

11 January 2016

Terragon Environmental Technologies  
651 Bridge Street  
Montreal  
Quebec, CANADA H3K 2C8

Attention: Mr. Andrew Korney

Subject: **Type Approval - Product Design Assessment (PDA)**  
Micro Auto Gasification System (MAGS)  
Models: V8 & MV8  
IMO Resolution MEPC 244(66) adopted on 4 April 2014 "2014 Standard Specification for Shipboard Incinerators"  
Drawings and Documentation as per the Attached List

Gentlemen:

We have received your declaration stating that the materials in the requested assessment are free from Asbestos and your application for ABS Type Approval dated 2 December 2015 together with the enclosures and are pleased to advise that we have completed the Product Design Assessment (PDA) phase of the type approval process.

The design assessment was completed in accordance with the ABS Rules for Building and Classing Steel Vessels, 2015. Design Assessment Enclosed is your original copy of the **Certificate of Design Assessment (PDA)**. Your details are published on our web site at [www.typeapproval.org](http://www.typeapproval.org) and can also be downloaded there.

Please be sure that you understand the scope and conditions of the validity of the certificate. The Product Design Assessment (PDA) is not an approval. As applicable, the PDA is a generic assessment of materials, components, products or systems for a specific use in compliance with the Rules, Guides and recognized standards. In essence the final approval is given when an Engineer or Surveyor accepts it for a specific user and installation. Therefore, the PDAs are written assuming that the end user and installation of the product is unknown, and that the manufacturer may not apply for Manufacturing Assessment.

In particular we draw your attention to the pages attached to the PDA and the restrictions that may affect its use.

Unit Certification is not required for this product. If the manufacturer or purchaser requests an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined.

This Product Design Assessment (PDA) is intended for products to be used on ABS classed vessels, MODUs or facilities which are in existence or under contract for construction on the date of the ABS Rules used to evaluate the Product. The use of the product in a non-ABS classed vessel, MODU or facility is to be mutually agreed between your company and your client



JE/MKH/ES/PM  
OPN: 3653184  
Task No.: T1462203

We recommend that you monitor the ABS Rules, Guides and other standards used in the approval. These Rules, Guides and standards often change on an annual basis, and you must comply with the new Rules, Guides and standards in order for the product to be used on an ABS classed vessel or facility contracted under the new Rules, Guides or specifications.

We do caution you that the use of the ABS logo is copyrighted. However, our "Design Assessed" logo may be used as long as your PDA remains valid.

Our "Product Type Approval" Logo may be used as long as you have an ISO9001 Certified Quality System (or equivalent) and you are conducting regular ABS Manufacturing Assessment audits of your manufacturing process. Should you desire to continue with Product Type Approval, please contact the ABS Office at Toronto, Canada, Tel: (905) 332-2331, Fax: (905) 332-9132. The office will arrange for the production testing as may be necessary and audit of your quality assurance and control arrangements. To find another office, please use the directory of ABS offices on the ABS Web Site at [www.eagle.org](http://www.eagle.org). You may also ask the ABS Program staff at Tel. (281) 877-6107, Fax (281) 877-6591, or e-mail [absta-programs@eagle.org](mailto:absta-programs@eagle.org).

A copy of the artwork for the Design Assessed and Type Approved logos may be requested from our email address [absta-programs@eagle.org](mailto:absta-programs@eagle.org). Please be aware that both logos are not to be used at the same time. For a copy of the art work and detailed guidance on their use, please contact [absta-programs@eagle.org](mailto:absta-programs@eagle.org)

One (1) copy of the drawings appropriately stamped to indicate our reviews are being returned. Please find enclosed our invoice to cover the cost of the design assessment phase of the type approval process.

We appreciate your confidence in ABS type Approval. If you should have any comments relative to the scope and conditions of the assessment of your product, or if we can be of any further assistance, please do not hesitate to contact us.

Very truly yours,

Daniel Cronin  
Vice President, Engineering  
ABS Americas

By: Prasad Mantravadi  
Prasad Mantravadi  
Senior Managing Principal Engineer  
Ship Engineering Department

cc: ABS Toronto - w/p. & w/inv.



Drawing List

<b>Engineering Office:</b>	Houston SED Machinery - Equipment	
<b>Submitter:</b>	TERRAGON ENVIRONMENTAL TECHNOLOGIES (448019)	
<b>Drawing No</b>	<b>Revision No</b>	<b>Drawing Title</b>
Correspondence	-	Declaration of the Absence of Asbestos 02Dec2015
Correspondence	-	Email Quote
Correspondence	-	Email
Correspondence	-	New TA Application 02Dec2015
Correspondence	-	Purchase Order 5986
MAGS MV8	-	General Assembly
MAGS V8 P&ID	-	V8 P&ID with BOM Added Pressure Drops
MAGS V815 Installation Specs	-	V815 Installation Specs
Spec Sheet Flyer	-	Mechanical MAGS V8 Spec Sheet Flyer
MAGS 8 00014 CAB-1	-	MAGS 8 00014 CAB-1
MAGS 8 00014 CAB-1 Layout	-	MAGS 8 00014 CAB-1 Layout
MAGS 8 00014 CAB-2	-	MAGS 8 00014 CAB-2
MAGS 8 00014 CAB-2 Layout	-	MAGS 8 00014 CAB-2 Layout
MAGS 8 00014 CAB-3	-	MAGS 8 00014 CAB-3
MAGS 8 00014 CAB-3 Layout	-	MAGS 8 00014 CAB-3 Layout
MAGS 8 00014 General Layout	-	MAGS 8 00014 General Layout
MAGS V8 Commissioning Checklist	-	MAGS V8 Commissioning Checklist
V8 & MV8 Testing Documentation	-	V8 & MV8 Test Report