

# Chapter 12 - Emerging Technologies

---

## 12.1 Background

Traditional best management practices (BMPs) such as wetponds and filtration swales may not be appropriate in many situations due to size and space restraints or their inability to remove target pollutants. Because of this, the stormwater treatment industry emerged and new stormwater treatment devices are currently in development.

Emerging technologies are those new stormwater treatment devices that are continually being added to the stormwater treatment marketplace. These devices include both permanent and construction site treatment technologies. Many of these devices have not undergone complete performance testing so their performance claims cannot be verified.

## 12.2 Ecology Role in Evaluating Emerging Technologies

To aid local governments in selecting new stormwater treatment technologies the Department of Ecology (Ecology) developed the Technology Assessment Protocol – Ecology (TAPE) and Chemical Technology Assessment Protocol Ecology (CTAPE) protocols. These protocols provide manufacturers with guidance on stormwater monitoring so they may verify their performance claims.

As a part of this process Ecology:

- Posts information on emerging technologies at the emerging technologies website:  
<http://www.ecy.wa.gov/programs/wq/stormwater/newtech/index.html>.
- Participates in all Technical Review Committee (TRC) and Chemical Technical Review Committee (CTRC) activities which include reviewing manufacturer performance data and providing recommendations on use level designations.
- Grants use level designations based on performance and other pertinent data submitted by the manufacturers and vendors.

- Provides oversight and analysis of all submittals to ensure consistency with this manual.

### **12.3 Evaluation of Emerging Technologies**

Local governments should consider the following as they make decisions concerning the use of new stormwater treatment technologies in their jurisdiction:

Remember the Goal:

The goal of any stormwater management program or BMP is to treat and release stormwater in a manner that does not harm beneficial uses.

Exercise Reasonable Caution:

Before allowing a new technology for an application, the local government should review evaluation information based on the TAPE or CTAPE.

An emerging technology cannot be used for new or redevelopment unless this technology has a use level designation. Having a use level designation means that Ecology and the TRC or CTRC reviewed system performance data and believe the technology has the ability to provide the level of treatment claimed by the manufacturer.

To achieve the goals of the Clean Water Act and the Endangered Species Act, local governments may find it necessary to retrofit stormwater pollutant control systems for many existing stormwater discharges. In retrofit situations, the use of any BMP that makes substantial progress toward these goals is a step forward and Ecology encourages this. To the extent practical, the performance of BMPs used in retrofit situations should be evaluated using the TAPE or CTAPE protocols.

### **12.4 Assessing Levels of Development of Emerging Technologies**

Ecology developed use level designations to assess levels of development for emerging technologies. The use level designations are based upon the quantity, quality, and type of

performance data. There are three use level designations: pilot use level designation, conditional use level designation, and general use level designation.

#### Pilot Use Level Designation (PULD)

For technologies that have limited performance data the pilot use level designation allows limited use to enable field testing to be conducted. Pilot use level designations may be given based solely on laboratory performance data. Pilot use level designations apply for a specified time period only. During this time period, the proponent must complete all field testing and submit a technology evaluation report (TER) to Ecology and the TRC. Ecology will limit the number of installations to five during the pilot use level period.

Local governments may allow PULD technologies to be installed if the manufacturer agrees to conduct additional field testing based on the TAPE at all sites to obtain a general use level designation. Local governments covered by a municipal stormwater NPDES permit must notify Ecology in writing when a PULD technology is proposed. The form can be found:

<http://www.ecy.wa.gov/programs/wq/stormwater/newtech/PULDNOL.pdf>

#### Conditional Use Level Designation (CULD)

For emerging technologies that have considerable performance data that was not collected per the TAPE protocol, the CULD was established. Conditional use level designations may be given if field data has been collected by a protocol that is reasonably consistent but does not necessarily fully meet the TAPE protocol. The field data must meet the statistical goals set out in the TAPE guidelines (Appendix D). Laboratory data may be used to supplement field data. Technologies that are granted a CULD will be allowed continued use for a specified time period, during which the field testing necessary to obtain a general use level designation (GULD) must be completed and a TER must be submitted to Ecology and the TRC. Ecology will limit the number of installations to ten during the CULD period.

#### General Use Level Designation (GULD)

The general use level designation (GULD) confers a general acceptance for the specified applications (land uses). Technologies with a GULD may be used anywhere in Washington, subject to Ecology conditions.

## **12.6 Examples of Emerging Technologies for Stormwater Treatment and Control**

Go to the Ecology Emerging Technologies website to obtain information on technologies that have obtained a use level designation:

<http://www.ecy.wa.gov/programs/wq/stormwater/newtech/index.html>