Attachment 1

Manufactured Treatment Device (MTD) Registration

1. **Manufactured Treatment Device Name:** *The Vortechs® System*

2. **Company Name:** Contech Engineered Solutions LLC

   Corporate headquarters

   Mailing Address: 9025 Centre Pointe Drive
   City: West Chester
   State: Ohio Zip: 45069

3. **Contact Name** (to whom questions should be addressed):

   For Technical Matters: Derek Berg

   Mailing Address: 71 US Route 1, Suite F
   City: Scarborough
   State: Maine Zip: 04074
   Phone number: 207-885-6174
   Fax number: 207-885-9825
   E-mail address: dberg@conteches.com
   Web address: http://www.conteches.com/

   For Project Specific Questions Please Contact Contech's Baltimore Maryland Office:
   605 Global Way, Suite 113
   Linthicum, MD 21090
   Ph.: 410-740-8490

4. **Technology**
   Specific size/capacity of MTD assessed (include units): *Vortechs Model 4000 (6ft diameter)*

   Range of drainage areas served by MTD (acres): *The Vortechs is available in multiple model sizes and can treat a wide range of drainage areas.*

   Include sizing chart or describe sizing criteria: *NJDEP approved sizing calls for maintaining an approved treatment rate of 40gpm/ft^2 of swirl chamber area.*

   Intended application: on-line or offline: *Offline*

Media used (if applicable): NA

5. Warranty Information (describe, or provide web address):

Contech provides a limited 1-year warrantee for all of its stormwater treatment solutions

6. Treatment Type

X Hydrodynamic Structure
☐ Filtering Structure
☐ Manufactured Bioretention System
Provide Infiltration Rate (in/hr):
☐ Other (describe):

7. Water Quality Treatment Mechanisms (check all that apply)

X Sedimentation/settling
☐ Infiltration
☐ Filtration (specify filter media)
☐ Adsorption/cation exchange
☐ Chelating/precipitation
☐ Chemical treatment
☐ Biological uptake
☐ Other (describe):

8. Performance Testing and Certification (check all that apply):

Performance Claim (include removal efficiencies for treated pollutants, flow criteria, drainage area):

The Vortechs Stormwater Treatment System Model 4000 installed online at the Wawa Market Route 37 study site sized based on the New Jersey Water Quality Design Storm to treat a maximum water quality flow rate of 2.13 cfs and a peak flow of 2.4 cfs demonstrated suspended solids removal greater than 60% of particles with a d50 less than 100µm. The Vortechs Stormwater Treatment System Model 4000 also demonstrated the ability to remove greater than 80% of stormwater solids when the influent PSD is predominantly sand sized particles (50-2000 microns).

Specific size/Capacity of MTD assessed: *Vortechs Model 4000 (6ft diameter)*

Has the MTD been "approved" by an established granting agency, e.g. New Jersey Department of Environmental Protection (NJDEP) , Washington State Department of Ecology, etc.
☐ **No**

X **Yes**; For each approval, indicate (1) the granting agency, (2) use level if awarded (3) the protocol version under which performance testing occurred (if applicable), and (4) the date of award, and attach award letter.

A.
1. NJDEP
2. Final Field Certification
3. TARP Field
4. 2011

B.
1. WADOE
2. GULD
3. TAPE Laboratory/pretreatment Standards
4. 2003, Updated 2013

Was an established testing protocol followed?
☐ **No**
X **Yes**, (1) Provide name of testing protocol followed, (2) list any protocol deviations:

Provide the information below and provide a performance report (attach report):

For lab tests: *Completed testing per WADOE/TAPE pretreatment criteria*

For field tests: *Completed TARP Tier II Field testing. Report is attached.*

9. MTD History:

How long has this specific model/design been on the market? *>15 years*

List no more than three locations where the assessed model size(s) has/have been installed in Virginia. If applicable, provide permitting authority. If known, provide latitude & longitude:

1. *Vortechs 7000 (8ft), Stonefield, Charlottesville, VA*
2. *Vortechs 11000 (10ft), Midtown Connector, Lynchburg, VA*
3. *Vortechs 7000 (8ft), Reams Gordon Library, Richmond, VA*

List no more than three locations where the assessed model size(s) has/have been installed outside of Virginia. If applicable, provide permitting authority. If known, provide latitude & longitude:

1. *Vortechs 5000 (7ft), Upper Rock, Rockville, MD*
2. *Vortechs 16000 (12ft), Monocacy Lot 1, Frederick, MD*

10. Maintenance:

What is the generic inspection and maintenance plan/procedure? (attach necessary documents): http://www.conteches.com/products/stormwater-management/treatment/vortechs.aspx#1826148-technical-info

Is there a maintenance track record/history that can be documented?
☐ No, no track record.
X Yes, track record exists; (provide maintenance track record, location, and sizing of three to five MTDs installed in Virginia [preferred] or elsewhere):

Ongoing maintenance records are kept by the property owner and are not typically recorded by Contech. Numerous Vortechs units have been in operation for more than 10 years.

Recognizing that maintenance is an integral function of the MTD, provide the following: amount of runoff treated, the water quality of the runoff, and what is the expected maintenance frequency for this MTD in Virginia, per year?

Vortechs is typically cleaned out once per year, but actual maintenance frequency will be governed by site specific pollutant loads. Regular inspection is the best way to establish the appropriate maintenance frequency at a given site.

Total life expectancy of MTD when properly operated in Virginia and, if relevant, life expectancy of media:

The Vortechs is expected to remain viable for the life of its concrete housing as long as it is regularly inspected and maintained as needed

For media or amendments functioning based on cation exchange or adsorption, how long will the media last before breakthrough (indicator capacity is nearly reached) occurs? NA

For media or amendments functioning based on cation exchange or adsorption, how has the longevity of the media or amendments been quantified prior to breakthrough (attach necessary performance data or documents)? NA

Is the maintenance procedure and/or are materials/components proprietary?
☐ Yes, proprietary
X No, not proprietary

Maintenance complexity (check all that apply):
☐ Confined space training required for maintenance
X Liquid pumping and transportation
Specify method:

X Solids removal and disposal
Specify method:
Other noteworthy maintenance parameter (describe):

11. Comments

Include any additional explanations or comments:

12. Certification

Signed by the company president or responsible officer of the organization:

"I certify that all information submitted is to the best of my knowledge and belief true, accurate, and complete."

Signature: _____

Name: Derek Berg

Title: Regional Regulatory Manager

Date: 6/4/2014

NOTE: All information submitted to the department will be made publically accessible to all interested parties. This MTD registration form will be posted on the Virginia Stormwater BMP Clearinghouse website.