

Abbreviations, Acronyms, Glossary

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Abbreviations and Acronyms

% - percent

AHJ – Authority Having Jurisdiction

ASCE – American Society of Civil Engineers

ASTM - American Society for Testing and Materials

cfs – cubic feet per second

DQO – Data Quality Objectives

EMC – Event Mean Concentration

EPA – Environmental Protection Agency

ft - feet

gpm – gallons per minute

HDS – Hydrodynamic Separator

HLR – Hydraulic Loading Rate

LTER - Laboratory Testing Evaluation Report

LTVS - Lab Testing Verification Summary

MHFR - Maximum Hydraulic Flow Rate

MQO – Measurement Quality Objective

MTD – Manufactured Treatment Device

MTRF - Maximum Treatment Flow Rate

N - Nitrogen

NELAP – National Environmental Laboratory Accreditation Program

NJCAT – New Jersey Corporation for Advanced Technology

NJDEP – New Jersey Department of Environmental Protection

NMSA – National Municipal Stormwater Alliance

PSD – Particle Size Distribution

QAPP – Quality Assurance Project Plan

QA – Quality Assurance

QA/QC – Quality Assurance / Quality Control

QMS - Quality Management System

SCM – Stormwater Control Measure

SERG – STEPP External Review Group

sf – square feet

SOP - Standard Operating Procedure

SSC – Suspended Sediment Concentration

STEPP - Stormwater Testing and Evaluation for Products and Practices

TAPE – Technology Assessment Protocol – Ecology

TCD – Trash Capture Device

TSS – Total Suspended Solids

WA Ecology – Washington State Department of Ecology

WQFR - Water Quality Flow Rate

Glossary (for additional definitions, see Washington Department of Ecology (2018))

- Agency Having Jurisdiction (AHJ) – an organization, office, or individual responsible for enforcing the requirements of a code, standard, or other legal requirements, or for approving equipment, materials, an installation, or a procedure. Note that ASTM uses the term Authority Having Jurisdiction and defines it as a regulatory body having authority over the certification of Manufactured Treatment Devices (MTDs) for use within its jurisdiction.
- Bypass – a design feature that allows flow rates or flow volumes higher than the specified rate or volume (e.g. design hydraulic loading rate, design treatment rate etc.) to be routed past the stormwater treatment technology without receiving treatment.
- Bypass configuration – design information for an SCM that describes how bypass will be managed.
- Confidential business information – proprietary information, provided by the submitter, the release of which would cause substantial business injury to the owner.
- Contributing area - the total area, typically including pervious and impervious surfaces, contributing to an SCM.
- Data validation - an analyte-specific and sample-specific process that extends the evaluation of data beyond data verification to determine the analytical quality of a specific dataset. It involves a detailed examination of the data package using professional judgment to determine whether the MQOs for precision, bias, and sensitivity have been met.
- Data verification - examination of the data for errors or omissions and of the quality control results for compliance with acceptance criteria.
- Design drawings – a technical drawing that conveys all the information necessary for manufacturing a product or a part.
- Event Mean Concentration (EMC) - Pollutant concentration of a composite of multiple samples (aliquots) collected during the course of a storm. The EMC accurately depicts pollutant levels from a site and is most representative of average pollutant concentrations over an entire runoff event. To represent the total mass over total volume, Event Mean Concentration should be determined through flow-weighted composite samples.
- Holding time – the elapsed amount of time from the point of collection of a water quality sample to the moment of preparation or analysis.
- Hydraulic Loading Rate (HLR) - for treatment SCMs the HLR is a measure of the influent flow rate per the effective treatment area of the treatment unit; the HLR is commonly expressed in units of gallons per minute per square foot (GPM/ft²). For HDS units the HLR is a measure of the influent flow rate (Q) per the effective treatment area, (HLR= Q/effective treatment area). The HLR can also be termed the Surface Loading Rate (SLR). For filters, the HLR is the filter unit flow rate per the effective filter surface area. The filter HLR can also be called the flux or the specific flow rate (q). (ASTM)
- Hydrodynamic Separator – A flow through MTD that is designed to remove sediment particles and associated pollutants from stormwater runoff by gravitational forces. HDS units are used as standalone treatment for solids removal or pretreatment for filters, ponds, bioretention, infiltration facilities, etc. (ASTM)
- Independent party - a person or organization that has no conflict of interest, for example was not involved in the design or implementation of the object being tested (e.g., a system or device) is not intended as the eventual user of that object, and has no financial or commercial interest in the object being tested.

Laboratory Testing Evaluation Report (LTER) – a report or document submitted by a proponent to STEPP following completion of testing. The LTER documents all aspects of the testing project such that STEPP can verify the testing project is consistent with the QAPP, the testing project is consistent with the ASTM protocol, and the stated performance objectives were met.

Laboratory Testing Verification Summary (LTSR) – a document produced by STEPP which accompanies the verification letter to the proponent and which outlines the critical aspects of laboratory system verification and includes valid system application parameters.

Manufactured Treatment Device - an engineered structural treatment system which is commercially available and can remove some or all pollutants including Trash and Debris, TSS, SSC, metals, nutrients, and hydrocarbons from stormwater runoff. An MTD can employ settling, filtration, and/or other processes or combination of processes to remove pollutants from runoff. MTDs are a subset of SCMs. In Australia, an equivalent term is a SQID (stormwater quality improvement device). (ASTM)

Mass Capture Analysis – a method of determining removal efficiency of a MTD by measuring the total amount of mass introduced as compared to the total amount of mass retained in the MTD at the conclusion of a test. (ASTM)

Maximum Hydraulic Flow Rate (MHFR), the flow rate at which a MTD can convey flow without exceeding hydraulic grade line restrictions. The MHFR is site dependent and will vary from site to site. (ASTM)

Maximum operating rate – maximum flow prior to external bypass for systems installed offline.

Maximum Treatment Flow Rate (MTFR) – the highest flow rate that can be conveyed through a MTD to achieve the verified performance-based claims for pollutant removal. (ASTM)

Measurement Quality Objective – measurable goals designed to evaluate and control various phases (e.g., sampling, preparation, analysis) of the measurement process to ensure that total measurement uncertainty is within the range prescribed by the DQOs. (EPA)

Online - a system where all stormwater runoff enters and flows through an SCM.

Performance objective or performance goal – desired or anticipated outcome of performance testing, often expressed as a design criterion set by an AHJ for a SCM. Typically this may be a reduction target for a specific pollutant, or the control of flow rate from a certain design storm, the percentage of water to be treated or captured on an annual basis, etc..

Pollutant dosing – the amount of pollutant being delivered to an SCM, often expressed as a concentration or a mass.

Proficiency testing - an assessment of a laboratory's ability to perform accurate and reliable testing by the testing of unknown samples sent to a laboratory.

Proponent - the company or authorized company representative who would like to verify their stormwater control measure. For proprietary practices this can include the designer, manufacturer, vendor, and their consultants. For a public domain practice this may include the AHJ.

Proprietary Stormwater Control Measure – manufactured SCMs and treatment systems available from commercial vendors, designed to treat stormwater runoff and/or provide water quantity control or water balance, and typically considered to be intellectual property protected by a patent, trademark, or other.

Public domain stormwater control measure – SCMs not protected by intellectual property laws such as copyright, trademark, or patent laws.

Quality Assurance - A set of activities designed to establish and document the reliability and usability of measurement data.

Quality Assurance Project Plan (QAPP) - a written document that outlines the procedures and methods a field monitoring or laboratory testing verification protocol will use to ensure that the methods

used, samples collected and analyzed, data stored and statistically analyzed, and the corresponding reports are of high enough quality to ensure that the results accurately reflect the performance of the tested MTD. (ASTM)

Removal efficiency – the change in amount of pollutant achieved in outflow compared to inflow, typically represented as the percent change in pollutant concentration or mass.

Sample technique - The method by which a sample will be gathered. Sampling is done either by manually sweeping a bottle through flowing water (grab sample) or using automated samplers that pump water from a pipe into a bottle(s). Automated sampling is either done on a time basis (same sample volume at equal spaced time intervals) or a flow basis (sample based on equal volume intervals).

Scour – the resuspension and washout of previously captured sediment, resulting in loss of previously captured pollutants from a treatment device. (ASTM)

Sizing – the process for determining the physical dimensions required for an SCM to meet a specific performance goal. An example of a performance goal is capturing and treating the first inch of runoff from contributing areas.

Standard operating procedure (SOP) - A document that describes in detail the approved way for performing a routine procedure.

Stormwater Control Measure (SCM) - a technique, measure, or structural control that is used for a given set of conditions to manage the quantity and/or improve the quality of stormwater runoff including water quality improvement, volume control, flow control, and flood control. Sometimes considered synonymous/used interchangeably with Best Management Practices (BMPs).

Synthetic stormwater – artificially created mixture designed to simulate stormwater by adding target pollutants to water. Typically a clean water source is used prior to adding pollutants.

Testing entity – an individual, laboratory, etc. involved in the testing of an SCM that is being tested for STEPP verification.

Test unit – an SCM being tested.

Third party observer – an independent party who has no financial or commercial interest in the SCM who witnesses the testing when a vendor tests their own SCM, and attests to the accuracy of reported data from the testing project.

Third party overseer – an independent party (not associated with the proponent) that is responsible for testing.

Trash Capture Device (TCD) - An MTD which is designed to remove trash and debris from stormwater runoff and in some cases, windblown or saltating trash and debris. A TCD is also known as a gross pollutant trap (GPT) in other parts of the world.

Treatment mechanism – the process by which an SCM removes pollutants in stormwater or reduces stormwater runoff volume or peak flow. Examples include adsorption, filtration, and gravitational separation.

Verification – an acknowledgement by STEPP that a SCM was tested in accordance with ASTM standards and the test results have been reviewed and confirmed to be in accordance with ASTM standards by the STEPP External Review Group (SERG).

Verifier – for an SCM tested through the STEPP program, the verifier of the SCM is the STEPP program which includes the SERG and NMSA staff.

Volumetric flow rate – the volume of fluid passing a given point per unit time. In the case of an SCM, this is usually the flow rate at the inlet and outlet.

Water Quality Flow Rate (WQFR) - the design flow rate at which a MTD is sized to meet a specific water quality treatment target.

References

Washington Department of Ecology. 2018. Technical Guidance Manual for Evaluating Emerging Stormwater Treatment Technologies. Publication no. 18-10-038.
(<https://apps.ecology.wa.gov/publications/documents/1810038.pdf>).