

The Green Mountain Civil Report

January 17, 2002

Newsletter of the Vermont Section of the American Society of Civil Engineers

Website <http://sections.asce.org/vermont>

January Meeting

Wednesday, January 23, 2002

Topic: Husky Injection Molding Systems — Move to Vermont, construction of building and manufacturing process.

Speaker: Scott Brown, UVM grad, and Project Engineer at Husky Injection Molding Systems

Time: 5:30 pm (social hour)
dinner at 6:15pm
speaker & business at 7:00 pm.

Meal: Choice of entrees.

Location: Mona's, 3 Main Street, Burlington.

Price: \$22 for professional members, \$15 for students.

RSVP to Jill Marsano 802-879-7733 or jmarsano@forcieraldrich.com by Friday, January 18, 2002.

Topic Synopsis:

In 1998, the Canadian-based company completed a 240,000 square foot manufacturing facility in Milton, representing an \$80 million investment and bringing 200 new jobs to the area. As a global supplier of injection molding systems to the plastic industry, the company chose Vermont over several US sites. Mr. Brown will highlight the trials and tribulations associated with the

start-up of the Vermont facility including the permitting process, site development & construction phases, municipal/community impacts, and manufacturing operations.

Directions: From I-89 take exit 14W. Keep going straight on Main Street until you get to the Tee intersection.

2002 Meeting Schedule

Feb. 22 Engineers' Week Banquet
Mar. 27 UVM Mtg—Covered Bridges
Apr. 17 Field Trip TBA
May 15 Dog Team Tavern Mtg

VASCE's Engineer of the Year & Young Engineer of the Year

The board would like to thank all of those individuals who nominated candidates for this year's award. Winner's will be announced in February.

Announcing the Younger Member Newsletter

The Committee on Younger Members is has created a Newsletter that can be found at the following FTP location:
ftp://gsd.asce.org/Younger_Members/Younger%20Member%20Newsletter/Issue%2045.pdf.

2002 National Membership Dues

Fellows \$210 annually
Members, Associate Members, Affiliate Members: \$175 annually

Associate Members and Affiliates who are recent recipients of a Bachelor's degree are entitled to a sliding dues schedule based upon the year the Bachelor's degree was granted:

Year of graduation(YG):	\$50 annually
YG + 1 year	\$50 annually
YG + 2 years	\$75 annually
YG + 3 years	\$100 annually
YG + 4 years	\$135 annually
YG + 5 years	\$175 annually

Students \$0 (free)

If you have any questions, please contact Member Services. 1-800-548-ASCE

National Stormwater BMP Database Doubles

by the Urban Water Resources Research
Council of the American Society of Civil
Engineers

The National Stormwater Best Management Practices (BMP) Database is expected to contain over 160 BMPs as of the end of 2001. This represents substantial growth of the standardized BMP information contained in the database since the initial 71-BMP release to the stormwater management community in June 1999. The Urban Water Resources Research Council of the American Society of Civil Engineers (ASCE), under a cooperative agreement with the U.S. Environmental Protection Agency (EPA), continues to focus on compilation and entry of high quality BMP data into the national database. The significantly expanded database can now be searched on-line or downloaded through the project web site at <http://www.bmpdatabase.org>.

The concept of developing a national database arose in the mid-1990s out of the realization that although there was a plethora of published information on BMP performance, the studies did not follow standardized data collection, reporting and performance evaluation protocols, making a scientific and consistent evaluation of these data difficult. The need for BMP performance information is particularly critical now since the EPA has mandated that most municipalities in the United States with populations larger than 10,000 must obtain a stormwater runoff discharge permit by 2003. One of the key requirements of this permit program is implementation of non-structural and structural best management practices (BMPs) appropriate to local conditions. Communities need to know which types of BMPs are appropriate for them (e.g., which BMPs function best in cold climates or in areas of heavy rainfall) and how to monitor the performance of the BMPs they select to ensure they function properly. The National Stormwater BMP

Database and data analyses that are being enabled as a result of this database will permit, in the long term, improvement of the BMP selection and design process so that local stormwater management can be much more effective than it is today.

Thus far, key project tasks have included: (1) collecting and evaluating existing BMP design and performance data, (2) designing and creating the national BMP database, (3) developing BMP performance evaluation protocols, and (4) evaluating the data collected and reporting initial findings. A companion project to develop stormwater BMP monitoring guidance was completed when it became apparent that much of the available BMP data was of limited value due to inconsistent BMP monitoring and reporting protocols used in the past, making evaluation of data and transferability of findings difficult and often impossible. The monitoring guidance manual provides practical and comprehensive guidance and is available as of December 2001 through the project web site.

The database can be used both to track BMP performance, as well as to research performance of BMPs. Key categories of data requested in the database include (1) test site location characteristics, (2) sponsoring and testing agencies, (3) watershed characteristics, (4) BMP design parameters and cost data, (5) monitoring locations and instrumentation, (6) monitoring costs, (7) precipitation data, (8) flow data, and (9) water quality data. The types of structural BMPs currently accepted in the data entry module are various types of detention basins, retention basins, infiltration basins, wetland basins, wetland channels, biofilters/grass strips, filter media, hydrodynamic devices, percolation trenches/dry wells, and porous pavement. Types of nonstructural BMPs accepted in the data entry module include education, recycling, maintenance practices and source controls. The requested data sets were developed with peer review and input from an international group of experts in the stormwater management field. Based on data received to date, the greatest challenge is to ensure the reporting

of accurate precipitation, flow and water quality data. The National Stormwater BMP Clearinghouse reviews new BMP data sets prior to posting to the master database to ensure that required data (e.g., design parameters, flows, water quality data) have been provided and to ensure that the data are technically reasonable (e.g., relationships between peak flows and flow volumes relative to the tributary watershed and precipitation events are evaluated).

Several large data sets received in the last year include multiple BMPs from Dr. Shaw Yu at University of Virginia and Dr. Robert Pitt at University of Alabama-Tuscaloosa, as well as 36 BMPs from the California Department of Transportation. These data are undergoing quality assurance (QA) review and will be posted to the project web site upon completion of the QA reviews. Table 1 summarizes the BMPs according to BMP type currently in the database or expected to be included in the database as of the end of 2001. Table 2 summarizes the types of BMPs currently contained in the database by geographic distribution.

The expanded data set will be analyzed in the summer of 2002 to determine whether new trends regarding BMP performance can be identified. This data analysis effort will build upon the initial findings of the data analysis conducted in 1999, which can be downloaded from the project web site. Some of the preliminary findings include:

1. BMP performance should not be based on comparisons using percent removal alone. It may be appropriate to use this measure only on carefully chosen data subsets; for example, sites that have similar stormwater runoff water quality.
2. The chosen performance evaluation method can affect reported pollutant removal efficiencies. For example, some BMP types may have been mischaracterized as less effective because of cleaner influent. Most BMPs and biochemical processes will

exhibit lower percent removals when the concentrations are low in the influent.

3. Retention ponds and wetland basins are not well represented by individual storm-by-storm comparisons because paired inflow and outflow data often are not from the same event.

4. Effluent quality is useful for characterizing the effectiveness of the BMP; however, it is still important to determine if the BMP had a statistically significant effect on water quality at each test site.

5. Downstream geomorphic and biological responses and aquatic habitat assessment may be better gauges of long-term BMP effectiveness than pollutant removal efficiencies alone, but there is insufficient information at this time to clearly suggest which BMPs may best mitigate the effects of urbanization on receiving waters. More BMP performance data are needed for sound statistical analysis of their effectiveness and what design parameters most influence their performance. For more information, please contact the National Stormwater BMP Databases Clearinghouse operated by Wright Water Engineers on behalf of the project team (303-480-1700 or clary@wrightwater.com) or visit the project web site at www.bmpdatabase.org. The Clearinghouse is available to help facilitate electronic transfer of BMP data into the database and welcomes submissions of BMP data to the master database.

This article was submitted with several tables, which we were unable to publish in our newsletter format. We have made the file available on the section website.

President's Message

As we start a new year, the 150th anniversary of ASCE, I want to remind everyone, that one of the goals of ASCE Vermont is to promote and advance engineering here in Vermont. The best way for that to happen, is in response to input from you, the Vermont members of ASCE. We had a great response for Engineer and Young Engineer of the Year nominations. Look for the ASCE Engineer and Young Engineer of the Year announcement in the February newsletter.

Looking forward to the upcoming year, there are several areas where member input and ideas would be welcome:

1. The April field trip. The past two years we have taken a bus down to have a tour of the Big Dig in Boston. Options for this year include a tour of Deer Island (the Boston treatment plant), or the Montreal treatment plant.
2. Dinner meeting topics, speakers and locations.
3. Younger member activities.
4. PE Exam preparation materials or review courses.

If you have thoughts on any of the above items (or other topics) please pass them along to a member of the board.

*Kevin Worden, P.E.
President of Vermont ASCE*

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