

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

1. Manufactured and certified by LESENA STEEL LTD, 1060 BIRCHMOUNT ROAD, SCARBOROUGH, ONTARIO M1K 1S4  
(Name and address of Manufacturer)

2. Manufactured for ECODYNE LTD. 4475 CORPORATE DRIVE, BURLINGTON, ONTARIO L7L 5T9  
(Name and address of Purchaser)

3. Location of installation MEG ENERGY CORP. CHRISTINA LAKE, ALBERTA  
(Name and address)

4. Type HORIZONTAL 0411 W1159.2 \*32125 2013  
(Horizontal or vertical, tank) (Manufacturer's serial number) (CRN) (Drawing number) (National Board number) (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 2010  
Year

to 2011  
(Addenda, if applicable (date)) (Code Case numbers) (Special service per UG-120(d))

6. Shell SA-516-70N 19.05mm 3.2mm 3923.9 mm 2387mm  
(Material spec. number, grade) (Nominal thickness) (Corr. allow.) (Inner diameter) (Length (overall))

7. Seams WELDED, dbi, butt FULL 100 -- -- WELDED, dbi, butt SPOT 85 1  
(Long, welded, dbi, sngl., lap, butt) (R.T. (spot or full)) (Eff. %) (H.T. temp.) (Time, hr) (Girth (welded, dbi, sngl., lap, butt)) (R.T. (spot or full)) (Eff. %) (No. of courses)

8. Heads: (a) Material SA-516-70N (b) Material SA-516-70N  
(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 HD	18.20 mm	3.2mm	---	---	2:1	----	----	----	CONCAVE
(b)	BOTTOM HD	19.05 mm	3.2mm	---	---	2:1	----	----	----	CONCAVE

If removable, bolts used (describe other fastenings) N/A  
(Material spec. number, grade, size, number)

9. MAWP 1041 kPa 103 kPa at max. temp. 120 deg.C 120 deg.C  
(Internal) (External) (Internal) (External)

Min. design metal temp. -29 deg.C at 1041/103 kPa . Hydro., pneu., or comb. test pressure 1354 kPa

Proof test ---

10. 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	
N1: WATER INLET	1	304.8mm	WN	SA106B	SA105	14.27mm	3.2mm	SA-516-70	WELDED	WELDED	TOP HEAD
N2: WATER OUTLET	1	304.8mm	WN	SA106B	SA105	4.27mm	3.2mm	SA-516-70	WELDED	WELDED	BTM HEAD
N3A & N3B	2	101.6mm	LWN	--	SA105	38.1mm	3.2mm	---	WELDED	----	BTM HEAD
N4	1	76.2mm	WN	SA106B	SA105	11.12mm	3.2mm	SA-516-70	WELDED	WELDED	TOP HEAD
SG1A & SG1B	2	254mm	PAD	SA516-70N	----	63.5mm	3.2mm	----	WELDED	----	SHELL
M1	1	609.6mm	WN	SA106B	SA105	12.7mm	3.2mm	SA-516-70	WELDED	WELDED	TOP HEAD

11. Supports: Skirt NO Lugs 2 Legs 4 Other ---- Attached WELDED ON TOP & BTM HEAD  
(Yes or no) (Number) (Number) (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: TOP HEAD MANUFACTURE BY ENERFAB S/N 1016553-1, BTM HEAD MANUFACTURE BY ENERFAB S/N 101554-1  
(Name of part, item number, Manufacturer's name and identifying stamp)

WO:12-32A 10. NOZZLES, INSPECTION & SAFETY VALVE OPENINGS CONTINUED ON FORM U-4\*32125-D-2202-01E

**CERTIFICATE OF SHOP/FIELD 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 BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. "U" Certificate of Authorization Number 15,066 expires 04/24/2015.

Date 05/23/2013 Co. name LESENA STEEL LTD Signed [Signature]  
(Manufacturer) (Representative)

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**CERTIFICATE OF SHOP/FIELD INSPECTION**

Vessel constructed by LESENA STEEL LTD at 1060 BIRCHMOUNT ROAD, SCARBOROUGH

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 ONTARIO and employed by T.S.S.A

have inspected the component described in this Manufacturer's Data Report on MAY 23, 2013, 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 MAY 23, 2013 Signed [Signature] Commissions NR12106A, ONT915  
(Authorized Inspector) (National Board (incl. endorsements), State, Province, and number)





**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**

1. Manufactured and certified by ENERFAB, INC, 4955 SPRING GROVE AVENUE, CINCINNATI, OHIO 45232  
(Name and address of Manufacturer)

2. Manufactured for ECODYNE LIMITED, 4475 CORPORATE DRIVE, BURLINGTON ON L7L 5T9  
(Name and address of Purchaser)

3. Location of installation UNKNOWN  
(Name and address)

4. Type ELLIP HEADS 3962.4mm x 25.4mm thk.  
(Description of vessel part (shell, two-piece head, tube bundle)) 1016554 - 1,2  
(Manufacturer's serial number) 1016554 - 1,2  
(CRN)

5. ASME Code, Section VIII, Div. 1 2010 EDITION/2011 ADDENDA  
(National Board number) PO# 321253501  
(Drawing number) TG# FILTER BOTTOM HD.  
(Drawing prepared by) 2013  
(Year built)

6. Shell (a) No. of course(s): \_\_\_\_\_ (b) Overall length \_\_\_\_\_  
(Edition and Addenda (date)) (Code Case number) (Special service per UG-120(d))

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

7. Heads: (a) SA516-70 (1650°F - 1/2 HOUR PER INCH) (b) \_\_\_\_\_  
(Material spec. number, grade or type) (H.T. - time & temp.) (Material spec. number, 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)	19.05				2:1						1	FULL	Unk.
(b)													

If removable, bolts used (describe other fastening) \_\_\_\_\_  
(Material spec. number, grade, size, number)

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

9. Impact test NO at test temperature of \_\_\_\_\_  
(Indicate yes or no and the component(s) impact tested)

10. Hydro., pneu., or comb. test pressure NONE Proof test \_\_\_\_\_

11. 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	

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

13. Supports: Skirt \_\_\_\_\_ Lugs \_\_\_\_\_ Legs \_\_\_\_\_ Others \_\_\_\_\_ Attached \_\_\_\_\_  
(Yes or No) (Number) (Number) (Describe) (Where and how)

14. Remarks: NO DESIGN FUNCTION BY ENERFAB INC.

**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. 2,631 Expires December 31, 2015

Date 3-20-2013 Name Enerfab, Inc. 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/or the State or Province of Ohio and employed by HSB CT of Hartford, CT have inspected the pressure vessel part described in this Manufacturer's Data Report on 3-20-2013 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 3-20-2013 Signed [Signature] Commissions NB10901A OHIO  
(Authorized Inspector) (National Board (incl. endorsements), State, Province, and number)

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

1. Manufactured and certified by LESENA STEEL LTD, 1060 BIRCHMOUNT ROAD, SCARBOROUGH, ONTARIO M1K 1S4  
(Name and address of Manufacturer)

2. Manufactured for ECODYNE LTD. 4475 CORPORATE DRIVE, BURLINGTON, ONTARIO L7L 5T9  
(Name and address of Purchaser)

3. Location of installation MEG ENERGY CORP. CHRISTINA LAKE, ALBERTA  
(Name and address)

4. Type HORIZONTAL 0412 W1159.2 \*32125 2013  
(Horizontal or vertical, tank) (Manufacturer's serial number) (CRN) (Drawing number) (National Board number) (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 2010  
Year

to 2011  
(Addenda, if applicable (date))

6. Shell SA-516-70N 19.05mm 3.2mm 3923.9 mm 2387mm  
(Material spec. number, grade) (Nominal thickness) (Corr. allow.) (Inner diameter) (Length (overall))

7. Seams WELDED, dbl, butt FULL 100 -- -- WELDED, dbl, butt SPOT 85 1  
(Long, welded, dbl., snl., lap, butt) (R.T. (spot or full)) (EFF., %) (H.T. temp.) (Time, hr) (Girth (welded, dbl., snl., lap, butt)) (R.T. (spot or full)) (EFF., %) (No. of courses)

8. Heads: (a) Material SA-516-70N (b) Material SA-516-70N  
(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 HD	18.20 mm	3.2mm	---	---	2:1	----	----	----	CONCAVE
(b)	BOTTOM HD	19.05 mm	3.2mm	---	---	2:1	----	----	----	CONCAVE

If removable, bolts used (describe other fastenings) N/A  
(Material spec. number, grade, size, number)

9. MAWP 1041 kPa 103 kPa at max. temp. 120 deg.C  
(Internal) (External) (Internal) (External)

Min. design metal temp. -29 deg.C at 1041/103 kPa . Hydro., pneu., or comb. test pressure 1354 kPa

Proof test ---

10. 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	
N1:WATER INLET	1	304.8mm	WN	SA106B	SA105	14.27mm	3.2mm	SA-516-70	WELDED	WELDED	TOP HEAD
N2:WATER OUTLET	1	304.8mm	WN	SA106B	SA105	4.27mm	3.2mm	SA-516-70	WELDED	WELDED	BTM HEAD
N3A & N3B	2	101.6mm	LWN	--	SA105	38.1mm	3.2mm	--	WELDED	----	BTM HEAD
N4	1	76.2mm	WN	SA106B	SA105	11.12mm	3.2mm	SA-516-70	WELDED	WELDED	TOP HEAD
SG1A & SG1B	2	152.4mm	PAD	SA516-70N	----	63.5mm	3.2mm	----	WELDED	----	SHELL
M1	1	609.6mm	WN	SA106B	SA105	12.7mm	3.2mm	SA-516-70	WELDED	WELDED	TOP HEAD

11. Supports: Skirt NO Lugs 2 Legs 4 Other ----- Attached WELDED ON TOP & BTM HEAD  
(Yes or no) (Number) (Number) (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: TOP HEAD MANUFACTURE BY ENERFAB S/N 1016553-2 , BTM HEAD MANUFACTURE BY ENERFAB S/N 101554-2  
(Name of part, item number, Manufacturer's name and identifying stamp)

WO:12-32B 10. NOZZLES, INSPECTION & SAFETY VALVE OPENINGS CONTINUED ON FORM U-4\*32125-D-2202-01E

<b>CERTIFICATE OF SHOP/FIELD COMPLIANCE</b>	
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 BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. "U" Certificate of Authorization Number <u>15,066</u> expires <u>04/24/2015</u> .	
Date <u>05/17/2013</u> Co. name <u>LESENA STEEL LTD</u> Signed <u>J. Bur</u>	<small>(Manufacturer) (Representative)</small>
<b>CERTIFICATE OF SHOP/FIELD INSPECTION</b>	
Vessel constructed by <u>LESENA STEEL LTD</u> at <u>1060 BIRCHMOUNT ROAD, SCARBOROUGH</u>	
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 <u>ONTARIO</u> and employed by <u>T.S.S.A</u>	
have inspected the component described in this Manufacturer's Data Report on <u>MAY 17, 2013</u> , 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 <u>MAY 17, 2013</u> Signed <u>[Signature]</u> Commissions <u>NSB106A, ONT915</u>	<small>(Authorized Inspector) (National Board (incl. endorsements), State, Province, and number)</small>

**FORM U-4 MANUFACTURER'S DATA REPORT SUPPLEMENTARY SHEET**  
**As Required by the Provisions of the ASME Boiler and Pressure Vessel Code Rules, Section VIII, Division 1**

1. Manufactured and certified by LESENA STEEL LTD, 1060 BIRCHMOUNT ROAD, SCARBOROUGH, ONTARIO M1K 1S4  
(Name and address of Manufacturer)

2. Manufactured for ECODYNE LTD. 4475 CORPORATE DRIVE, BURLINGTON, ONTARIO L7L 5T9  
(Name and address of Purchaser)

3. Location of installation MEG ENERGY CORP. CHRISTINA LAKE, ALBERTA  
(Name and address)

4. Type HORIZONTAL AFTER FILTER 0412  
(Horizontal, vertical, or sphere) (Tank, separator, heat exch., etc.) (Manufacturer's serial number)

W1159.2 32125-D-2202-01 REV. E --- 2013  
(CRN) (Drawing number) (National Board number) (Year built)

Data Report Item Number	Remarks
WO:12-32B	
10.	NOZZLES, INSPECTION AND SAFETY VALVE OPENINGS CONTINUED
<b>PURPOSE</b>	<b>NO.</b> <b>Diameter or Size</b> <b>Type</b> <b>Material</b> <b>Thickness</b> <b>Reinforcement Material</b> <b>Attachment details</b> <b>Location</b>
M2	1 609.6 mm WN SA-106B 12.7 mm SA-516-70 WELDED BTM HEAD
NOTES: 1) IMPACT TEST EXEMPTED PER UCS-66, UG-20(f) 2) HYDROSTATIC TEST WAS PERFORMED IN HORIZONTAL POSITION 3) SAFETY VALVE CONNECTION IN PIPING ( BY OTHERS) 4) RADIOGRAPHY; LONG SEAM 100% PER UW-11(a), CIRC. SEAMS SPOT 85% PER UW-11(a)(5)(b); STAMPED RT-2	

Certificate of Authorization: Type U No. 15,066 Expires 04/24/2015

Date 05/17/2013 Name LESENA STEEL LTD Signed J Bu  
(Manufacturer) (Representative)

Date MAY 17, 2013 Name [Signature] Commissions NB 13106A, ONT 915  
(Authorized Inspector) (National Board (incl. endorsements), State, Province, and number)

**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**

1. Manufactured and certified by ENERFAB, INC, 4955 SPRING GROVE AVENUE, CINCINNATI, OHIO 45232  
(Name and address of Manufacturer)

2. Manufactured for ECODYNE LIMITED, 4475 CORPORATE DRIVE, BURLINGTON ON L7L 5T9  
(Name and address of Purchaser)

3. Location of installation UNKNOWN  
(Name and address)

4. Type ELLIP HEADS 3962.4mm x 22.23mm thk. 1016553 - 1,2  
[Description of vessel part (shell, two-piece head, tube bundle)] (Manufacturer's serial number) (CRN)  
PO# 321253501 TG# FILTER TOP HD. 2013  
(National Board number) (Drawing number) (Drawing prepared by) (Year built)

5. ASME Code, Section VIII, Div. 1 2010 EDITION/2011 ADDENDA  
[Edition and Addenda (date)] (Code Case number) [Special service per UG-120(d)]

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

7. Heads: (a) SA516-70 (1650°F - 1/2 HOUR PER INCH) (b)    
(Material spec. number, grade or type) (H.T. - time & temp.) (Material spec. number, 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)		18.20				2:1						1	FULL	Unk.
(b)														

If removable, bolts used (describe other fastening)  

8. MAWP   at max. temp.   (Material spec. number, grade, size, number)  
(Internal) (External) (Internal) (External)   Min. design metal temp.   at  

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

10. Hydro., pneu., or comb. test pressure NONE Proof test  

11. 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	

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

13. Supports: Skirt   Lugs   Legs   Others   Attached    
(Yes or No) (Number) (Number) (Describe) (Where and how)

14. Remarks: NO DESIGN FUNCTION BY ENERFAB INC.

**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. 2,631 Expires December 31, 2015

Date 3-20-2013 Name Enerfab, Inc. Signed Richard [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/or the State or Province of Ohio and employed by HSB CT of Hartford, CT have inspected the pressure vessel part described in this Manufacturer's Data Report on 3/21/2013 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 3/21/2013 Signed [Signature] Commissions NR1091A OH/16  
(Authorized Inspector) [National Board (incl. endorsements), State, Province, and number]

**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**

1. Manufactured and certified by ENERFAB, INC, 4955 SPRING GROVE AVENUE, CINCINNATI, OHIO 45232  
(Name and address of Manufacturer)

2. Manufactured for ECODYNE LIMITED, 4475 CORPORATE DRIVE, BURLINGTON ON L7L 5T9  
(Name and address of Purchaser)

3. Location of installation UNKNOWN  
(Name and address)

4. Type ELLIP HEADS 3962.4mm x 25.4mm thk. 1016554 - 1,2  
[Description of vessel part (shell, two-piece head, tube bundle)] (Manufacturer's serial number) (CRN)

PO# 321253501 TG# FILTER BOTTOM HD. 2013  
(National Board number) (Drawing number) (Drawing prepared by) (Year built)

5. ASME Code, Section VIII, Div. 1 2010 EDITION/2011 ADDENDA  
(Edition and Addenda (date)) (Code Case number) (Special service per UG-120(d))

6. Shell (a) No. of course(s): \_\_\_\_\_ (b) Overall length \_\_\_\_\_

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

7. Heads: (a) SA516-70 (1650°F - 1/2 HOUR PER INCH) (b) \_\_\_\_\_  
(Material spec. number, grade or type) (H.T. - time & temp.) (Material spec. number, 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)	19.05				2:1						1	FULL	Unk.
(b)													

If removable, bolts used (describe other fastening) \_\_\_\_\_  
(Material spec. number, grade, size, number)

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

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

10. Hydro., pneu., or comb. test pressure NONE Proof test \_\_\_\_\_

11. 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	

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

13. Supports: Skirt \_\_\_\_\_ Lugs \_\_\_\_\_ Legs \_\_\_\_\_ Others \_\_\_\_\_ Attached \_\_\_\_\_  
(Yes or No) (Number) (Number) (Describe) (Where and how)

14. Remarks: NO DESIGN FUNCTION BY ENERFAB INC.

**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. 2,631 Expires December 31, 2015

Date 3-20-2013 Name Enerfab, Inc. Signed *Richard J. ...*  
(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/or the State or Province of Ohio and employed by HSB CT of Hartford, CT have inspected the pressure vessel part described in this Manufacturer's Data Report on 3-20-2013 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 3-20-2013 Signed *[Signature]* Commissions NB10101A 01406e  
(Authorized Inspector) (National Board (Incl. endorsements), State, Province, and number)

3A-F-208c

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

1. Manufactured and certified by LESENA STEEL LTD, 1060 BIRCHMOUNT ROAD, SCARBOROUGH, ONTARIO M1K 1S4  
(Name and address of Manufacturer)

2. Manufactured for ECODYNE LTD. 4475 CORPORATE DRIVE, BURLINGTON, ONTARIO L7L 5T9  
(Name and address of Purchaser)

3. Location of installation MEG ENERGY CORP. CHRISTINA LAKE, ALBERTA  
(Name and address)

4. Type HORIZONTAL 0413 W1159.2 \*32125 ----- 2013  
(Horizontal or vertical, tank) (Manufacturer's serial number) (CRN) (Drawing number) (National Board number) (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 2010  
Year

to 2011  
(Addenda, if applicable (date)) (Code Case numbers) (Special service per UG-120(d))

6. Shell SA-516-70N 19.05mm 3.2mm 3923.9 mm 2387mm  
(Material spec. number, grade) (Nominal thickness) (Corr. allow.) (Inner diameter) (Length (overall))

7. Seams WELDED,dbl,butt FULL 100 -- -- WELDED,dbl,butt SPOT 85 1  
(Long. (welded, dbl., singl., lap, butt)) (R.T. (spot or full)) (Eff., %) (H.T. temp.) (Time, hr) (Girth (welded, dbl., singl., lap, butt)) (R.T. (spot or full)) (Eff., %) (No. of courses)

8. Heads: (a) Material SA-516-70N (b) Material SA-516-70N  
(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 HD	18.20 mm	3.2mm	---	---	2:1	---	---	---	CONCAVE
(b)	BOTTOM HD	19.05 mm	3.2mm	---	---	2:1	---	---	---	CONCAVE

If removable, bolts used (describe other fastenings) N/A  
(Material spec. number, grade, size, number)

9. MAWP 1041 kPa 103 kPa at max. temp. 120 deg.C 120 deg.C  
(Internal) (External) (Internal) (External)

Min. design metal temp. -29 deg.C at 1041/103 kPa Hydro., pneu., or comb. test pressure 1354 kPa

Proof test ---

10. 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	
N1:WATER INLET	1	304.8mm	WN	SA106B	SA105	14.27mm	3.2mm	SA-516-70	WELDED	WELDED	TOP HEAD
N2:WATER OUTLET	1	304.8mm	WN	SA106B	SA105	4.27mm	3.2mm	SA-516-70	WELDED	WELDED	BTM HEAD
N3A & N3B	2	101.6mm	LWN	---	SA105	38.1mm	3.2mm	---	WELDED	---	BTM HEAD
N4	1	76.2mm	WN	SA106B	SA105	11.12mm	3.2mm	SA-516-70	WELDED	WELDED	TOP HEAD
SG1A & SG1B	2	152.4mm	PAD	SA516-70N	---	63.5mm	3.2mm	---	WELDED	---	SHELL
M1	1	609.6mm	WN	SA106B	SA105	12.7mm	3.2mm	SA-516-70	WELDED	WELDED	TOP HEAD

11. Supports: Skirt NO Lugs 2 Legs 4 Other ----- Attached WELDED ON TOP & BTM HEAD  
(Yes or no) (Number) (Number) (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: TOP HEAD MANUFACTURE BY ENERFAB S/N 1016555-1, BTM HEAD MANUFACTURE BY ENERFAB S/N 101556-1  
(Name of part, item number, Manufacturer's name and identifying stamp)

WO:12-32C 10. NOZZLES, INSPECTION & SAFETY VALVE OPENINGS CONTINUED ON FORM U-4\*32125-D-2202-01E

**CERTIFICATE OF SHOP/FIELD 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 BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. "U" Certificate of Authorization Number 15,066 expires 04/24/2015.

Date 05/28/2013 Co. name LESENA STEEL LTD Signed J. Bul  
(Manufacturer) (Representative)

**CERTIFICATE OF SHOP/FIELD INSPECTION**

Vessel constructed by LESENA STEEL LTD at 1060 BIRCHMOUNT ROAD, SCARBOROUGH

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 ONTARIO and employed by T.S.S.A

have inspected the component described in this Manufacturer's Data Report on MAY 28, 2013, 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 MAY 28, 2013 Signed [Signature] Commissions NS13106A, ONT915  
(Authorized Inspector) (National Board (incl. endorsements), State, Province, and number)

**FORM U-4 MANUFACTURER'S DATA REPORT SUPPLEMENTARY SHEET**  
**As Required by the Provisions of the ASME Boiler and Pressure Vessel Code Rules, Section VIII, Division 1**

1. Manufactured and certified by LESENA STEEL LTD, 1060 BIRCHMOUNT ROAD, SCARBOROUGH, ONTARIO M1K 1S4  
(Name and address of Manufacturer)

2. Manufactured for ECODYNE LTD. 4475 CORPORATE DRIVE, BURLINGTON, ONTARIO L7L 5T9  
(Name and address of Purchaser)

3. Location of installation MEG ENERGY CORP. CHRISTINA LAKE, ALBERTA  
(Name and address)

4. Type HORIZONTAL AFTER FILTER 0413  
(Horizontal, vertical, or sphere) (Tank, separator, heat exch., etc.) (Manufacturer's serial number)

W1159.2 32125-D-2202-01 REV. E --- 2013  
(CRN) (Drawing number) (National Board number) (Year built)

Data Report Item Number	Remarks
WO:12-32C	
10.	NOZZLES, INSPECTION AND SAFETY VALVE OPENINGS CONTINUED
<b>PURPOSE</b>	<b>NO. Diameter or Size Type Material Thickness Reinforcement Material Attachment details Location</b>
M2	1 609.6 mm WN SA-106B 12.7 mm SA-516-70 WELDED BTM HEAD
NOTES: 1) IMPACT TEST EXEMPTED PER UCS-66, UG-20(f) 2) HYDROSTATIC TEST WAS PERFORMED IN HORIZONTAL POSITION 3) SAFETY VALVE CONNECTION IN PIPING ( BY OTHERS) 4) RADIOGRAPHY; LONG SEAM 100% PER UW-11(a), CIRC. SEAMS SPOT 85% PER UW-11(a)(5)(b); STAMPED RT-2	

Certificate of Authorization: Type U No. 15,066 Expires 04/24/2015

Date 05/28/2013 Name LESENA STEEL LTD Signed J. Bul  
(Manufacturer) (Representative)

Date MAY 28, 2013 Name [Signature] Commissions NB B106A, ONT915  
(Authorized Inspector) (National Board (incl. endorsements), State, Province, and number)

**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**

1. Manufactured and certified by ENERFAB, INC, 4955 SPRING GROVE AVENUE, CINCINNATI, OHIO 45232  
(Name and address of Manufacturer)

2. Manufactured for ECODYNE LIMITED, 4475 CORPORATE DRIVE, BURLINGTON ON L7L 5T9  
(Name and address of Purchaser)

3. Location of installation UNKNOWN  
(Name and address)

4. Type ELLIP HEADS 3962.4mm x 22.23mm thk. 1016555 - 1,2 2013  
[Description of vessel part (shell, two-piece head, tube bundle)] (Manufacturer's serial number) (CRN)  
PO# 321253501 TG# FILTER TOP HD. 2013  
(National Board number) (Drawing number) (Drawing prepared by) (Year built)

5. ASME Code, Section VIII, Div. 1 2010 EDITION/2011 ADDENDA  
[Edition and Addenda (date)] (Code Case number) [Special service per UG-120(d)]

6. Shell (a) No. of course(s): \_\_\_\_\_ (b) Overall length \_\_\_\_\_

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

7. Heads: (a) SA516-70 (1650°F - 1/2 HOUR PER INCH) (b) \_\_\_\_\_  
(Material spec. number, grade or type) (H.T. - time & temp.) (Material spec. number, 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)		18.20				2:1						1	FULL	Unk.
(b)														

If removable, bolts used (describe other fastening) \_\_\_\_\_  
(Material spec. number, grade, size, number)

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

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

10. Hydro., pneu., or comb. test pressure NONE Proof test \_\_\_\_\_

11. 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	

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

13. Supports: Skirt \_\_\_\_\_ Lugs \_\_\_\_\_ Legs \_\_\_\_\_ Others \_\_\_\_\_ Attached \_\_\_\_\_  
(Yes or No) (Number) (Number) (Describe) (Where and how)

14. Remarks: NO DESIGN FUNCTION BY ENERFAB INC.

**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. 2,631 Expires December 31, 2015

Date 4-11-2013 Name Enerfab, Inc. Signed *Richard Carter*  
(Manufacturer) (Representative)

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**CERTIFICATE OF SHOP/FIELD 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 Ohio and employed by HSB CT of Hartford, CT have inspected the pressure vessel part described in this Manufacturer's Data Report on 4-11-2013 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 4-11-2013 Signed *[Signature]* Commissions NB10904A 06746  
(Authorized Inspector) [National Board (incl. endorsements), State, Province, and number]

**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**

1. Manufactured and certified by ENERFAB, INC, 4955 SPRING GROVE AVENUE, CINCINNATI, OHIO 45232  
(Name and address of Manufacturer)

2. Manufactured for ECODYNE LIMITED, 4475 CORPORATE DRIVE, BURLINGTON ON L7L 5T9  
(Name and address of Purchaser)

3. Location of installation UNKNOWN  
(Name and address)

4. Type ELLIP HEADS 3962.4mm x 25.4mm thk. 1016556 -1,2  
(Description of vessel part (shell, two-piece head, tube bundle)) (Manufacturer's serial number) (CRN)  
PO# 321253501 TG# FILTER BOTTOM HD. 2013  
(National Board number) (Drawing number) (Drawing prepared by) (Year built)

5. ASME Code, Section VIII, Div. 1 2010 EDITION/2011 ADDENDA  
(Edition and Addenda (date)) (Code Case number) [Special service per UG-120(d)]

6. Shell (a) No. of course(s): \_\_\_\_\_ (b) Overall length \_\_\_\_\_

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

7. Heads: (a) SA516-70 (1650°F - 1/2 HOUR PER INCH) (b) \_\_\_\_\_  
(Material spec. number, grade or type) (H.T. - time & temp.) (Material spec. number, 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)	19.05				2:1						1	FULL	Unk.
(b)													

If removable, bolts used (describe other fastening) \_\_\_\_\_  
(Material spec. number, grade, size, number)

8. MAWP \_\_\_\_\_ at max. temp. \_\_\_\_\_  
(Internal) (External) (Internal) (External) Mln. design metal temp. at \_\_\_\_\_

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

10. Hydro., pneu., or comb. test pressure NONE Proof test \_\_\_\_\_

11. 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	

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

13. Supports: Skirt \_\_\_\_\_ Lugs \_\_\_\_\_ Legs \_\_\_\_\_ Others \_\_\_\_\_ Attached \_\_\_\_\_  
(Yes or No) (Number) (Number) (Describe) (Where and how)

14. Remarks: NO DESIGN FUNCTION BY ENERFAB INC.

**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. 2,631 Expires December 31, 2015

Date 4-09-2013 Name Enerfab, Inc. 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/or the State or Province of Ohio and employed by HSB CT of Hartford, CT have inspected the pressure vessel part described in this Manufacturer's Data Report on 4-9-2013 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 4-9-2013 Signed [Signature] Commissions NB10011A 011116  
(Authorized Inspector) (National Board (incl. endorsements), State, Province, and number)





**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**

1. Manufactured and certified by ENERFAB, INC, 4955 SPRING GROVE AVENUE, CINCINNATI, OHIO 45232  
(Name and address of Manufacturer)

2. Manufactured for ECODYNE LIMITED, 4475 CORPORATE DRIVE, BURLINGTON ON L7L 5T9  
(Name and address of Purchaser)

3. Location of installation UNKNOWN  
(Name and address)

4. Type ELLIP HEADS 3962.4mm x 22.23mm thk.  
(Description of vessel part (shell, two-piece head, tube bundle)) 1016555 - 1,2  
(Manufacturer's serial number) 2013  
(CRN)

PO# 321253501 TG# FILTER TOP HD.  
(National Board number) (Drawing number) (Drawing prepared by) (Year built)

5. ASME Code, Section VIII, Div. 1 2010 EDITION/2011 ADDENDA  
(Edition and Addenda (date)) (Code Case number) [Special service per UG-120(d)]

6. Shell (a) No. of course(s): \_\_\_\_\_ (b) Overall length \_\_\_\_\_

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

7. Heads: (a) SA516-70 (1650°F - 1/2 HOUR PER INCH) (b) \_\_\_\_\_  
(Material spec. number, grade or type) (H.T. - time & temp.) (Material spec. number, 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)		18.20				2:1						1	FULL	Unk.
(b)														

If removable, bolts used (describe other fastening) \_\_\_\_\_

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

9. Impact test NO at test temperature of \_\_\_\_\_  
[indicate yes or no and the component(s) impact tested]

10. Hydro., pneu., or comb. test pressure NONE Proof test \_\_\_\_\_

11. 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	

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

13. Supports: Skirt \_\_\_\_\_ Lugs \_\_\_\_\_ Legs \_\_\_\_\_ Others \_\_\_\_\_ Attached \_\_\_\_\_  
(Yes or No) (Number) (Number) (Describe) (Where and how)

14. Remarks: NO DESIGN FUNCTION BY ENERFAB INC.

**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. 2,631 Expires December 31, 2015  
 Date 4-11-2013 Name Enerfab, Inc. Signed Richard J. [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/or the State or Province of Ohio and employed by HSB CT of Hartford, CT

have inspected the pressure vessel part described in this Manufacturer's Data Report on 4-11-2013 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 4/11/2013 Signed [Signature] Commissions NB101014 010101  
(Authorized Inspector) (National Board (incl. endorsements), State, Province, and number)

**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**

1. Manufactured and certified by ENERFAB, INC, 4955 SPRING GROVE AVENUE, CINCINNATI, OHIO 45232  
(Name and address of Manufacturer)

2. Manufactured for ECODYNE LIMITED, 4475 CORPORATE DRIVE, BURLINGTON ON L7L 5T9  
(Name and address of Purchaser)

3. Location of installation UNKNOWN  
(Name and address)

4. Type ELLIP HEADS 3962.4mm x 25.4mm thk. 1016556 -1,2  
(Description of vessel part (shell, two-piece head, tube bundle)) (Manufacturer's serial number) (CRN)  
PO# 321253501 TG# FILTER BOTTOM HD. 2013  
(National Board number) (Drawing number) (Drawing prepared by) (Year built)

5. ASME Code, Section VIII, Div. 1 2010 EDITION/2011 ADDENDA  
(Edition and Addenda (date)) (Code Case number) [Special service per UG-120(d)]

6. Shell (a) No. of course(s): \_\_\_\_\_ (b) Overall length \_\_\_\_\_

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

7. Heads: (a) SA516-70 (1650°F - 1/2 HOUR PER INCH) (b) \_\_\_\_\_  
(Material spec. number, grade or type) (H.T. - time & temp.) (Material spec. number, 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)		19.05				2:1						1	FULL	Unk.
(b)														

If removable, bolts used (describe other fastening) \_\_\_\_\_  
(Material spec. number, grade, size, number)

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

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

10. Hydro., pneu., or comb. test pressure NONE Proof test \_\_\_\_\_

11. 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	

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

13. Supports: Skirt \_\_\_\_\_ Lugs \_\_\_\_\_ Legs \_\_\_\_\_ Others \_\_\_\_\_ Attached \_\_\_\_\_  
(Yes or No) (Number) (Number) (Describe) (Where and how)

14. Remarks: NO DESIGN FUNCTION BY ENERFAB INC.

**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. 2,631 Expires December 31, 2015

Date 4-09-2013 Name Enerfab, Inc. 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/or the State or Province of Ohio and employed by HSB CT of Hartford, CT have inspected the pressure vessel part described in this Manufacturer's Data Report on 4-9-2013 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 4-9-2013 Signed [Signature] Commissions NB10101A 010484  
(Authorized Inspector) [National Board (Incl. endorsements), State, Province, and number]

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

1. Manufactured and certified by LESENA STEEL LTD, 1060 BIRCHMOUNT ROAD, SCARBOROUGH, ONTARIO M1K 1S4  
(Name and address of Manufacturer)
2. Manufactured for ECODYNE LTD. 4475 CORPORATE DRIVE, BURLINGTON, ONTARIO L7L 5T9  
(Name and address of Purchaser)
3. Location of installation MEG ENERGY CORP. CHRISTINA LAKE, ALBERTA  
(Name and address)
4. Type HORIZONTAL 0415 W1159.2 \*32125 ----- 2013  
(Horizontal or vertical, tank) (Manufacturer's serial number) (CRN) (Drawing number) (National Board number) (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 2010  
Year
- to 2011  
(Addenda, if applicable (date)) (Code Case numbers) (Special service per UG-120(d))
6. Shell SA-516-70N 19.05mm 3.2mm 3923.9 mm 2387mm  
(Material spec. number, grade) (Nominal thickness) (Corr. allow.) (Inner diameter) (Length (overall))
7. Seams WELDED,dbl,butt FULL 100 -- -- WELDED,dbl,butt SPOT 85 1  
(Long. (welded, dbl., singl., lap, butt)) (R.T. (spot or full)) (Eff., %) (H.T. temp.) (Time, hr) (Girth (welded, dbl., singl., lap, butt)) (R.T. (spot or full)) (Eff., %) (No. of courses)
8. Heads: (a) Material SA-516-70N (b) Material SA-516-70N  
(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 HD	18.20 mm	3.2mm	---	---	2:1	----	----	----	CONCAVE
(b)	BOTTOM HD	19.05 mm	3.2mm	---	---	2:1	----	----	----	CONCAVE

If removable, bolts used (describe other fastenings) N/A

9. MAWP 1041 kPa 103 kPa at max. temp. 120 deg.C 120 deg.C  
(Internal) (External) (Internal) (External)
- Min. design metal temp. -29 deg.C at 1041/103 kPa Hydro., pneu., or comb. test pressure 1354 kPa
- Proof test ---

10. 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	
N1:WATER INLET	1	304.8mm	WN	SA106B	SA105	14.27mm	3.2mm	SA-516-70	WELDED	WELDED	TOP HEAD
N2:WATER OUTLET	1	304.8mm	WN	SA106B	SA105	4.27mm	3.2mm	SA-516-70	WELDED	WELDED	BTM HEAD
N3A & N3B	2	101.6mm	LWN	--	SA105	38.1mm	3.2mm	---	WELDED	----	BTM HEAD
N4	1	76.2mm	WN	SA106B	SA105	11.12mm	3.2mm	SA-516-70	WELDED	WELDED	TOP HEAD
SG1A & SG1B	2	152.4mm	PAD	SA516-70N	----	63.5mm	3.2mm	----	WELDED	----	SHELL
M1	1	609.6mm	WN	SA106B	SA105	12.7mm	3.2mm	SA-516-70	WELDED	WELDED	TOP HEAD

11. Supports: Skirt NO Lugs 2 Legs 4 Other ----- Attached WELDED ON TOP & BTM HEAD  
(Yes or no) (Number) (Number) (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: TOP HEAD MANUFACTURE BY ENERFAB S/N 1016557-2 , BTM HEAD MANUFACTURE BY ENERFAB S/N 101558-3  
(Name of part, item number, Manufacturer's name and identifying stamp)
- WO:12-32E 10. NOZZLES,INSPECTION & SAFETY VALVE OPENINGS CONTINUED ON FORM U-4\*32125-D-2202-01E

CERTIFICATE OF SHOP/FIELD 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 BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. "U" Certificate of Authorization Number <u>15,066</u> expires <u>04/24/2015</u> .	
Date <u>06/12/2013</u> Co. name <u>LESENA STEEL LTD</u> Signed <u>J. Bud</u>	<small>(Manufacturer) (Representative)</small>
CERTIFICATE OF SHOP/FIELD INSPECTION	
Vessel constructed by <u>LESENA STEEL LTD</u> at <u>1060 BIRCHMOUNT ROAD, SCARBOROUGH</u>	
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 <u>ONTARIO</u> and employed by <u>T.S.S.A</u>	
have inspected the component described in this Manufacturer's Data Report on <u>2012.2013</u> , 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 <u>2012.2013</u> Signed <u>[Signature]</u> Commissions <u>NB 13106A, ONF915</u>	<small>(Authorized Inspector) (National Board (incl. endorsements), State, Province, and number)</small>

**FORM U-4 MANUFACTURER'S DATA REPORT SUPPLEMENTARY SHEET**  
**As Required by the Provisions of the ASME Boiler and Pressure Vessel Code Rules, Section VIII, Division 1**

1. Manufactured and certified by LESENA STEEL LTD, 1060 BIRCHMOUNT ROAD, SCARBOROUGH, ONTARIO M1K 1S4  
(Name and address of Manufacturer)

2. Manufactured for ECODYNE LTD. 4475 CORPORATE DRIVE, BURLINGTON, ONTARIO L7L 5T9  
(Name and address of Purchaser)

3. Location of installation MEG ENERGY CORP. CHRISTINA LAKE, ALBERTA  
(Name and address)

4. Type HORIZONTAL AFTER FILTER 0415  
(Horizontal, vertical, or sphere) (Tank, separator, heat exch., etc.) (Manufacturer's serial number)

W1159.2 32125-D-2202-01 REV. E --- 2013  
(CRN) (Drawing number) (National Board number) (Year built)

Data Report Item Number	Remarks																		
WO:12-32E																			
10.	NOZZLES, INSPECTION AND SAFETY VALVE OPENINGS CONTINUED																		
	<table border="1"> <thead> <tr> <th>PURPOSE</th> <th>NO.</th> <th>Diameter or Size</th> <th>Type</th> <th>Material</th> <th>Thickness</th> <th>Reinforcement Material</th> <th>Attachment details</th> <th>Location</th> </tr> </thead> <tbody> <tr> <td>M2</td> <td>1</td> <td>609.6 mm</td> <td>WN</td> <td>SA-106B</td> <td>12.7 mm</td> <td>SA-516-70</td> <td>WELDED</td> <td>BTM HEAD</td> </tr> </tbody> </table>	PURPOSE	NO.	Diameter or Size	Type	Material	Thickness	Reinforcement Material	Attachment details	Location	M2	1	609.6 mm	WN	SA-106B	12.7 mm	SA-516-70	WELDED	BTM HEAD
PURPOSE	NO.	Diameter or Size	Type	Material	Thickness	Reinforcement Material	Attachment details	Location											
M2	1	609.6 mm	WN	SA-106B	12.7 mm	SA-516-70	WELDED	BTM HEAD											
	NOTES: 1) IMPACT TEST EXEMPTED PER UCS-66, UG-20(f) 2) HYDROSTATIC TEST WAS PERFORMED IN HORIZONTAL POSITION 3) SAFETY VALVE CONNECTION IN PIPING ( BY OTHERS) 4) RADIOGRAPHY; LONG SEAM 100% PER UW-11(a), CIRC. SEAMS SPOT 85% PER UW-11(a)(5)(b); STAMPED RT-2																		

Certificate of Authorization: Type U No. 15,066 Expires 04/24/2015

Date 06/12/2013 Name LESENA STEEL LTD Signed J Bul  
(Manufacturer) (Representative)

Date JUN 12, 2013 Name [Signature] Commissions NB 13106A, ONT915  
(Authorized Inspector) (National Board (incl. endorsements), State, Province, and number)

**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**

1. Manufactured and certified by ENERFAB, INC, 4955 SPRING GROVE AVENUE, CINCINNATI, OHIO 45232  
(Name and address of Manufacturer)

2. Manufactured for ECODYNE LIMITED, 4475 CORPORATE DRIVE, BURLINGTON ON L7L 5T9  
(Name and address of Purchaser)

3. Location of installation UNKNOWN  
(Name and address)

4. Type ELLIP HEADS 3962.4mm x 22.23mm thk.  
[Description of vessel part (shell, two-piece head, tube bundle)]

PO# 321253501 1016557 - 1,2,3  
(National Board number) (Drawing number) (Manufacturer's serial number) (CRN)

2010 EDITION/2011 ADDENDA 2013  
(Edition and Addenda (date)) (Drawing prepared by) (Year built)

5. ASME Code, Section VIII, Div. 1 2010 EDITION/2011 ADDENDA  
(Code Case number) (Special service per UG-120(d))

6. Shell (a) No. of course(s): \_\_\_\_\_ (b) Overall length \_\_\_\_\_

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

7. Heads: (a) SA516-70 (1650°F - 1/2 HOUR PER INCH) (b) \_\_\_\_\_  
(Material spec. number, grade or type) (H.T. - time & temp.) (Material spec. number, 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)	18.20				2:1						1	FULL	Unk.
(b)													

If removable, bolts used (describe other fastening) \_\_\_\_\_

8. MAWP \_\_\_\_\_ at max. temp. \_\_\_\_\_ (Material spec. number, grade, size, number)  
(Internal) (External) (Internal) (External) Min. design metal temp. \_\_\_\_\_ at \_\_\_\_\_

9. Impact test NO at test temperature of \_\_\_\_\_  
[indicate yes or no and the component(s) impact tested]

10. Hydro., pneu., or comb. test pressure NONE Proof test \_\_\_\_\_

11. 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	

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

13. Supports: Skirt \_\_\_\_\_ Lugs \_\_\_\_\_ Legs \_\_\_\_\_ Others \_\_\_\_\_ Attached \_\_\_\_\_  
(Yes or No) (Number) (Number) (Describe) (Where and how)

14. Remarks: NO DESIGN FUNCTION BY ENERFAB INC.

**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. 2,631 Expires December 31, 2015

Date 4-29-2013 Name Enerfab, Inc. 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/or the State or Province of Ohio and employed by HSB CT of Hartford, CT have inspected the pressure vessel part described in this Manufacturer's Data Report on 4-29-2013 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 4-29-2013 Signed [Signature] Commissions NS10901A OH406  
(Authorized Inspector) (National Board (incl. endorsements), State, Province, and number)

**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**

1. Manufactured and certified by ENERFAB, INC, 4955 SPRING GROVE AVENUE, CINCINNATI, OHIO 45232  
(Name and address of Manufacturer)

2. Manufactured for ECODYNE LIMITED, 4475 CORPORATE DRIVE, BURLINGTON ON L7L 5T9  
(Name and address of Purchaser)

3. Location of installation UNKNOWN  
(Name and address)

4. Type ELLIP HEADS 3962.4mm x 25.4mm thk.  
[Description of vessel part (shell, two-piece head, tube bundle)] 1016558 - 1,2,3  
(Manufacturer's serial number) 2013  
(CRN)

5. ASME Code, Section VIII, Div. 1 2010 EDITION/2011 ADDENDA  
(National Board number) PO# 321253501  
(Drawing number) TG# FILTER BOTTOM HD.  
(Drawing prepared by) 2013  
(Year built)

6. Shell (a) No. of course(s): \_\_\_\_\_ (b) Overall length \_\_\_\_\_  
(Code Case number) 2010 EDITION/2011 ADDENDA  
(Edition and Addenda (date)) 2013  
(Special service per UG-120(d))

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

7. Heads: (a) SA516-70 (1650°F - 1/2 HOUR PER INCH) (b) \_\_\_\_\_  
(Material spec. number, grade or type) (H.T. - time & temp.) (Material spec. number, 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)	19.05				2:1						1	FULL	Unk.
(b)													

If removable, bolts used (describe other fastening) \_\_\_\_\_  
(Material spec. number, grade, size, number)

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

9. Impact test NO at test temperature of \_\_\_\_\_  
(Indicate yes or no and the component(s) impact tested)

10. Hydro., pneu., or comb. test pressure NONE Proof test \_\_\_\_\_

11. 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	

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

13. Supports: Skirt \_\_\_\_\_ Lugs \_\_\_\_\_ Legs \_\_\_\_\_ Others \_\_\_\_\_ Attached \_\_\_\_\_  
(Yes or No) (Number) (Number) (Describe) (Where and how)

14. Remarks: NO DESIGN FUNCTION BY ENERFAB INC.

**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. 2,631 Expires December 31, 2015  
 Date 4-29-2013 Name Enerfab, Inc. 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/or the State or Province of Ohio and employed by HSB CT of Hartford, CT  
 have inspected the pressure vessel part described in this Manufacturer's Data Report on 4.09.2013  
 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 4.09.2013 Signed [Signature] Commissions NB10001A-1 OHV4  
(Authorized Inspector) (National Board (incl. endorsements), State, Province, and number)

3A-F-208 F

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

1. Manufactured and certified by LESENA STEEL LTD, 1060 BIRCHMOUNT ROAD, SCARBOROUGH, ONTARIO M1K 1S4  
(Name and address of Manufacturer)

2. Manufactured for ECODYNE LTD. 4475 CORPORATE DRIVE, BURLINGTON, ONTARIO L7L 5T9  
(Name and address of Purchaser)

3. Location of installation MEG ENERGY CORP. CHRISTINA LAKE, ALBERTA  
(Name and address)

4. Type HORIZONTAL 0416 W1159.2 \*32125 ----- 2013  
(Horizontal or vertical, tank) (Manufacturer's serial number) (CRN) (Drawing number) (National Board number) (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 2010  
 to 2011  
(Addenda, if applicable (date)) (Code Case numbers) (Special service per UG-120(d))

6. Shell SA-516-70N 19.05mm 3.2mm 3923.9 mm 2387mm  
(Material spec. number, grade) (Nominal thickness) (Corr. allow.) (Inner diameter) (Length (overall))

7. Seams WELDED,dbl,butt FULL 100 -- WELDED,dbl,butt SPOT 85 1  
[Long. (welded, dbl., sngl., lap, butt)] [R.T. (spot or full)] (Eff., %) (H.T. temp.) (Time, hr) [Girth (welded, dbl., sngl., lap, butt)] [R.T. (spot or full)] (Eff., %) (No. of courses)

8. Heads: (a) Material SA-516-70N (b) Material SA-516-70N  
(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 HD	18.20 mm	3.2mm	---	---	2:1	----	----	----	CONCAVE
(b)	BOTTOM HD	19.05 mm	3.2mm	----	----	2:1	----	----	----	CONCAVE

If removable, bolts used (describe other fastenings) N/A  
(Material spec. number, grade, size, number)

9. MAWP 1041 kPa 103 kPa at max. temp. 120 deg.C 120 deg.C  
(Internal) (External) (Internal) (External)

Min. design metal temp. -29 deg.C at 1041/103 kPa Hydro., pneu., or comb. test pressure 1354 kPa

Proof test ---

10. 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	
N1: WATER INLET	1	304.8mm	WN	SA106B	SA105	14.27mm	3.2mm	SA-516-70	WELDED	WELDED	TOP HEAD
N2: WATER OUTLET	1	304.8mm	WN	SA106B	SA105	4.27mm	3.2mm	SA-516-70	WELDED	WELDED	BTM HEAD
N3A & N3B	2	101.6mm	LWN	--	SA105	38.1mm	3.2mm	---	WELDED	----	BTM HEAD
N4	1	76.2mm	WN	SA106B	SA105	11.12mm	3.2mm	SA-516-70	WELDED	WELDED	TOP HEAD
SG1A & SG1B	2	152.4mm	PAD	SA516-70N	----	63.5mm	3.2mm	----	WELDED	----	SHELL
M1	1	609.6mm	WN	SA106B	SA105	12.7mm	3.2mm	SA-516-70	WELDED	WELDED	TOP HEAD

11. Supports: Skirt NO Lugs 2 Legs 4 Other ----- Attached WELDED ON TOP & BTM HEAD  
(Yes or no) (Number) (Number) (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: TOP HEAD MANUFACTURE BY ENERFAB S/N 1016557-1, BTM HEAD MANUFACTURE BY ENERFAB S/N 101558-2  
(Name of part, item number, Manufacturer's name and identifying stamp)

WO:12-32F 10. NOZZLES, INSPECTION & SAFETY VALVE OPENINGS CONTINUED ON FORM U-4\*32125-D-2202-01E

CERTIFICATE OF SHOP/FIELD 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 BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. "U" Certificate of Authorization Number <u>15,066</u> expires <u>04/24/2015</u>	
Date <u>06/27/2013</u> Co. name <u>LESENA STEEL LTD</u> Signed <u>J. Bur</u>	<small>(Manufacturer) (Representative)</small>
CERTIFICATE OF SHOP/FIELD INSPECTION	
Vessel constructed by <u>LESENA STEEL LTD</u> at <u>1060 BIRCHMOUNT ROAD, SCARBOROUGH</u>	
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 <u>ONTARIO</u> and employed by <u>T.S.S.A</u>	
have inspected the component described in this Manufacturer's Data Report on <u>JUNE 27, 2013</u> , 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 <u>JUN 27, 2013</u> Signed <u>[Signature]</u> Commissions <u>NB 13106A ONT 915</u>	<small>(Authorized Inspector) [National Board (incl. endorsements), State, Province, and number]</small>

**FORM U-4 MANUFACTURER'S DATA REPORT SUPPLEMENTARY SHEET**  
**As Required by the Provisions of the ASME Boiler and Pressure Vessel Code Rules, Section VIII, Division 1**

1. Manufactured and certified by LESENA STEEL LTD, 1060 BIRCHMOUNT ROAD, SCARBOROUGH, ONTARIO M1K 1S4  
(Name and address of Manufacturer)

2. Manufactured for ECODYNE LTD. 4475 CORPORATE DRIVE, BURLINGTON, ONTARIO L7L 5T9  
(Name and address of Purchaser)

3. Location of installation MEG ENERGY CORP. CHRISTINA LAKE, ALBERTA  
(Name and address)

4. Type HORIZONTAL AFTER FILTER 0416  
(Horizontal, vertical, or sphere) (Tank, separator, heat exch., etc.) (Manufacturer's serial number)

W1159.2 32125-D-2202-01 REV. E --- 2013  
(CRN) (Drawing number) (National Board number) (Year built)

Data Report Item Number	Remarks																		
WO:12-32F																			
10.	NOZZLES, INSPECTION AND SAFETY VALVE OPENINGS CONTINUED																		
	<table border="1"> <thead> <tr> <th>PURPOSE</th> <th>NO.</th> <th>Diameter or Size</th> <th>Type</th> <th>Material</th> <th>Thickness</th> <th>Reinforcement Material</th> <th>Attachment details</th> <th>Location</th> </tr> </thead> <tbody> <tr> <td>M2</td> <td>1</td> <td>609.6 mm</td> <td>WN</td> <td>SA-106B</td> <td>12.7 mm</td> <td>SA-516-70</td> <td>WELDED</td> <td>BTM HEAD</td> </tr> </tbody> </table>	PURPOSE	NO.	Diameter or Size	Type	Material	Thickness	Reinforcement Material	Attachment details	Location	M2	1	609.6 mm	WN	SA-106B	12.7 mm	SA-516-70	WELDED	BTM HEAD
PURPOSE	NO.	Diameter or Size	Type	Material	Thickness	Reinforcement Material	Attachment details	Location											
M2	1	609.6 mm	WN	SA-106B	12.7 mm	SA-516-70	WELDED	BTM HEAD											
	NOTES: 1) IMPACT TEST EXEMPTED PER UCS-66, UG-20(f) 2) HYDROSTATIC TEST WAS PERFORMED IN HORIZONTAL POSITION 3) SAFETY VALVE CONNECTION IN PIPING ( BY OTHERS) 4) RADIOGRAPHY; LONG SEAM 100% PER UW-11(a), CIRC. SEAMS SPOT 85% PER UW-11(a)(5)(b); STAMPED RT-2																		

Certificate of Authorization: Type U No. 15,066 Expires 04/24/2015

Date 06/27/2013 Name LESENA STEEL LTD Signed J. Bar  
(Manufacturer) (Representative)

Date JUN 27, 2013 Name [Signature] Commissions NS 13106A, ONT 915  
(Authorized Inspector) (National Board (incl. endorsements), State, Province, and number)

**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**

1. Manufactured and certified by ENERFAB, INC, 4955 SPRING GROVE AVENUE, CINCINNATI, OHIO 45232  
(Name and address of Manufacturer)

2. Manufactured for ECODYNE LIMITED, 4475 CORPORATE DRIVE, BURLINGTON ON L7L 5T9  
(Name and address of Purchaser)

3. Location of installation UNKNOWN  
(Name and address)

4. Type ELLIP HEADS 3962.4mm x 22.23mm thk. 1016557 - 1,2,3  
(Description of vessel part (shell, two-piece head, tube bundle)) (Manufacturer's serial number) (CRN)

5. ASME Code, Section VIII, Div. 1 2010 EDITION/2011 ADDENDA PO# 321253501 FILTER TOP HEAD 2013  
(National Board number) (Drawing number) (Drawing prepared by) (Year built)

6. Shelf (a) No. of course(s): \_\_\_\_\_ (b) Overall length \_\_\_\_\_  
(Edition and Addenda (date)) (Code Case number) [Special service per UG-120(d)]

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

7. Heads: (a) SA516-70 (1650°F - 1/2 HOUR PER INCH) (b) \_\_\_\_\_  
(Material spec. number, grade or type) (H.T. - time & temp.) (Material spec. number, 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)		18.20				2:1						1	FULL	Unk.
(b)														

If removable, bolts used (describe other fastening) \_\_\_\_\_  
(Material spec. number, grade, size, number)

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

9. Impact test NO at test temperature of \_\_\_\_\_  
(Indicate yes or no and the component(s) impact tested)

10. Hydro., pneu., or comb. test pressure NONE Proof test \_\_\_\_\_

11. 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	

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

13. Supports: Skirt \_\_\_\_\_ Lugs \_\_\_\_\_ Legs \_\_\_\_\_ Others \_\_\_\_\_ Attached \_\_\_\_\_  
(Yes or No) (Number) (Number) (Describe) (Where and how)

14. Remarks: NO DESIGN FUNCTION BY ENERFAB INC.

**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. 2,631 Expires December 31, 2015

Date 4-29-2013 Name Enerfab, Inc. Signed \_\_\_\_\_  
(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/or the State or Province of Ohio and employed by HSB CT of Hartford, CT

have inspected the pressure vessel part described in this Manufacturer's Data Report on 4-29-2013 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 4-29-2013 Signed \_\_\_\_\_ Commissions NB10904A 04400  
(Authorized Inspector) (National Board (incl. endorsements), State, Province, and number)

**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**

1. Manufactured and certified by ENERFAB, INC, 4955 SPRING GROVE AVENUE, CINCINNATI, OHIO 45232  
(Name and address of Manufacturer)

2. Manufactured for ECODYNE LIMITED, 4475 CORPORATE DRIVE, BURLINGTON ON L7L 5T9  
(Name and address of Purchaser)

3. Location of installation UNKNOWN  
(Name and address)

4. Type ELLIP HEADS 3962.4mm x 25.4mm thk. 1016558 - 1,2,3  
(Description of vessel part (shell, two-piece head, tube bundle)) (Manufacturer's serial number) (CRN)

5. ASME Code, Section VIII, Div. 1 2010 EDITION/2011 ADDENDA PO# 321253501 TG# FILTER BOTTOM HD. 2013  
(National Board number) (Drawing number) (Drawing prepared by) (Year built)

6. Shell (a) No. of course(s): \_\_\_\_\_ (b) Overall length \_\_\_\_\_  
(Edition and Addenda (date)) (Code Case number) (Special service per UG-120(d))

No.	Course(s)		Material Spec./Grade or Type	Thickness		Long. Joint (Cat. A)			Circum. Joint (Cat. A, B, & C)			Heat Treatment	
	Diameter, in.	Length (ft & in.)		Nom.	Corr.	Type	Full, Spot, None	Eff.	Type	Full, Spot, None	Eff.	Temp.	Time

7. Heads: (a) SA516-70 (1650°F - 1/2 HOUR PER INCH) (b) \_\_\_\_\_  
(Material spec. number, grade or type) (H.T. - time & temp.) (Material spec. number, 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)	19.05				2:1						1	FULL	Unk.
(b)													

If removable, bolts used (describe other fastening) \_\_\_\_\_  
(Material spec. number, grade, size, number)

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

9. Impact test NO at test temperature of \_\_\_\_\_  
[indicate yes or no and the component(s) impact tested]

10. Hydro., pneu., or comb. test pressure NONE Proof test \_\_\_\_\_

11. 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	

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

13. Supports: Skirt \_\_\_\_\_ Lugs \_\_\_\_\_ Legs \_\_\_\_\_ Others \_\_\_\_\_ Attached \_\_\_\_\_  
(Yes or No) (Number) (Number) (Describe) (Where and how)

14. Remarks: NO DESIGN FUNCTION BY ENERFAB INC.

**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. 2,631 Expires December 31, 2015

Date 4-29-2013 Name Enerfab, Inc. Signed [Signature]  
(Manufacturer) (Representative)

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**CERTIFICATE OF SHOP/FIELD 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 Ohio and employed by HSB CT of Hartford, CT have inspected the pressure vessel part described in this Manufacturer's Data Report on 4/29/2013 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 4/29/2013 Signed [Signature] Commissions NB10901A! OH144  
(Authorized Inspector) (National Board (incl. endorsements), State, Province, and number)

3A-F-208 G

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

1. Manufactured and certified by LESENA STEEL LTD, 1060 BIRCHMOUNT ROAD, SCARBOROUGH, ONTARIO M1K 1S4  
(Name and address of Manufacturer)

2. Manufactured for ECODYNE LTD. 4475 CORPORATE DRIVE, BURLINGTON, ONTARIO L7L 5T9  
(Name and address of Purchaser)

3. Location of installation MEG ENERGY CORP. CHRISTINA LAKE, ALBERTA  
(Name and address)

4. Type HORIZONTAL 0417 W1159.2 \*32125 2013  
(Horizontal or vertical, tank) (Manufacturer's serial number) (CRN) (Drawing number) (National Board number) (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 2010  
Year

to 2011  
[Addenda, if applicable (date)] (Code Case numbers) (Special service per UG-120(d))

6. Shell SA-516-70N 19.05mm 3.2mm 3923.9 mm 2387mm  
(Material spec. number, grade) (Nominal thickness) (Corr. allow.) (Inner diameter) (Length (overall))

7. Seams WELDED,dbl,butt FULL 100 -- -- WELDED,dbl,butt SPOT 85 1  
[Long. (welded, dbl., sngl., lap, butt)] [R.T. (spot or full)] (Eff., %) (H.T. temp.) (Time, hr) [Girth (welded, dbl., sngl., lap, butt)] [R.T. (spot or full)] (Eff., %) (No. of courses)]

8. Heads: (a) Material SA-516-70N (b) Material SA-516-70N  
(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 HD	18.20 mm	3.2mm	---	---	2:1	---	---	---	CONCAVE
(b)	BOTTOM HD	19.05 mm	3.2mm	---	---	2:1	---	---	---	CONCAVE

If removable, bolts used (describe other fastenings) N/A  
(Material spec. number, grade, size, number)

9. MAWP 1041 kPa 103 kPa at max. temp. 120 deg.C 120 deg.C  
(Internal) (External) (Internal) (External)

Min. design metal temp. -29 deg.C at 1041/103 kPa Hydro., pneu., or comb. test pressure 1354 kPa

Proof test ---

10. 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	
N1:WATER INLET	1	304.8mm	WN	SA106B	SA105	14.27mm	3.2mm	SA-516-70	WELDED	WELDED	TOP HEAD
N2:WATER OUTLET	1	304.8mm	WN	SA106B	SA105	4.27mm	3.2mm	SA-516-70	WELDED	WELDED	BTM HEAD
N3A & N3B	2	101.6mm	LWN	--	SA105	38.1mm	3.2mm	---	WELDED	---	BTM HEAD
N4	1	76.2mm	WN	SA106B	SA105	11.12mm	3.2mm	SA-516-70	WELDED	WELDED	TOP HEAD
SG1A & SG1B	2	152.4mm	PAD	SA516-70N	----	63.5mm	3.2mm	----	WELDED	----	SHELL
M1	1	609.6mm	WN	SA106B	SA105	12.7mm	3.2mm	SA-516-70	WELDED	WELDED	TOP HEAD

11. Supports: Skirt NO Lugs 2 Legs 4 Other ----- Attached WELDED ON TOP & BTM HEAD  
(Yes or no) (Number) (Number) (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: TOP HEAD MANUFACTURE BY ENERFAB S/N 1016557-3 , BTM HEAD MANUFACTURE BY ENERFAB S/N 101558-1  
(Name of part, item number, Manufacturer's name and identifying stamp)

WO:12-32G 10. NOZZLES,INSPECTION & SAFETY VALVE OPENINGS CONTINUED ON FORM U-4\*32125-D-2202-01E

CERTIFICATE OF SHOP/FIELD 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 BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. "U" Certificate of Authorization Number <u>15,066</u> expires <u>04/24/2015</u> .	
Date <u>06/20/2013</u> Co. name <u>LESENA STEEL LTD</u> Signed <u>J. Bul</u>	<small>(Manufacturer) (Representative)</small>
CERTIFICATE OF SHOP/FIELD INSPECTION	
Vessel constructed by <u>LESENA STEEL LTD</u> at <u>1060 BIRCHMOUNT ROAD, SCARBOROUGH</u>	
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 <u>ONTARIO</u> and employed by <u>T.S.S.A</u>	
have inspected the component described in this Manufacturer's Data Report on <u>WN 20, 2013</u> , 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 <u>WN 20, 2013</u> Signed <u>[Signature]</u> Commissions <u>NB13106A, ONT 915</u>	<small>(Authorized Inspector) (National Board (incl. endorsements), State, Province, and number)</small>



**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**

1. Manufactured and certified by ENERFAB, INC, 4955 SPRING GROVE AVENUE, CINCINNATI, OHIO 45232  
(Name and address of Manufacturer)

2. Manufactured for ECODYNE LIMITED, 4475 CORPORATE DRIVE, BURLINGTON ON L7L 5T9  
(Name and address of Purchaser)

3. Location of installation UNKNOWN  
(Name and address)

4. Type ELLIP HEADS 3962.4mm x 22.23mm thk. 1016557 - 1,2,3  
[Description of vessel part (shell, two-piece head, tube bundle)] (Manufacturer's serial number) (CRN)  
PO# 321253501 FILTER TOP HEAD 2013  
(National Board number) (Drawing number) (Year built)

5. ASME Code, Section VIII, Div. 1 2010 EDITION/2011 ADDENDA  
[Edition and Addenda (date)] (Code Case number) [Special service per UG-120(d)]

6. Shell (a) No. of course(s): \_\_\_\_\_ (b) Overall length \_\_\_\_\_

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

7. Heads: (a) SA516-70 (1650°F - 1/2 HOUR PER INCH) (b) \_\_\_\_\_  
(Material spec. number, grade or type) (H.T. - time & temp.) (Material spec. number, 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)		18.20				2:1						1	FULL	Unk.
(b)														

If removable, bolts used (describe other fastening) \_\_\_\_\_  
(Material spec. number, grade, size, number)

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

9. Impact test NO at test temperature of \_\_\_\_\_  
(Indicate yes or no and the component(s) impact tested)

10. Hydro., pneu., or comb. test pressure NONE Proof test \_\_\_\_\_

11. 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	

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

13. Supports: Skirt \_\_\_\_\_ Lugs \_\_\_\_\_ Legs \_\_\_\_\_ Others \_\_\_\_\_ Attached \_\_\_\_\_  
(Yes or No) (Number) (Number) (Describe) (Where and how)

14. Remarks: NO DESIGN FUNCTION BY ENERFAB INC.

**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. 2,631 Expires December 31, 2015

Date 4-29-2013 Name Enerfab, Inc. 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/or the State or Province of Ohio and employed by HSB CT of Hartford, CT have inspected the pressure vessel part described in this Manufacturer's Data Report on 4-29-2013 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 loss of any kind arising from or connected with this inspection.

Date 4-29-2013 Signed [Signature] Commissions NS10901A 01426  
(Authorized Inspector) (National Board (incl. endorsements), State, Province, and number)

**FORM U-2A MANUFACTURER'S PARTIAL DATA REPORT (ALTERNATIVE FORM)**  
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**As Required by the Provisions of the ASME Boiler and Pressure Vessel Code Rules, Section VIII, Division 1**

1. Manufactured and certified by ENERFAB, INC, 4955 SPRING GROVE AVENUE, CINCINNATI, OHIO 45232  
(Name and address of Manufacturer)

2. Manufactured for ECODYNE LIMITED, 4475 CORPORATE DRIVE, BURLINGTON ON L7L 5T9  
(Name and address of Purchaser)

3. Location of installation UNKNOWN  
(Name and address)

4. Type ELLIP HEADS 3962.4mm x 25.4mm thk. 1016558 - 1,2,3  
[Description of vessel part (shell, two-piece head, tube bundle)] (Manufacturer's serial number) (CRN)  
PO# 321253501 TG# FILTER BOTTOM HD. 2013  
(National Board number) (Drawing number) (Drawing prepared by) (Year built)

5. ASME Code, Section VIII, Div. 1 2010 EDITION/2011 ADDENDA  
[Edition and Addenda (date)] (Code Case number) [Special service per UG-120(d)]

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

7. Heads: (a) SA516-70 (1650°F - 1/2 HOUR PER INCH) (b)    
(Material spec. number, grade or type) (H.T. - time & temp.) (Material spec. number, 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)		19.05				2:1						1	FULL	Unk.
(b)														

If removable, bolts used (describe other fastening)    
(Material spec. number, grade, size, number)

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

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

10. Hydro., pneu., or comb. test pressure NONE Proof test  

11. 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	

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

13. Supports: Skirt   Lugs   Legs   Others   Attached    
(Yes or No) (Number) (Number) (Describe) (Where and how)

14. Remarks: NO DESIGN FUNCTION BY ENERFAB INC.

**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. 2,631 Expires December 31, 2015  
 Date 4-29-2013 Name Enerfab, Inc. 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/or the State or Province of Ohio and employed by HSB CT of Hartford, CT have inspected the pressure vessel part described in this Manufacturer's Data Report on 4/29/2013 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 4/29/2013 Signed [Signature] Commissions NB101011-01144  
(Authorized Inspector) [National Board (incl. endorsements), State, Province, and number]