COMMONWEALTH OF VIRGINIA
DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER DIVISION

Subject: **Guidance Memo No. 14-2009**
INTERIM USE OF STORMWATER MANUFACTURED TREATMENT DEVICES (MTDs) TO MEET THE NEW VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSMP) TECHNICAL CRITERIA, PART IIB WATER QUALITY DESIGN REQUIREMENTS

To: Regional Directors

From: Melanie D. Davenport, Director

Date: May 15, 2014

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Summary:

Under the Virginia Stormwater Management Program (VSMP) Regulation (9VAC25-870) stormwater Manufactured Treatment Devices (MTDs) that are used to meet the new water quality design requirements (Part IIB) must be approved by the Department of Environmental Quality (Department) and listed on the Virginia Stormwater BMP Clearinghouse website. This guidance document provides Department procedures for approval of these MTDs for use under Part IIB of the VSMP Regulation. This guidance document will remain in place for an approximate period of one year. During this time, the Department plans to develop final MTD evaluation and acceptance procedures.

Electronic Copy:

An electronic copy of this guidance document is available in PDF format at DEQ's water permit guidance website and on the Virginia Stormwater BMP Clearinghouse website.

Contact Information:

Please contact Robert E. Cooper, Office of Stormwater Management, at (804) 698-4033 or Robert.Cooper@deq.virginia.gov with any questions regarding the application of this guidance.

Disclaimer:

This document is provided as guidance and, as such, sets forth standard operating procedures for the agency. However, it does not mandate any particular method, nor does it prohibit any particular method for the analysis of data, establishment of a wasteload allocation, or establishment of a permit limit. If alternative proposals are made, such proposals should be reviewed and accepted or denied based on their technical adequacy and compliance with appropriate laws and regulations. This approval procedure and the assignment of removal efficiencies is not an endorsement of any product by the Department.

USE OF STORMWATER MANUFACTURED TREATMENT DEVICES (MTDs) TO MEET THE NEW (PART IIB) WATER QUALITY DESIGN REQUIREMENTS

Definitions:

"Best Management Practice" or *"BMP"* means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices, including both structural and nonstructural practices, to prevent or reduce the pollution of surface waters and groundwater systems.

"Manufactured treatment devices" or *"MTDs"* (also referred to as *proprietary treatment devices*) means commercial products fabricated in manufacturing facilities that provide stormwater pollution treatment.

Regulatory Requirements for the use of MTDs:

All regulated land-disturbing activities must meet either the new water quality design requirements as of July 1, 2014 (Part IIB) or the old technical criteria requirements (Part IIC) of the Virginia Stormwater Management Program (VSMP) Regulation (9VAC25-870). This regulation requires MTDs that are used to meet the new water quality design requirements (Part IIB) be approved by Department. The MTD and the assigned pollutant removal efficiency will be listed on the Virginia Stormwater BMP Clearinghouse website. For MTDs that are used to meet the old technical criteria (Part IIC) the regulation allows the use of MTDs listed in the 1999 Virginia Stormwater Management Handbook as well as other MTDs listed on the Virginia Stormwater BMP Clearinghouse website. In addition, under Part IIC, a local program administrator or the Department may allow for the use of MTDs (innovative or alternate BMP).

Approval of MTDs under Part IIB of the VSMP Regulation:

To facilitate the development and use of MTDs under the new water quality design requirements (Part IIB), the following criteria in Table 1 will be used to assign total phosphorus (TP) pollutant removal in percent.

Table 1 - Summary of Testing Procedures with Associated % TP Removal Efficiencies

Testing Protocol Followed	Chemical Parameter	Certification	% TSS Removal[1]	%TP Removal[1]
TARP*	TSS	Required	< 50% ≥ 50% ≥ 80%	Up to 10% Up to 20% Up to 40%
Other (TARP*, TAPE**, USGS, etc.)	TP	If Available	N/A	Up to 50%

* Technology Acceptance Reciprocity Partnership Protocol
** Technology Assessment Protocol – Ecology
[1] This value is defined as the change in the average event mean concentration (EMC) of a pollutant in runoff as the runoff flows into and out of a MTD.

The Department will review all submitted documentation, including certification by other states, and assign a percent TP removal based on our best professional judgment. The Department's review will consider performance test results, certifications, geographical location, rainfall characteristics, particle size distribution, and other factors as part of the review. The Department will also consider data from other reports or studies. Under this guidance the maximum percent TP removal that the Department will assign to any MTD is fifty percent (50%). Approved Stormwater Management Plans prepared utilizing the percent TP removal efficiencies established under this guidance will not be subject to retroactive reductions once the Department develops a final MTD evaluation and acceptance procedures. All information submitted to the Department should be publically available and will be made accessible to all interested parties.

The attached "Manufactured Treatment Device (MTD) Registration" form (Attachment 1) should be submitted to the Department for all MTDs. Once the registration form is received, along with any supporting documentation, the Department will review and assign the applicable percent TP removal efficiency. After the percent removal has been assigned, this value will be added to the Virginia Stormwater BMP Clearinghouse website and will be included in the Virginia Runoff Reduction Spreadsheet.

Attachment 1

Manufactured Treatment Device (MTD) Registration

1. **Manufactured Treatment Device Name:**

2. **Company Name:**
   Mailing Address:
   City:
   State: Zip:

3. **Contact Name (**to whom questions should be addressed**):**
   Mailing Address:
   City:
   State: Zip:
   Phone number:
   Fax number:
   E-mail address:
   Web address:

4. **Technology**
   Specific size/capacity of MTD assessed (include units):
   Range of drainage areas served by MTD (acres):
   Include sizing chart or describe sizing criteria:
   Intended application: on-line or offline:
   Media used (if applicable):

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

6. **Treatment Type**

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

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

- ☐ 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):

Specific size/Capacity of MTD assessed:

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**

☐ **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.

Was an established testing protocol followed?

☐ **No**

☐ **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:

i. Summarize the specific settings for each test run (flow rates, run times, loading rates) and performance for each run:

ii. If a synthetic sediment product was used, include information about the particle size distribution of the test material:

iii. If less than full-scale setup was tested, describe the ratio of that tested to the full-scale MTD:

For field tests:

i. Provide the address, average annual rainfall and characterized rainfall pattern, and the average annual number of storms for the field-test location:

ii. Provide the total contributing drainage area for the test site, percent of impervious area in the drainage area, and percentages of land uses within the drainage area

(acres):

iii. Describe pretreatment, bypass conditions, or other special circumstances at the test site:

iv. Provide the number of storms monitored and describe the monitored storm events (amount of precipitation, duration, etc.):

v. Describe whether or not monitoring examined seasonal variation in MTD performance:

vi. If particle size distribution was determined for monitored runoff and/or sediment collected by the MTD, provide this information:

9. MTD History:

How long has this specific model/design been on the market?

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:

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:

10. Maintenance:

What is the generic inspection and maintenance plan/procedure? (attach necessary documents):

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

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?

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

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?

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)?

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

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

Title: _____

Date: _____

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.