

# Procedure for Obtaining Verification of a Stormwater Manufactured Treatment Device from New Jersey Corporation for Advanced Technology

For use in accordance with the Stormwater Management Rules,  
N.J.A.C. 7:8

January 25, 2013

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## 1. Introduction

This document provides the details of the process for compliance with the stormwater manufactured treatment device (MTD) verification requirement within New Jersey Department of Environmental Protection's (NJDEP) Stormwater Management rules, N.J.A.C. 7:8. This document shall be followed by manufacturers and the New Jersey Corporation for Advanced Technology (NJCAT) to meet the verification requirement. For information regarding NJDEP's acceptance of MTDs, visit [www.njstormwater.org](http://www.njstormwater.org).

MTDs that have received verification from NJCAT prior to the date of this procedure shall be re-verified in accordance with this document prior to the expiration date of the NJDEP certification to keep their verified status.

## 2. Protocols

Verification of a MTD shall be based upon the results of a series of laboratory and analytical tests performed in strict accordance with this document and the requirements of the following applicable laboratory testing protocol:

“New Jersey Department of Environmental Protection Laboratory Protocol to Assess Total Suspended Solids Removal by a Hydrodynamic Sedimentation Manufactured Treatment Device,” dated January 25, 2013; or

“New Jersey Department of Environmental Protection Laboratory Protocol to Assess Total Suspended Solids Removal by a Filtration Manufactured Treatment Device,” dated January 25, 2013.

## 3. Field Testing

This section is a placeholder for a future update to this document if field testing is included. If in the future field testing is included a corresponding field testing protocol (as a separate document) will be developed.

## 4. Testing Oversight

### A. Laboratory and Analytical Testing

Laboratory testing will evaluate the MTD's treatment process, determine performance and assess expected lifespan. These tests shall be conducted by either an independent test facility or by the manufacturer. Laboratory testing conducted by the manufacturer must be performed under the direct supervision of an independent third party observer.

Analytical testing is defined as the evaluation of total suspended solids in accordance with ASTM D3977-97. This test shall be conducted by the manufacturer or an independent analytical laboratory or independent test facility. Analytical testing conducted by the manufacturer must be performed under the direct supervision of an independent third party observer.

If the manufacturer is using their own laboratory for either laboratory or analytical testing and a third party observer is being used, the observer shall:

1. Verify compliance with the laboratory test plan.
2. Observe the testing for its full duration.
3. Have no personal conflict of interest regarding the test results.
4. The qualifications of the laboratory and the independent observer must be approved by the NJCAT.

NJCAT shall approve the qualifications of an independent analytical laboratory, independent test facility or third party observer, prior to beginning the laboratory testing process per the Verification Application (Appendix B). If NJCAT previously approved an independent analytical laboratory, independent test facility or third party observer, their qualifications shall not be unreasonably denied.

## **B. Conflict of Interest**

There shall be no conflict of interest between the independent test facility or third party observer and the manufacturer. A conflict of interest is defined as any person within the testing portion of the verification process with the potential to undermine the quality of results for the MTD due to personal, professional, or financial interest. For the purposes of determining a conflict of interest, an entity proposed as an independent test facility or third party observer shall submit a disclosure record. The disclosure record shall include: all previous and current personal, professional, and financial relationships with the manufacturer of the MTD under review and all previous and current personal, professional, and financial relationships with other MTD manufacturers.

Not all items in the disclosure record shall be construed as conflicts of interest; disclosures of existing relationships are necessary to ensure transparency in the testing process. For example, a consultant, university, or independent test facility that has received fees for testing or evaluating MTDs from one or more manufacturers is not considered a conflict of interest. Another example is the receipt of a fee for conducting or overseeing testing from one or more manufacturers; this would also not be considered a conflict of interest because this type of consulting arrangement is common in the professional services industry.

Examples of financial conflicts of interest can include, but are not limited to:

- having an ownership stake in the manufacturer;
- receiving a commission for selling a MTD for a manufacturer;
- having a licensing agreement with the manufacturer; or
- receiving funding or grants not associated with a testing program from the manufacturer.

NJCAT shall determine if a conflict of interest exists prior to their approval of an independent test facility or third-party observer, through the acceptance of entities listed in the Verification Application described in Appendix B. If NJCAT eliminates a proposed independent test facility or third-party observer due to a conflict of interest, a manufacturer may appeal the decision to a three person review panel as defined in Appendix C. During the comment period (Appendix A Item 9), a third-party may also appeal to NJCAT if they believe that a conflict of interest exists between a manufacturer's proposed independent test facility or third-party observer and the manufacturer. If a manufacturer or third-party disputes NJCAT's decision, they can appeal to the three person review panel (as noted above).

## **5. Verification Report Requirements**

The Verification Report is the review document provided by NJCAT for each MTD seeking performance claim verification. The Verification Report confirms that the tested MTD has successfully met the technical and regulatory standards. Upon completion of the Verification Report, NJCAT will update their website ([www.njcat.org](http://www.njcat.org)) with an electronic version of the report and notify the NJDEP of the MTDs verified status. More information on the Verification Process can be found in Appendix A.

The Verification Report shall include information supplied by both the manufacturer and NJCAT. Items A, B, C (except 1.a and 2.a) D, E, F and G1-5 in this section will be provided by the manufacturer. The

performance claims, Subsection 5C, G6-7 and H will be determined by NJCAT. Each verification report shall conform to the following outline:

### **A. Description of Technology**

This section should describe how the MTD works, including its physical, chemical, and/or biological treatment functions. The description must include the main treatment processes in the MTD and any ancillary processes required for the unit to function in accordance with the performance claim of the MTD with respect to the pollutants of concern. The report should also indicate what other types of Best Management Practices (BMP) are appropriate for use in series with the MTD to provide enhanced removal rates. The suitability of the BMP for use in series shall be based on the BMP's treatment process.

### **B. Laboratory Test Setup**

This section should provide schematic drawings of the laboratory testing configuration; these drawings must include the location of the influent, effluent, and bypass piping, the tested MTD and sampling locations (as applicable). This section must also include detailed drawings of the tested MTD in accordance with the appropriate protocol as discussed in Section 2. In addition, this section must include photographs of the laboratory configuration, including the sample locations and the tested MTD.

### **C. Performance Claims**

1. For hydrodynamic sedimentation (HDS) MTDs, this section must provide the following information:
  - a. Verified TSS removal rates;
  - b. Maximum treatment flow rate (MTFR);
  - c. Maximum sediment storage depth and volume;
  - d. Effective treatment area;
  - e. Detention time and volume;
  - f. Effective sedimentation area;
  - g. Online or offline installation; and
  - h. The basis for determining all of the above, including all pertinent calculations.

Note: The TSS removal efficiency will be determined by NJCAT; if the TSS removal efficiency is greater than 50% for HDS MTDs, the TSS removal efficiency shall be rounded down to 50%. For HDS MTDs with TSS removal efficiencies that are less than 50%, NJCAT will not grant verification.

2. For filtration MTDs, this section must provide the following information:
  - a. Verified TSS removal rates;
  - b. MTFR and maximum draindown cartridge flow rate (if applicable);
  - c. Maximum sediment storage depth and volume;
  - d. Effective treatment area;
  - e. Detention time and wet volume;
  - f. Effective sedimentation area;
  - g. Effective filtration area;
  - h. Sediment Mass Loading Capacity;
  - i. Maximum allowable inflow drainage area;
    - i. Online or offline installation with maximum online flow rate (if applicable); and
  - j. The basis for determining all of the above, including all pertinent calculations.

Note: The TSS Removal Efficiency will be determined by NJCAT; if the TSS removal efficiency is greater than 80% for filtration MTDs, the TSS removal efficiency shall be rounded down to 80%. For filtration MTDs with TSS Removal Efficiencies that are less than 80%, NJCAT will not grant verification.

## **D. Supporting Documentation**

This section must include the following information provided by the manufacturer:

- a. Copies of the laboratory test reports, including all collected and measured data;
- b. All data from performance evaluation test runs, including any data excluded from the performance verification analysis; where data were excluded from the computation of the removal rate or maintenance frequency, a discussion of the reason for exclusion must be included. In addition, all sample collection times and sample methods and/or devices used to obtain analytical results must also be included.
- c. Spreadsheets containing original data from all performance evaluation test runs. Data shall include times that samples were collected, sampling methods/devices used to obtain analytical results, and raw measurements and data from laboratory test runs;
- d. All pertinent calculations, including test sediment feed, flow rates, head measurements, background TSS, sampling results, and mass balance results;
- e. All pertinent calculations, including average influent and effluent concentrations, loading rates, average sediment removal efficiencies for each flow rate, weighted removal efficiency for each flow rate, final MTD annual TSS removal rate, and sediment removal interval; and
- f. Documentation of any activities, outside test setup and sample collection that occur during the laboratory testing program, for example, maintenance that occurs on the MTD during the laboratory testing process. The documentation should include frequency, reason for maintenance, and amount of sediment removed.

## **E. Design Limitations**

The manufacturer shall provide design limitations including, but not limited to, required soil characteristics, slope, flow rate, maintenance requirements, driving head, installation limitations, configurations, load limitations, pretreatment requirements, limitations on tailwater, depth to seasonal high water table, and any other limitations that are important to ensure the performance of the MTD.

## **F. Maintenance Plans**

Maintenance plans must contain specific preventative and corrective maintenance information and must be written in non-technical language. In order to ensure proper maintenance, a detailed maintenance plan for each MTD must be provided that incorporates the following:

1. Minimum required maintenance frequency for each component in order to achieve the annual TSS removal rate, including the required sediment removal interval, required filtration media replacement interval, and associated maximum sediment depths prior to maintenance;
2. Description of what conditions trigger the need for maintenance and how neglect of specified maintenance activities (e.g., sediment removal, oil removal) causes underperformance of the MTD;
3. Location of access points and type of inspection needed – whether above ground or underground;
4. Description of any training needed to perform maintenance, which may include training videos. All training materials must be made available to maintenance staff;
5. Equipment needed for maintenance and a discussion regarding replacement parts, specifically which replacement parts are only available through the vendor;
6. The format of the maintenance sections of the report shall conform to the maintenance manual requirements of the non-proprietary BMPs in the current version of New Jersey Stormwater Best Management Practices Manual.

## **G. Statements**

The following signed statements are required to complete the NJCAT verification process:

1. A signed statement from the manufacturer stating that the applicable testing protocol (Section 2) requirements were met or exceeded;

2. A signed statement from the third-party observer, if the manufacturer conducts the testing and/or laboratory analysis, stating that the applicable testing protocol (Section 2) requirements were met or exceeded and that they observed the testing for its full duration;
3. A signed statement from the third-party observer, if the manufacturer conducts the testing and/or laboratory analysis, stating that they had no financial conflict of interest regarding the test results and they fully disclosed all relevant relationships on the disclosure record;
4. A signed statement from the independent test facility, stating that the applicable testing protocol (Section 2) requirements were met or exceeded;
5. A signed statement from the independent test facility, stating that they had no financial conflict of interest regarding the test results and they fully disclosed all relevant relationships on the disclosure record;
6. A signed statement from NJCAT to NJDEP, the manufacturer and any applicable testing entity listing the protocol requirements and confirming that all of the requirements of the applicable laboratory testing protocol (Section 2) were met or exceeded; in addition, any deviations that exceeded protocol requirements must be identified;
7. A signed statement from NJCAT stating that the computed required maintenance interval is at least six months.

## H. Verification Appendix

MTDs performance after the verification process is dependent on proper design, installation and maintenance; therefore the Verification Appendix should be a resource for designers, installers and property owners that will provide all information necessary to ensure that the device performs to the verified efficiency. This information should be clearly defined and easily accessible; therefore, the Verification Appendix must contain highlighted and translated design specifications found in the body of the verification report. In addition, the Verification Appendix shall contain, at a minimum, the below three sections with the associated information.

### Introduction:

- Name of manufacturer and name of MTD;
- A TSS removal rate of either 50% for HDS or 80% for filtration MTDs;
- On-line or off-line installation for the NJ Water Quality Design Storm; and
- Additional internal component information that can affect the removal rates or maintenance of the MTD that are not standard on the respective model, for example the type of filter media or upgraded components;

### Detailed Specification:

1. The peak flow rate for the New Jersey Water Quality Design Storm and, if applicable, the corresponding sizing table, which indicates model numbers/size and peak flow rates;
2. Maximum inflow drainage areas for filters;
3. Head requirements for filters;
4. Draindown times and specifications for filters;
5. Conditions for the installation (if applicable); and
6. Maximum sediment depth;

### Additional Specifications:

7. Reference Maintenance Plan; and
8. Types of stormwater best management practices (BMPs) when used in series with the verified MTD will not result in enhanced removal rates.

## APPENDIX A – MTD Verification Process

1. A manufacturer shall file a MTD verification application with NJCAT in a form approved by NJCAT. See Appendix B.
2. NJCAT and the manufacturer will meet in person or by telephone to review the verification application for:
  - a. administrative and clerical accuracy and completeness;
  - b. compliance with the applicable laboratory testing protocol;
  - c. prior approval from NJCAT of any necessary items such as laboratory certification; third party independent observer; testing entity; etc.
3. If the MTD is a new technology for which there is no approved protocol, NJCAT and the Manufacturers Working Group (MWG) shall meet with the manufacturer to create a laboratory testing protocol, which will be approved by NJDEP. Those interested in being part of the MWG shall contact NJCAT.
4. Upon completion of the initial review and attainment of all necessary prior approvals, the manufacturer shall commence the laboratory testing in strict accordance with the applicable laboratory testing protocol.
5. Upon completion of the laboratory testing, the manufacturer shall submit to NJCAT a complete laboratory test report with all data collected and analyzed, including the information listed in Section 5, with the exception of 5.G.6 and 5.G.7.
6. Within 30 days of receipt of the laboratory test report, NJCAT shall meet in person or by telephone with the manufacturer to discuss the report and issue a preliminary opinion letter regarding the manufacturer's compliance with the applicable laboratory protocol and, if not, specifying in detail the areas of noncompliance with the protocol.
7. If outstanding issues exist, NJCAT and the manufacturer shall meet within 10 days of the issuance of the preliminary opinion letter to discuss possible resolution of the outstanding issues.
8. If the outstanding issues are resolved or there were no issues identified in the preliminary review report, NJCAT will issue a final verification report within 90 days of issuing the preliminary report or if necessary, within 90 days of resolving the outstanding issues. If outstanding issues are not resolved, see Appendix C. The final verification report shall be posted on the NJCAT website and available for written public comment for 30 days. Anyone intending to comment must provide written notification to the manufacturer and NJCAT within 14 days of the verification report being posted on the website. Written public comments with supporting documentation must be submitted to the manufacturer and NJCAT no later than 30 days after the initial posting of the verification report on the website. If NJCAT is able to resolve written comments during this time, those comments will be addressed by NJCAT, if NJCAT is unable to resolve the comment's concern then the commenter will be given the opportunity by NJCAT to request the submission of those comments including all supporting documentation, to the Review Panel (Appendix C) for resolution.
9. If no comments were referred to the Review Panel, NJCAT shall issue a final verification report within 10 days of the end of the public comment period. If comments are referred to the Review Panel, NJCAT shall issue a final verification report within 30 days of the Review Panel issuing their resolution (See Appendix C for the resolution process).



10. Once a final verification report is issued, NJCAT shall add the new MTD to the list of verified MTDs at [www.njcat.org](http://www.njcat.org). NJCAT shall include on its website the final verification report..
11. NJCAT shall notify NJDEP once their website has been updated and a MTD has been verified. NJCAT shall send NJDEP the name of the manufacturer, name of MTD and the respective TSS removal efficiency as notification.
12. NJDEP certification has been awarded once the name of the manufacturer, name of MTD and the respective TSS removal efficiency has been placed at [www.njstormwater.org](http://www.njstormwater.org). NJDEP will not update their website until the list of verified MTDs has been updated by NJCAT at [www.njcat.org](http://www.njcat.org).

## **APPENDIX B – MTD Verification Application**

Prior to commencing the planned laboratory testing program, the manufacturer shall provide a MTD verification application that provides the following information.

### **A. Organization Information**

Organization name, mailing address, contact person (incl. title), phone number, fax number and e-mail address.

### **B. General Description of Technology**

Hydrodynamic sedimentation MTD; Filtration MTD; other

### **C. Laboratory Testing Location**

Laboratory name, address and responsible party contact information; statement of laboratory qualifications and capabilities; third party observer qualifications and resume (if using manufacturer's laboratory); analytical laboratory or laboratories, address and contact information, and their qualifications/certification.

### **D. Statement of Potential Conflicts of Interest**

Clearly indicate any potential conflicts of interests of testing laboratory/testing personnel; third party observer; analytical laboratory; other.

### **E. Quality Assurance Project Plan**

Upon completion of NJCAT's review and approval of the manufacturer's verification application (Items 1-4), the manufacturer will be asked to submit a Quality Assurance Project Plan for NJCAT's review and approval to insure that the laboratory testing will be conducted in strict accordance with the applicable laboratory testing protocol.

## APPENDIX C – Outstanding Issues Resolution Process

### A. Review Panel Members

Manufacturer stakeholders shall submit to NJCAT a list of 20 persons experienced and learned in the science of stormwater treatment to form a pool of Review Panel members. In the event of a dispute between the manufacturer requesting verification and NJCAT on any matter or issue in the stormwater MTD verification process the manufacturer requesting verification may request the creation of a Review Panel to review and resolve the dispute as set forth below. All costs incurred by the Review Panel, including remuneration for professional services, are the responsibility of the manufacturer seeking resolution. If comments are submitted to the Review Panel in response to the written public comment period (Appendix A) the cost incurred by the Review Panel, including remuneration for professional services, should be as distributed as follows:

- a. If Review Panel adopts public comment(s), Applicant is responsible for 100% of resolution costs.
- b. If Review Panel rejects public comment(s), Commenting Party(ies) is responsible for 100% of resolution costs.
- c. If Review Panel partially adopts comment(s), both Applicant and Commenting Party(ies) are each responsible for 50% of resolution costs.

### B. Outstanding Issues Resolution

1. In the event that NJCAT and the manufacturer cannot resolve outstanding issues, then both NJCAT and the manufacturer within 30 days shall complete and exchange a Statement of Outstanding Issues which shall set forth in detail each party's position supported by scientific principles.
2. Within 10 days of exchange of the Statement of Outstanding Issues NJCAT and the manufacturer shall mutually select three persons from the pool of Review Panel members, one who will be designated chair, who do not have a conflict of interest with the manufacturer. The three persons selected shall be the Review Panel for resolution of the items set forth in the parties' Statement of Outstanding Issues.
3. Within 30 days of selection of the Review Panel members, the Review Panel shall receive all information, test reports, collected and analyzed data and Statements of Outstanding Issues regarding the proposed MTD verification.
3. Within 30 days of receiving information the Review Panel shall schedule a meeting in person or by telephone with NJCAT and the manufacturer;
  - a. The Review Panel may schedule as many meetings as the Review Panel deems necessary;
  - b. The Review Panel may have separate communication with either the manufacturer or NJCAT to gain information necessary to make a determination on the outstanding issues; and
  - c. The Review Panel may have separate communication with the laboratory or test entity.
4. The Review Panel shall issue its report within 30 days of its first meeting with the manufacturer and/or NJCAT. The Review Panel Report shall be in writing containing sufficient detail and supported by scientific principles on each outstanding issue set forth in the Statement of Outstanding Issues.
5. Based on the Review Panel's report and NJCAT's response, the manufacturer can decide to address any unresolved outstanding issues or end the process.