

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 ENERGY EXCHANGER COMPANY, 1844 NORTH GARNETT ROAD, TULSA, OK 74116
(Name and address of Manufacturer)
2. Manufactured for SOUTHERN COMPANY SERVICES, INC. 42 INVERNESS CENTER PARKWAY BIRMINGHAM, AL 35242
(Name and address of Purchaser)
3. Location of installation MISSISSIPPI POWER COMPANY DEKALB, MISSISSIPPI
(Name and address)
4. Type: VERT. HEAT EXCHANGER X-7926
(Horiz., vert., or sphere) (Tank, separator, jkt. vessel, heat exch., etc.) (Mfg's serial No.)
- N/A X-7926-A REV. 3 6052 2012
(CRN) (Drawing No.) (Natl Bd. No.) (Year built)
5. ASME Code, Section VIII, Div. 1 2007 EDITION, '09 ADD. N/A N/A
(Edition and Addenda (date)) (Code Case No.) (Special Service per UG-120(d))

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

6. Shell (a) No. of course(s): 1 (b) Overall length (ft & in.): 13'-6 3/8"

Course(s)			Material		Thickness		Long. Joint (Cat. A)			Circum. Joint (Cat. A, B, & C)			Heat Treatment	
No.	Diameter, in.	Length (ft & in.)	Spec./Grade or Type		Nom.	Corr.	Type	Full, Spot, None	Eff.	Type	Full, Spot, None	Eff.	Temp.	Time
1	16" O.D.	13'-6 3/8"	SA-106-B		1/2"	1/8"	S	NONE	0.85	1 (1)	NONE	0.85	N/A	N/A

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

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

If removable, bolts used (describe other fastening) NA
(Mat'l Spec. No., Grade, size, No.)

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

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

9. MAWP 455 15 psi at max. temp. 515 515 °F Min. design metal temp. 10 °F at 455 psi.
(internal) (external) (internal) (external)

10. Impact test NO, EXEMPT PER UG-20(f) at test temperature of NA °F.
(Indicate yes or no and the component(s) impact tested)

11. Hydro., pneu., or comb.-Test press. 600 P.S.I.G. (2) Proof test NA

Items 12 and 13 to be completed for tube sections.

12. Tubesheet: SA-266-4N 15 1/4" 3" 1/4" Welded
(Stationary (Mat'l Spec. No.)) (Dia., in. (subject to press.)) (Nom. thk., in.) (Corr. Allow., in.) (Attachment (welded or bolted))
- NA NA NA NA NA
(Floating (Mat'l Spec. No.)) (Dia., in.) (Nom. thk., in.) (Corr. Allow., in.) (Attachment)
13. Tubes: SA-179 3/4" 0.083" (MIN.) THK. 185 Straight
(Mat'l Spec. No., Grade or Type) (O.D., in.) (Nom. thk., in. or gauge) (Number) (Type (Straight or U))

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

14. Shell (a) No. of course(s): 1/1 (b) Overall length (ft & in.): 1'-2 11/16"/1'-0 13/16"

Course(s)			Material		Thickness		Long. Joint (Cat. A)			Circum. Joint (Cat. A, B, & C)			Heat Treatment	
No.	Diameter, in.	Length (ft & in.)	Spec./Grade or Type		Nom.	Corr.	Type	Full, Spot, None	Eff.	Type	Full, Spot, None	Eff.	Temp.	Time
1	16" O.D.	1'-2 11/16"	SA-333-6		3/8"	1/8"	S	NONE	0.85	1 (1)	SPOT	0.85	1150	1.00
1	16" O.D.	1'-0 13/16"	SA-333-6		3/8"	1/8"	S	NONE	0.85	1 (1)	SPOT	0.85	1150	1.00

15. Heads: (a) SA-266-4N H.T. @ 1150 deg F. for 1 HR. (b) SA-266-4N H.T. @ 1150 deg F. for 1 HR.
(Mat'l Spec. No., Grade or Type) (H.T. - Time & Temp.) (Mat'l Spec. No., Grade or Type) (H.T. - Time & Temp.)

	Location (Top, Bottom, Ends)	Thickness		Radius		Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure		Category A		
		Min.	Corr.	Crown	Knuckle					Convex	Concave	Type	Full, Spot, None	Eff.
(a)	END	1 5/8"	1/8"						16 7/8"					
(b)	END	1 5/8"	1/8"						16 7/8"					

If removable, bolts used (describe other fastening) (a) SA-193-B7, 1" DIA., 16 (b) SA-193-B7, 1" DIA., 16
(Mat'l Spec. No., Grade, size, No.)

FORM U-1 (Back)

16. MAWP 320 NA psi at max. temp. 385 NA °F Min. design metal temp. 10 °F at 320 psi.
 (internal) (external) (internal) (external)

17. Impact test NO, EXEMPT PER UG-20(f) at test temperature of NA °F.
 (Indicate yes or no and the component(s) impact tested)

18. Hydro., pneu., or comb. Test press. 425 P.S.I.G. (2) Proof test NA

19. Nozzles, inspection, and safety valve openings:

Purpose (Inlet, Outlet, Drain, etc.)	No.	Diameter or Size	Flange Type	Material		Nozzle Thickness		Reinforcement Material	How Attached		Location (Insp. Open.)
				Nozzle	Flange	Nom.	Corr.		Nozzle	Flange	
INLET	1	4"-300#	RFWN	SA-106-B	SA-105	0.4380"	1/8"	WELD	WELDED	WELDED	SHELL
OUTLET	1	2"-300#	RFLWN	SA-105	---	0.6600"	1/8"	WELD	WELDED	---	SHELL
BAL. LINE	1	3/4"-300#	RFLWN	SA-105	---	0.5700"	1/8"	WELD	WELDED	---	SHELL
VENT/DRAIN	1/1	3/4"-300#	RFLWN	SA-105	---	0.5700"	1/8"	WELD	WELDED	---	TUBESHEETS
INLET	1	3"-300#	RFWN	SA-333-6	SA-105N	0.4380"	1/8"	WELD	WELDED	WELDED	BOTTOM CHAN.
OUTLET	1	6"-300#	RFWN	SA-333-6	SA-105N	0.5620"	1/8"	WELD	WELDED	WELDED	TOP CHANNEL
VENT/DRAIN	1/1	2"-300#	RFLWN	SA-105N	---	0.6600"	1/8"	WELD	WELDED	---	CHAN. COVERS

20. Supports: Skirt NO Lugs --- Legs --- Others 2-SADDLES Attached WELDED TO SHELL
 (Yes or no) (No.) (No.) (Describe) (Where and how)

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

22. Remarks: SERVICE: WASTEWATER AMMONIA PURIFIER REBOILER, P.O. NO: 17496-0001; ITEM NO.: HX0052

SIZE: 15-168, TYPE: NEN, TUBES DESIGNED W/ 0" C.A., SAFETY RELIEF DEVICES BY OTHERS

LINES 14-18 INCLUDES (2) 21 1/8" O.D. X 15 1/4" I.D. X 3 1/4" THK., SA-266-4N, RING

(1) Cylinder to tubesheet circumferential seams are Type 7, with .85 Efficiency; (2) Field Test: Shell Side=595 PSIG; Tube Side= 420 PSIG

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 Authorization No. 12370 Expires SEPTEMBER 27, 20 13

Date 7-23-12 Name ENERGY EXCHANGER COMPANY Signed [Signature]
 (Manufacturer) (Representative)

CERTIFICATE OF SHOP INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State or Province of OKLAHOMA and employed by ONEBEACON AMERICA INSURANCE COMPANY of LYNN, MA

have inspected the pressure vessel described in this Manufacturer's Data Report on 7.23.2012, 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 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 7.23.12 Signed [Signature] Commissions N.B.# 12064 A OKLA.# 7
 (Authorized Inspector) (Natl Board incl. endorsements, State, Province, and No.)

CERTIFICATE OF FIELD ASSEMBLY COMPLIANCE

We certify that the statements on this report are correct and that 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 No. _____

U Certificate of Authorization No. _____ Expires _____, 20 _____

Date _____ Name _____ Signed _____
 (Assembler) (Representative)

CERTIFICATE OF FIELD ASSEMBLY INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State or Province of _____ and employed by _____

of _____, have compared the statements in this Manufacturer's Data Report with the described pressure vessel and state that parts referred to as data items _____, not included in the certificate of shop inspection, have been

inspected by me and to the best of my knowledge and belief, the Manufacturer has constructed and assembled this pressure vessel in accordance with ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. The described vessel was inspected and _____ 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) (Natl Board incl. endorsements, State, Province, and No.)

Form R-2 Report of Alteration
in accordance with provisions of the National Board Inspection Code

R-25

(Form "R" Registration no.)
MPC109066-HX0052
(P.O. No., Job No., etc.)

1a. Design performed by: SOUTHERN COMPANY SERVICES, INC.
(name of "R" organization responsible for design)
42 INVERNESS CENTER PARKWAY, BIRMINGHAM, ALABAMA, 35242, UNITED STATES
(address)

1b. Construction performed by: SOUTHERN COMPANY SERVICES, INC.
(name of "R" organization responsible for construction)
42 INVERNESS CENTER PARKWAY, BIRMINGHAM, ALABAMA, 35242, UNITED STATES
(address)

2. Owner of Pressure Retaining Item: MISSISSIPPI POWER COMPANY
(name)
5835 HIGHWAY 493, KEMPER COUNTY, DEKALB, MISSISSIPPI, 39573, UNITED STATES
(address)

3. Location of Installation: MISSISSIPPI POWER COMPANY
(name)
5835 HIGHWAY 493, KEMPER COUNTY, DEKALB, MISSISSIPPI, 39573, UNITED STATES
(address)

4. Item identification: PRESSURE VESSEL Name of original manufacturer: ENERGY EXCHANGER COMPANY
(boiler, pressure vessel, or piping)

5. Identifying nos: X-7926 6052 MS025369-14V HX0052 2012
(mfg. serial no.) (National Board No.) (Jurisdiction No.) (other) (year built)

6. NBIC Edition / Addenda: 2015 EDITION NONE
(edition) (addenda)

Original Code of Construction for Item: ASME BPV SECTION VIII DIV. I 2007 EDITION / 2009 ADDENDA
(name / section / division) (edition / addenda)

Construction Code Used for Alteration Performed: ASME BPV SECTION VIII DIV. I 2007 EDITION/2009 ADDENDA
(name / section / division) (edition / addenda)

7a. Description of Design Scope:

RE-RATE NEW VESSEL FOR EXTERNAL PRESSURE PRIOR TO INITIAL SERVICE. CALCULATIONS PERFORMED TO VERIFY RE-RATING FOR AN EXTERNAL PRESSURE OF 15 PSI AT 250°F FOR TUBE SIDE.

☐ Form R -4, Report Supplementary Sheet is attached

7b. Description of Construction Scope:

ATTACH NAMEPLATE. THE ORIGINAL PRESSURE TEST MEETS ASME SECTION VIII DIV. I REQUIREMENTS FOR EXTERNAL PRESSURE.

☐ Form R -4, Report Supplementary Sheet is attached

Pressure Test, if applied NONE psi MAWP * REMARKS psi

8. Replacement Parts. Attached are Manufacturer's Partial Data Reports or Form R-3's properly completed for the following items of this report:

NONE.

(name of part, item number, data report type or Certificate of Compliance, mfg's. name and identifying stamp)

9. Remarks:

* MAWP FOR SHELL SIDE IS F.V. AT 515°F/455 PSI AT 515°F, MAWP FOR TUBE SIDE IS F.V. AT 250°F/320 PSI AT 385°F.

DESIGN CERTIFICATION

I, MARTIN B. SIMS, certify that to the best of my knowledge and belief the statements in this report are correct and that the Design Change described in this report conforms to the *National Board Inspection Code*.

National Board "R" Certificate of Authorization No. R-1906 expires on NOVEMBER 30, 2018
 Date 1/19/16 SOUTHERN CO. SVCS., INC. Signed [Signature]
(name of design organization) (authorized representative)

CERTIFICATE OF DESIGN CHANGE REVIEW

I, Jim Roberts, holding a valid Commission issued by The National Board of Boiler and Pressure Vessel Inspectors and certificate of competency, where required, issued by the jurisdiction of MISSISSIPPI and employed by ONE CIS INSURANCE of LYNN, MA have reviewed the design change as described in this report and state that to the best of my knowledge and belief such change complies with the applicable requirements of the *National Board Inspection Code*.

By signing this certificate, neither the undersigned nor my employer makes any warranty, expressed or implied, concerning the work described in this report. Furthermore, neither the undersigned nor my employer shall be liable in any manner for any personal injury, property damage or loss of any kind arising from or connected with this inspection.

Date 1-26-16 Signed [Signature] Commissions NB 11166 ABN
(inspector) (National Board and jurisdiction no.)

CONSTRUCTION CERTIFICATION

I, MARTIN B. SIMS, certify that to the best of my knowledge and belief the statements in this report are correct and that all material, construction, and workmanship on this Alteration conforms to the *National Board Inspection Code*.

National Board "R" Certificate of Authorization No. R-1906 expires on NOVEMBER 30, 2018
 Date 1/19/16 SOUTHERN CO. SVCS., INC. Signed [Signature]
(name of alteration organization) (authorized representative)

CERTIFICATE OF INSPECTION

I, Jim Roberts, holding a valid Commission issued by The National Board of Boiler and Pressure Vessel Inspectors and certificate of competency, where required, issued by the jurisdiction of MISSISSIPPI and employed by ONE CIS INSURANCE of LYNN, MA have inspected the work described in this report on 1-26-16 and state that to the best of my knowledge and belief this work complies with the applicable requirements of the *National Board Inspection Code*.

By signing this certificate, neither the undersigned nor my employer makes any warranty, expressed or implied, concerning the work described in this report. Furthermore, neither the undersigned nor my employer shall be liable in any manner for any personal injury, property damage or loss of any kind arising from or connected with this inspection.

Date 1-26-16 Signed [Signature] Commissions NB 11166 ABN
(inspector) (National Board and jurisdiction no.)