Herrera Environmental Consultants, Inc.

Memorandum

To	Tanyalee Erwin, Washington State University
cc	Washington Stormwater Technical and Education Center Executive Management Team (EMT)
From	John Lenth, Rebecca Dugopolski, and Dylan Ahearn, Herrera Environmental Consultants
Date	September 17, 2010
Subject	National Stormwater Technology Evaluation Teleconference

Introduction

Herrera facilitated a discussion during an August 20, 2010 conference call to evaluate the merits of coordinating stormwater technology evaluations and protocols at a national level. Attendees participating in the teleconference included the following:

- John Lenth, Herrera Environmental Consultants
- Dylan Ahearn, Herrera Environmental Consultants
- Rebecca Dugopolski, Herrera Environmental Consultants
- Dr. Omid Mohseni, University of Minnesota/Barr Engineering
- Tom Maguire, Massachusetts Department of Environmental Protection (DEP)
- Doug Howie, Washington State Department of Ecology
- Joel Baker, University of Washington
- Tanyalee Erwin, Washington State University
- Sandy Blick, New Jersey DEP
- Dr. Robert Roseen, University of New Hampshire
- Tom Stevens, NSF International
- Rich Field, U.S. Environmental Protection Agency (U.S. EPA)
- Dr. George Guo, Rutgers University
- Jim Lenhart, Stormwater Northwest

This memorandum summarizes the discussion that occurred during the August 20, 2010 conference call and is organized into the following sections based on the meeting agenda:

- Status update on existing testing protocols
- Merits of developing a coordinated testing protocol
- Next steps

Status Update on Existing Testing Protocols

U.S. EPA Environmental Technology Verification (ETV) Program

Tom Stevens provided an overview of the ETV program which was developed in 2001. Not many changes have been made to the protocol since it was first developed (the latest edition is Draft 4.1, published in March 2002). Results from approximately a dozen different technologies have been submitted to the ETV program and Verification Reports and Verification Statements are posted on U.S. EPA's ETV website. Testing has not been completed in recent years according to Tom Stevens and there have been some issues with sampling solids.

Reference Links

ETV Protocol: http://www.epa.gov/nrmrl/std/etv/pubs/04_vp_stormwater.pdf

Verified Stormwater Technologies: http://www.epa.gov/nrmrl/std/etv/vt-wqp.html#SWSATD

Technology Assessment Protocol – Ecology (TAPE) Program

Doug Howie provided an overview of the TAPE program which was developed in 2002 for evaluating emerging stormwater technologies in the state of Washington. The current protocol in use is the January 2008 version. There are 8 to 10 applicants currently in the process and Ecology is not accepting any additional applications until the administrative structure is revised. The four treatment categories include basic, enhanced, phosphorus, and oil treatment. There is also an approval process for pre-treatment facilities and chemical treatment (as part of the Chemical Technology Assessment Protocol - Ecology [CTAPE] process). Ecology is working with the University of Washington, Washington State University, and Herrera Environmental Consultants to revise the protocol and to open the application process again soon. Treatment requirements are triggered by new development or re-development projects that are typically 1-acre or larger (Phase II jurisdictions); however, this threshold level may be lower based on previous requirements before the Phase II permit was issued in 2007. Enhanced treatment requirements are typically triggered due to high traffic loads.

Reference Links

TAPE Protocol: http://www.ecy.wa.gov/pubs/0210037.pdf

Use Level Designations:
http://www.ecy.wa.gov/programs/wq/stormwater/newtech/technologies.html

Technology Acceptance Reciprocity Partnership (TARP) Program

Jim Lenhart provided an overview of the TARP program which was developed in 2001. The current protocol in use is the July 2003 version. The protocol was endorsed by California, Massachusetts, Maryland, New Jersey, Pennsylvania, and Virginia; however, Jim Lenhart stated

that California is no longer recognizing technologies that pass through this process. Dr. Guo is still doing some research on technologies using the testing protocol. Rhea Brekke (the former executive director) has moved on and Dick Magee has taken over the New Jersey Corporation for Advanced Technology (NJCAT), the entity that reviews and verifies stormwater technologies monitored using the TARP protocol.

Reference Links

TARP Protocol: http://www.state.nj.us/dep/dsr/bscit/Stormwater%20Protocol.pdf

Verified Stormwater Technologies: http://www.njstormwater.org/treatment.html

New Jersey

Sandy Blick provided a summary of New Jersey's existing process for evaluating new stormwater technologies based on new criteria established in 2004 that stated a stormwater technology "must be verified and certified by the state." New Jersey's modifications to the TARP protocol are summarized in separate documents detailing laboratory and field protocols (see links below). The revised protocols were based on input from the state of Wisconsin and others. The certifications granted by the New Jersey DEP will expire on May 15, 2011, since they are tied to a specific regulation. Sandy Blick stated that New Jersey is still struggling with how to define maintenance requirements and mentioned that it would be helpful to have a verification entity (i.e., 3rd party evaluator like NJCAT or another entity such as a laboratory).

New Jersey Field Protocol: http://www.njstormwater.org/pdf/field_protocol_12_15_09.pdf

New Jersey Lab Protocol for Manufactured Filtration Devices:
http://www.njstormwater.org/pdf/filter_protocol_12-15-09.pdf

New Jersey Lab Protocol for Hydrodynamic Sedimentation Devices:
http://www.njstormwater.org/pdf/hydrodynamic_protocol_12_15.pdf

American Society of Civil Engineers (ASCE)

Dr. Guo provided a draft of the *Certification Guidelines for Manufactured Stormwater BMPs* developed by a joint committee between ASCE and the Environmental and Water Resources Institute (EWRI), a specialty institute of ASCE. Dr. Guo noted that this document is a currently considered a guidance document and not yet a protocol.

American Society of Testing and Materials (ASTM)

Dr. Mohseni mentioned that ASTM formed a subcommittee a couple of years ago for technology evaluations. They have developed a laboratory protocol for hydrodynamic separators, but have not started the protocol for filtration systems yet. They are also working on a removal efficiency (hydraulic testing) method and a scour (washout testing) method. All three standards will be going to ballot this fall.

ASTM WK17663 - New Test Method for Hydraulic Capacity Evaluation of Hydrodynamic Separators and Underground Settling Devices: http://myastm.astm.org/DATABASE.CART/WORKITEMS/WK17663.htm

Other Stormwater Testing Protocols

Other stormwater testing protocols that were mentioned during the conference call include:

- California – contact the California Stormwater Quality Association (CASQA) for more information
- California, Sacramento: Appendix M of the City of Sacramento Guidance Manual for On-Site Stormwater Quality Control Measures (2000), may consider reciprocity with TAPE: http://www.sacramentostormwater.org/SSQP/development/proprietary.asp
- Colorado, Denver – will accept TAPE or TARP approvals
- Florida – requirements for retrofits
- Georgia Technology Assessment Protocols (GTAP) for Evaluating Emerging Stormwater Treatment Technologies: http://www.northgeorgiawater.com/html/331.htm
- Maine – phosphorus and metals treatment
- Maryland – currently has two technologies approved for use; accepts TARP monitoring results: http://www.mde.state.md.us/assets/document/Proprietary%202005.pdf
- Massachusetts Stormwater Technology Evaluation Project (MASTEP): http://www.mastep.net
- Minnesota – talking about reciprocity with Wisconsin
- Missouri, St. Louis – The Metropolitan Sewer District (MSD) may consider reciprocity with TAPE or certification from the New Jersey DEP: http://www.stlmsd.com/portal/page/portal/engineering/planreview/PlanReviewInformation/List/ASCE%20Proprietary%20BMPs.pdf
- New Hampshire – TAPE and TARP listed in regulations
- North Carolina – the Department of Environment and Natural Resources (NCDENR) allows new stormwater treatment technologies to be evaluated under a Preliminary Evaluation Period (PEP): http://h2o.enr.state.nc.us/su/documents/Ch20-23merged08Aug2009.pdf

- Oregon, Portland (Bureau of Environmental Services) – currently has own protocol; may accept TAPE approvals in the future: http://www.portlandonline.com/bes/index.cfm?c=47956

- Rhode Island – bacteria, nitrogen, and phosphorus treatment; will accept TAPE or TARP approvals as well as testing done using their own protocol

- Tennessee, Nashville – Davidson County (Metro) – uses similar laboratory guidelines to those established by the New Jersey DEP and NJCAT for testing manufactured systems. For field testing, Metro encourages the use of the TARP Tier II Protocol with some modifications: http://www.nashville.gov/stormwater/regs/

- Texas – testing facility at the University of Texas in Austin: http://www.crwr.utexas.edu/scientists/barrett/projects/bmp.html

- Virginia Stormwater Best Management Practice (BMP) Clearinghouse and Virginia Technology Assessment Protocol (VTAP) – currently under development: http://www.vwrrc.vt.edu/SWC/index.html

- Wisconsin Department of Natural Resources Method for Predicting the Efficiency of Proprietary Storm Water Sedimentation Devices: http://dnr.wi.gov/runoff/pdf/stormwater/techstds/prop_devices_std_v2_040909.pdf

Merits of Developing a Coordinated Testing Protocol

Some of the merits of a coordinated testing protocol mentioned during the open discussion include:

- Testing is happening, but products are not getting out into the market and we are letting the stormwater management community down (Dr. Roseen)

- Testing is needed to validate and verify the manufacturer's claims

- Stormwater vendors want to be approved to sell their products

- Approvals help to guide cities and towns with their purchasing decisions

- An approval process provides an opportunity for regulatory agencies establish goals and criteria that are achievable

- An approval process provides an opportunity to review and revise regulations and standards

- There is a need to focus on manufactured or vendor devices and compare these facilities to generic BMPs

Additional discussion focused on the following topics:

- Total suspended solids (TSS) removal of 80 percent represents the best available technology at the time; 90 percent TSS removal is now required by Rhode Island

- The International Stormwater BMP (ISBMP) database currently only allows third party data

- John Lenth and Doug Howie mentioned that the Phase I permit-related monitoring is currently focused on monitoring several different generic BMPs

- Tom Maguire mentioned a recent United State Geological Survey (USGS) study on low impact development) LID BMPs

- Sandy Blick mentioned that maintenance is an issue and that the protocol needs to consider the end user and what is left after testing has been completed.

- EPA will not approve BMPs, but they can recognize other BMP review protocols. They were working on getting funding to make NJCAT and TARP nationwide at one time.

- There seemed to be interest in reenergizing TARP and adding more states – New Hampshire and Rhode Island are already on board.

Some of the BMP performance characteristics that may need to be considered for a national protocol include:

- How does the technology work under different flows?

- How does the technology work under different discharge conditions?

- How does the technology work in different climates?

- How does the technology work with different particle sizes?

Next Steps

Potential interested parties to include in ongoing discussions regarding developing a national protocol include:

- ISBMP database staff

- TARP staff
- Dr. Robert Pitt
- Stormwater Equipment Manufacturers Association (SWEMA)
- Other state representatives (possibly through the Environmental Council of States [ECOS])

Follow-up action items include:

- John Lenth will send out a side-by-side comparison of the TAPE and TARP criteria (Appendix F of the *Center for Watershed Protection Monitoring to Demonstrate Environmental Results: Guidance to Develop Local Stormwater Monitoring Studies Using Six Example Study Designs* [CWP 2008]).
- Dr. Roseen will send out another protocol comparison that he has prepared.
- Jim Lenhart will share his proposal to the U.S. EPA ($300,000 for hiring a full-time staff member for certification of BMPs, training, and education).
- Scheduling another conference call in two months (approximately mid to late October).