11535o

National Board Number: 1638

Mfr. Representative: [signature] Date: 9/25/15

Authorized Inspector: [signature] Date: 9/25/15

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FORM U-1 MANUFACTURER'S DATA REPORT FOR PRESSURE VESSELS
As Required by the Provisions of the ASME Boiler and Pressure Vessel Code Rules, Section VIII, Division 1

1. Manufactured and certified by: Diversified Heat Transfer, Inc. 439 Main Road (Route 202), Towaco, New Jersey 07082
(Name and address of Manufacturer)

2. Manufactured for: Nebraska Public Power District PO Box 1740 Columbus, NE 68602-1740
(Name and address of Purchaser)

3. Location of installation: Unknown
(Name and address)

4. Type: Horizontal (Horizontal, vertical, or sphere) | Heat Exchanger (Tank, separator, jkt. vessel, heat exch., etc.) | 23331-3 (Manufacturer's serial number)

(CRN) | H-23331-3-01 Rev1 (Drawing number) | 1638 (National Board number) | 2015 (Year built)

5. ASME Code, Section VIII, Div. 1: 2013 [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 14 ft 11 1/2 in

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	30" O.D.	14 ft 11 1/2 in	SA-516 Gr.70	3/8"	1/16"	1	Full	100%	1	None	70%	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	Ring	30 1/8"	35 3/8"	2 3/8"	n/a	SA-105	Fillet	Front	32-3/4"	SA-193 B7		

7. Heads: (a) SA-516 Gr.70 Elliptical Head (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)	Rear	3/8"	1/16"			2:1					yes	S	None	85%
(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)												

8. Type of jacket: Jacket closure (Describe as ogee and weld, bar, etc.)
If bar, give dimensions: If bolted, describe or sketch.

9. MAWP 150 (Internal) (External) at max. temp. 300 (Internal) (External) Min. design metal temp. -20 at 150

10. Impact test: none (Indicate *yes* or *no* and the component(s) impact tested) at test temperature of

11. Hydro., pneu., or comb. test pressure 195 Proof test: none

Items 12 and 13 to be completed for tube sections.

12. Tubesheet: SA-516 Gr. 70 [Stationary (material spec. no.)] | 32 1/2" [Diameter (subject to press.)] | 2" (Nominal thickness) | 1/16" (Corr. allow.) | Bolted [Attachment (welded or bolted)]
[Floating (material spec. no.)] | (Diameter) | (Nominal thickness) | (Corr. allow.) | (Attachment)

13. Tubes: SA-249 Tp. 304/L Wld. (Material spec. no., grade or type) | 3/4" (O.D.) | 0.049" (Nominal thickness) | 369 (Number) | U [Type (straight or U)]

(04/14)

National Board Number: 1638

Mfr. Representative: [signature] Date: 9/25/15

Authorized Inspector: [signature] Date: 9/25/15

FORM U-1 (Cont'd)

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 2 ft. 9 3/4 in.

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	30" O.D.	2 ft. 9 3/4 in..	SA-516 Gr.70	3/8"	1/16"	1	Full	100	1	None	70%	n/a	n/a

Body Flanges on Shells												
									Bolting			
No.	Type	ID	OD	Flange Thk	Min Hub Thk	Material	How Attached	Location	Num & Size	Bolting Material	Washer (OD, ID, thk)	Washer Material
1	Ring	30 1/8"	35 3/8"	2 3/8"	n/a	SA-105	Fillet	Rear	32-3/4"	SA-193 B7		

15. Heads: (a) SA-516 Gr.70 Elliptical Head (b) _____
(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)	Front	3/8"	1/16"			2:1					yes	S	None	85%
(b)														

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

16. MAWP 150 (Internal) _____ (External) at max. temp. 300 (Internal) _____ (External) Min. design metal temp. -20 at 150 .

17. Impact test none at test temperature of _____ .
[Indicate *yes* or *no* and the component(s) impact tested]

18. Hydro., pneu., or comb. test pressure 195 Proof test none

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	
Inlet/Outlet	2	12"	150#wn	SA-53 Gr. B ERW	SA-105	3/8"	1/16"	none	UW-16.1 C	Butt	Shell
Inlet/Outlet	2	10"	150#wn	SA-53 Gr. B ERW	SA-105	0.365"	1/16"	none	UW-16.1 C	Butt	Head
Vent/Drain	2	1"	3000#cpl	SA-105	n/a	cplg.	1/16"	none	UW-16.2 K	n/a	Shell

20. Supports: Skirt _____ (Yes or no) Lugs 4 (Number) Legs _____ (Number) Others Two Saddles (Describe) Attached Bottom Welded (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):

Shell cylinder s/n ST9999 A4 S & T International
Head cylinder s/n ST9999 A9 S & T International

22. Remarks

RT-4, X-Ray used as inspection tool.

National Board Number: 1638

Mfr. Representative: [signature] Date: 9/25/15

Authorized Inspector: [signature] Date: 9/25/15

FORM U-1 (Cont'd)

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 27,740 Expires May 9, 2018

Date 9/25/15 Name Diversified Heat Transfer, Inc. (Manufacturer) Signed [signature] (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 OneCIS Insurance Company of Lynn, MA have inspected the pressure vessel described in this Manufacturer's Data Report on 9/25/15, 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 9/25/15 Signed [signature] (Authorized Inspector) Commissions NB 7493 NAB NS [National Board (incl. endorsements)]

CERTIFICATE OF FIELD ASSEMBLY COMPLIANCE

We certify that the statements 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 _____ (Assembler) Signed _____ (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 _____ 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 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 _____ (Authorized Inspector) Commissions _____ [National Board (incl. endorsements)]

(04/14)

1638 CORRECTED COPY 9/8/2015

FORM U-2A MANUFACTURER'S PARTIAL DATA REPORT (ALTERNATIVE FORM)

09/30/2015 5/25/2016

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

3/4

1. Manufactured and certified by S & T INTERNATIONAL, INC. 7376 COHENOUR RD ORANGE, TEXAS 77632
(Name and address of Manufacturer)

2. Manufactured for DIVERSIFIED HEAT TRANSFER 439 MAIN ROAD ROUTE 202 TOWACO, N.J. 07082
(Name and address of Purchaser)

3. Location of installation UNKNOWN
(Name and address)

4. Type SHELL (Description of vessel part (shell, two-piece head, tube bundle)) ST 9999 A1 ,A2 ,A3 ,A4 (Manufacturer's serial number) ------ (CRN)

------ (National Board number) ------ (Drawing number) ------ (Drawing prepared by) 2015 (Year built)

5. ASME Code, Section VIII, Div. 1 2013 (Edition and Addenda, if applicable (date)) ------ (Code Case number) ------ (Special service per UG-120(d))

6. Shell: (a) Number of course(s) 4 (b) Overall length 2 @ 17'-11" 1 @ 13'-11" 1@ 14'-10"

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*	29 1/4" I.D.	17'-11"	SA 516-70	.375"	----	1	FULL	1.0	----	----	----	----	----
1**	29 1/4" I.D.	13'-11"	SA 516-70	.375"	----	1	FULL	1.0	----	----	----	----	----
1***	29 1/4" I.D.	14'-10"	SA 516-70	.375"	----	1	FULL	1.0	----	----	----	----	----

Body Flanges on Shells												
									Bolting			
No.	Type	ID	OD	Flange Thk	Min Hub Thk	Material	How Attached	Location	Num & Size	Bolting Material	Washer (OD, ID, thk)	Washer Material
		N/A				N/A						
											N/A	

7. 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)	N/A					N/A								
(b)												N/A		

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

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

9. Impact test NONE (Indicate *yes* or *no* and the component(s) impact tested) at test temperature of ------.

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

11. 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	
N/A					N/A						N/A

12. Identification of part(s)

Name of Part	Quantity	Line No.	Mfr's. Identification No.	Mfr's. Drawing No.	CRN	National Board No.	Year Built
N/A			N/A			N/A	

13. Supports: Skirt ------ (Yes or no) Lugs ------ (Number) Legs ------ (Number) Other ------ (Describe) Attached ------ (Where and how)

14. Remarks

PAGE 1 OF 2 (DESIGNED BY OTHERS)
*SHELLS A1 & A2 **SHELL A3 ***SHELL A4

(08/14)

FORM U-2A (Back) 3

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CERTIFICATE OF SHOP/FIELD COMPLIANCE

We certify that the statements made 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 Certificate of Authorization No. 23,033 Expires APRIL 23, 2017

Date 9/8/2015 Name S & T INTERNATIONAL, INC. (Manufacturer) Signed (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 ONE CIS Insurance COMPANY of LYNN, MASS.

have inspected the pressure vessel part described in this Manufacturer's Data Report on 9/8/15, 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 9/8/15 Signed (Authorized Inspector) Commissions NB#13596 'AE' TX2038 (National Board (incl. endorsements))

(08/14)

1638 CORRECTED COPY 9/8/2015 09/30/2015 5/25/2016

FORM U-2A MANUFACTURER'S PARTIAL DATA REPORT (ALTERNATIVE FORM)

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

4/4

1. Manufactured and certified by S & T INTERNATIONAL. INC. 7376 COHENOUR RD ORANGE, TEXAS 77632
(Name and address of Manufacturer)

2. Manufactured for DIVERSIFIED HEAT TRANSFER 439 MAIN ROAD ROUTE 202 TOWACO, N.J. 07082
(Name and address of Purchaser)

3. Location of installation UNKNOWN
(Name and address)

4. Type SHELL (Description of vessel part (shell, two-piece head, tube bundle)) ST 9999 A5, A6, A7, A8, A9, A10 (Manufacturer's serial number) ------ (CRN)

------ (National Board number) ------ (Drawing number) ------ (Drawing prepared by) 2015 (Year built)

5. ASME Code, Section VIII, Div. 1 2013 (Edition and Addenda, if applicable (date)) (Code Case number) (Special service per UG-120(d))

6. Shell: (a) Number of course(s) 6 (b) Overall length 1 @ 8'-11" .5 @ 23 1/2"

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*	29 1/4" I.D.	8'-11"	SA 516-70	.375"	-----	1	FULL	1.0	-----	-----	-----	-----	-----
5**	29 1/4" I.D.	1'-11 1/2"	SA 516-70	.375"	-----	1	FULL	1.0	-----	-----	-----	-----	-----

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
		N/A				N/A					N/A	

7. 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)	N/A					N/A						N/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)	N/A						N/A				N/A	
(b)												

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

9. Impact test NONE (Indicate *yes* or *no* and the component(s) impact tested) at test temperature of ------.

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

11. 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	
N/A					N/A						N/A

12. Identification of part(s)

Name of Part	Quantity	Line No.	Mfr's. Identification No.	Mfr's. Drawing No.	CRN	National Board No.	Year Built
N/A			N/A			N/A	

13. Supports: Skirt ------ (Yes or no) Lugs ------ (Number) Legs ------ (Number) Other ------ (Describe) Attached ------ (Where and how)

14. Remarks

PAGE 2 OF 2 (DESIGNED BY OTHERS)

*SHELL A5 **SHELL A6-A10

(08/14) A9

FORM U-2A (Back) 4

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CERTIFICATE OF SHOP/FIELD COMPLIANCE

We certify that the statements made 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 Certificate of Authorization No. 23,033 Expires APRIL 23, 2017

Date 9/8/2015 Name S & T INTERNATIONAL, INC. (Manufacturer) Signed (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 ONE CIS Insurance Company of LYNN, MASS.

have inspected the pressure vessel part described in this Manufacturer's Data Report on 9/8/15, 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 9/8/15 Signed (Authorized Inspector) Commissions NB#15526 AR TR 2038 (National Board (incl. endorsements))

(08/14)