



ITRC Remediation-Plus Project Proposal

Stormwater BMP Pollution-Reduction Determinations and Performance Verification

Project Goal:

The goal of this project is to identify best methods for evaluating the pollution-reduction capabilities and verifying the performance of stormwater best management practices (BMPs) for Clean Water Act compliance purposes.

Effectively utilizing stormwater management controls and practices, including BMPs, in a regulatory scheme to protect water quality typically involves the following steps:

- Developing new BMPs
- Quantifying the expected performance of the new BMPs
- Approving BMPs
- Initially verifying that newly constructed BMPs will operate as designed.
- Verifying that older, existing BMPs are operating as designed.

Two Watershed Challenges:

A. BMPs: Quantifying Their Environmental Effectiveness

Facing a diversity of stormwater management laws, regulations and other mandates, regulators have no national consensus on how best to determine the pollution-reduction capabilities of Best Management Practices (BMPs) that reduce the flow of stormwater and associated pollutants into the nation's waterbodies.

Federal and state environmental regulators, DoD installations, agricultural entities, other large land owners, municipalities, and a host of stakeholders share a strong interest to develop and implement such a consensus. EPA and DoD/Navy in particular have expressed support for better and generally accepted measures of BMP effectiveness, especially for non-point sources of pollution (NPS). The issue of NPS BMP effectiveness also ranked highly among environmental priorities in a recent poll of state environmental commissioners by the Environmental Research Institute of the States (ERIS).

Given this challenge and need, several efforts are underway to find solutions upon which this project would build. Among them are state initiatives to evaluate stormwater technologies and assess their pollution-reduction merits, including the Technology Acceptance Reciprocity Partnership (TARP), Technology Assessment Protocol – Ecology (TAPE) program, New Jersey Corporation of Advanced Technology (NJCAT), CALTRANS, Georgia Technology Acceptance Protocol (GTAP), NC Preliminary Evaluation Protocol (VTAP), and Massachusetts Stormwater Technology Evaluation Project (MASTEP). The Chesapeake Bay Program (CPB) Partnership has done significant work to establish a common, watershed-wide framework to assign credit to stormwater BMPs (see information on CPB BMP Panels at: http://stat.chesapeakebay.net/?q=node/130&quicktabs_10=2). In 2014, the Water Environment Federation (WEF) established the National Stormwater Testing and Evaluation of Products and Practices (STEPP) workgroup, which recommends a national testing and evaluation program to overcome restraints on the development of innovative stormwater products and practices.

B. BMPs: Verifying That Credit is Earned

In addition to ensuring appropriate design and effectiveness, regulators must ensure that stormwater practices are properly installed and maintained. The Chesapeake Bay Program (CBP) Partnership developed a verification program for confirming pollutant reductions associated with BMPs and technologies.

The CPB defines verification as:

“the process through which agency partners ensure practices, treatments, and technologies resulting in reductions of pollutant loads are implemented and operating correctly.”

The CBP programs includes construction site inspections to verify that BMPs are installed properly and meet design standards. It also includes measures to ensure that operating BMPs continue to perform as designed, as well as a data validation process that looks at data collection and compilation practices.

One of the main purposes of the CBP effort is to ensure accurate characterization of existing BMP pollution-reduction performance in models used for compliance (e.g., if a BMP is not properly maintained or is no longer functioning as designed, it should be given less pollutant reduction credit.)

A Watershed Opportunity: What an ITRC Project Could Achieve:

1. Define a national system for establishing BMP pollution-reduction capabilities—with a primary focus on stormwater BMPs—that will:
 - describe the specific problems and barriers landowners, municipalities and the states face when developing and implementing strategies to meet Total Maximum Daily Load (TMDL), Municipal Separate Storm Sewer System (MS4), and other stormwater requirements;

- identify best methods to determine pollutant loadings and utilize quantitative information to develop the most cost-effective BMP strategy to meet regulatory requirements, including best management approaches using state-of-the-art designs and lessons learned; and
 - draw on successful approaches used by states, municipalities, military components, and other large landholders; and
 - incorporate latest knowledge from DoD research (SERDP and ESTCP), EPA (ORD/OW), efforts among NGOs (e.g., WEF/WERF), academic institutions and others.
2. Develop a protocol for verifying BMP effectiveness over time (building from the Chesapeake Bay Program BMP verification framework), with a particular focus on:
- deploying strong science and transparent processes to engender confidence among all parties and among states in multi-state watersheds that BMP requirements are reasonable and demonstrably helping improve watershed water quality;
 - implementing verification as a life cycle process, including initial inspection, follow-up checks, and evaluation of BMP performance;
 - assigning credit for pollutant reducing practices implemented both within and outside of state regulatory and cost-share programs; and
 - identifying a methodology to estimate pollutant load reduction credits for urban stormwater BMPs that accounts for how long the BMP has been in place and uses verification information to account for maintenance and other operational issues.

About the ITRC:

The men and women of the Interstate Technology Regulatory Council (ITRC) form a public-private coalition that produces guidance and training to create comfort with environmental innovations. By bringing together teams of state and federal regulators, as well as private, academic and stakeholder experts, ITRC broadens and deepens technical knowledge and reduces barriers to quick and widespread regulatory approval. Since 1995, their collective success has brought huge benefits to the environment, inspired inventors, and saved hundreds of millions of dollars.

The ITRC has the ear of state environmental leaders through its parent organizations, the Environmental Research Institute of the States (ERIS), which is the research and educational arm of the Environmental Council of the States (ECOS). With a majority membership of state environmental agency leaders, ERIS provides a state/stakeholder forum to better understand environmental policy and promote the research necessary to enhance it.

How ITRC Would Accomplish Its BMP Objectives:

The ITRC would assemble a team of state regulators, federal representatives (ideally including the military components, the Department of the Interior (DOI), General Services Administration (GSA), the Department of Agriculture (USDA), and NASA), EPA personnel (CBPO, OW), local government representatives, private sector practitioners, academics and community representatives. This team could produce a variety of products, including a technical/regulatory guidance document, case studies, a compendium, and/or a training course (online or in person as appropriate). ITRC will facilitate the process.

Importance of BMP Effectiveness and Verification Protocols:

Effective management of non-point source pollution is difficult; no small surprise, then, that its contribution to meeting the Clean Water Act's ambient water quality standards has lagged so far behind the use of end-of-pipeline technologies. Developing measurable and cost-effective practices to reduce the flow of pollutants running off land and streets has been largely stymied by technological challenges, uncertain benefits and unpredictable returns on investment.

Societal frustration with the delays in addressing this important source of pollution has led to numerous challenges to government agency inaction and the result is an increasingly complex web of regulatory mandates along with associated public and private expense. The drive is on to find the most environmentally sound and financially effective means to meet long-delayed expectations of fishable and swimmable rivers and protected groundwater.

By developing guidance on best methods for determining BMP effectiveness and verifying ongoing performance, this ITRC project would enhance regulatory (e.g., TMDL and MS4) compliance evaluations and encourage more environmentally appropriate and cost-effective BMP choices. These protocols would thus strengthen confidence that reported practices are actually being implemented, are functioning well, and are preventing and reducing pollution runoff to local streams, groundwater and other impaired waterbodies. Such confidence in practices and the ability to account for their environmental benefits would also greatly enhance BMP values in trading systems.

The guidance document would also highlight consensus approaches that could lead to more equitable mechanisms for achieving stormwater objectives (especially important for TMDL implementation in multi-jurisdictional watersheds). More consistent approaches could also limit confusion inherent in diverse state approaches, requirements and modeling especially for multi-state property holders within a multi-state watershed.

Well-chosen and robustly maintained BMPs can also mitigate flooding, protect drinking water, stabilize stream banks, and solidify local economies by ensuring clean water and the viable habitats essential to healthful recreation.

And finally, consensus protocols would promote adaptive management by providing data to help improve future performance, assess management effectiveness and identify further opportunities for directing/targeting program implementation.