Canadian Environmental Technology Verification (ETV)

Information Bulletin

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Subject: Clarification on the type of Manufactured Treatment Device suitable for testing under the *Procedure for Laboratory Testing of Oil Grit Separators*

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The *Procedure for Laboratory Testing of Oil Grit Separators* was developed in 2013 by TRCA in association with a 32-member advisory committee for the then *Canadian Environmental Technology Verification (ETV) Program*. The *Procedure* was based on an earlier protocol developed by the Stormwater Equipment Manufacturers Association (SWEMA) for the New Jersey Department of Environmental Protection (NJDEP).

The *Procedure* was meant to be applied to Oil Grit Separators (OGSs), installed within a storm sewer drainage system. OGSs are defined in Appendix A of the document as Manufactured Treatment Devices (MTDs) with “structures consisting of one or more chambers that remove sediment, screen debris, and separate oil from stormwater.” These devices are also referred to as Sedimentation MTDs, because they rely primarily on the process of sedimentation to remove solids, and are thereby distinguished from Filtration MTDs, which employ filters to enhance solids and pollutant removal.

A filter is an engineered component within a Filtration MTD that is designed to remove fine sediment and associated pollutants through physical filtration mechanisms. Some filters

are also designed to enhance removal of targeted dissolved pollutants such as phosphorus or metals through adsorption and ion exchange processes. While the pore openings in filters may be small or large, they will invariably restrict flow either initially and/or after exposure to stormwater runoff over time. For this reason, Filtration MTDs are typically designed for much smaller hydraulic loading rates than Sedimentation MTDs.

This flow restriction in filters occurs due to clogging of pores and/or the formation of films either on the surface of the filter or within the filter matrix. While in rare cases Filtration MTDs may be designed with initial hydraulic loading rates comparable to traditional OGS, and resist clogging in laboratory tests with non-cohesive ground silica sediment, a similar result would not be expected when the filters are subjected to cohesive sediments comprised of a mixture of sand, silt, clay, organic matter, emulsified oils, fine debris and other pollutants commonly present in stormwater sediments. Cohesive sediment particles are prone to physical, chemical and biologically mediated processes of coagulation and flocculation through which primary particles bind together to form aggregates. Since these flocs or aggregates can quickly clog filters by building up on filter surfaces and/or penetrating into the filter structure, the size of the filtering area needs to be carefully considered to ensure adequate flows through the system are sustained over the recommended maintenance interval.

It follows that an appropriate test for a filtration MTD should reflect the conditions that these devices are subjected to in real-world applications. Typically, this means monitoring of the device in a field setting over a typical recommended maintenance period (or ideally longer). The test would help to determine clogging dynamics, provide information on recommended maintenance requirements and inform sizing guidance for unit sizes smaller or larger than the tested unit. While a standard protocol for filtration MTDs has not been developed in Canada, other test protocols, such as the Washington Technology Acceptance Protocol – Ecology (TAPE), may be considered to provide a sufficient basis for technology verification as long as the monitoring program includes weather and site conditions appropriate for the geographic area in which the device is intended to be installed.

In advance of testing, vendors should provide details on any components that may act as a filter and consult with the technology verifier to determine whether the tested MTD should be classified as a sedimentation or filtration MTD. In general, filters with large or small pore openings that may be prone to clogging by cohesive sediments, sediment flocs or fine debris would fall into the class of a ‘filtration MTD’ and would therefore not be suitable for testing through the OGS *Procedure*. Screens designed to trap gross debris in an OGS would not typically be deemed to function as a stormwater filter.

Finally, it should be understood that the ultimate decision to approve, select and implement a particular technology rests with the technology buyer, guided by the requirements of the respective permitting authorities within the affected jurisdiction(s).