---- | ----       | ----        | ----     | ----         | ----       | ----             | ----                 | ----            | ---- |

16. MAWP (Internal) (External) at max. temp. (Internal) (External) Min. design metal temp. at

17. Impact test at test temperature of (Indicate yes or no and the component(s) impact tested)

18. Hydro., pneu., or comb. test pressure Proof test

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  |                        |
| NOZZLE VENT                          | 1    | NPS-1            | CPLNG* | SA-105   | ----   | 0.475"           | 0.0625 | ----                   | UW16.1(a)          | ----    | ----                   |
| NOZZLE OUT                           | 2    | NPS-8            | ***    | SA-234   | SA-105 | 0.906"           | 0.0625 | ----                   | UW16.1(a)          | 2-4 (6) | ----                   |
| ----                                 | ---- | ----             | ----   | ----     | ----   | ----             | ----   | ----                   | ----               | ----    | ----                   |
| ----                                 | ---- | ----             | ----   | ----     | ----   | ----             | ----   | ----                   | ----               | ----    | ----                   |
| ----                                 | ---- | ----             | ----   | ----     | ----   | ----             | ----   | ----                   | ----               | ----    | ----                   |
| ----                                 | ---- | ----             | ----   | ----     | ----   | ----             | ----   | ----                   | ----               | ----    | ----                   |

20. Identification of part(s)

| Name of Part | Quantity | Line No. | Mfr's. Identification No. | Mfr's. Drawing No. | CRN  | National Board No. | Year Built |
|--------------|----------|----------|---------------------------|--------------------|------|--------------------|------------|
| ----         | ----     | ----     | ----                      | ----               | ---- | ----               | ----       |
| ----         | ----     | ----     | ----                      | ----               | ---- | ----               | ----       |
| ----         | ----     | ----     | ----                      | ----               | ---- | ----               | ----       |

21. Supports: Skirt (Yes or no) Lugs (Number) Legs (Number) Others Support (2) (Describe) Attached Welded Cover (Where and how)

22. Remarks

Design Calculations by other, Impact Test Exempt Per UG-20 (f), Non-Lethal Service. Hydrostatic test not performed. Manufactured According Section VIII Div 1. \* COUPLING CL6000. \*\*\*RFLWN CL900.



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32270 J.A.P.G. Apr-19-18  
R. Laid APR-19-18  
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Manufactured by Hudson Products De Mexico, S.A. De C.V. Carretera Villa De Garcia No.3840 Santa Catarina Nuevo Leon C.P. 66350 Mexico  
Manufacturer's Serial No. MPD-996 CRN ---- National Board No. ----

**CERTIFICATE OF SHOP/FIELD COMPLIANCE**

We certify that the statements in this report are correct and that all details of material, construction, and workmanship of this pressure vessel part conform to the ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1.

U or PRT Certificate of Authorization number 37163 Expires December 19, 2019  
Date April-17-2018 Name Hudson Products De Mexico, S.A. De C.V. Signed [Signature]  
(Manufacturer) (Representative)

**CERTIFICATE OF SHOP/FIELD 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 Hartford C T.  
have inspected the pressure vessel part described in this Manufacturer's Data Report on April 19, 2018, and state that, to the best of my knowledge and belief, the Manufacturer has constructed this pressure vessel part 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 part 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 APR-19-18 Signed [Signature] Commissions 15190  
(Authorized Inspector) (National Board Authorized Inspector Commission number)