

In this issue:

PCSWMM
for Stormceptor

Edwards Aquifer
approval

Submerged
Stormceptor protects
power plant

Imbrium R&D update

PSD - essential
sizing criteria

Stormceptor
supports
supermarkets

Imbrium unveils PCSWMM for Stormceptor

Imbrium Systems, creator of the Stormceptor®, recently released PCSWMM for Stormceptor, the most accurate, easy to use sizing tool in the market.

“Continuous simulation modeling is the future for stormwater quality management,” said Rob Crossman, Imbrium’s USA Country Manager. “This modeling software makes sizing Stormceptor systems a straightforward and streamlined process.”

Based on the US EPA’s SWMM (Storm Water Management Model), PCSWMM for Stormceptor takes this respected simulation model further, using individual site conditions

and extensive historical rainfall data to determine the best stormwater quality system for your site.

“It’s extremely user-friendly,” said Jacque Swanepoel, Imbrium’s Manager for Canadian and International Markets. “We’ve merged cutting-edge technology with established US EPA scientific methodology to ensure every unit is sized to improve long-term water quality results.”

PCSWMM for Stormceptor was developed by Imbrium Systems, in partnership with Computational Hydraulics International (CHI) and internationally acclaimed stormwater expert Dr. Bill James. To download your free copy of the program, visit www.stormceptor.com.

Stormceptor® to protect Edwards Aquifer

Sensitive and vital groundwater system provides drinking water for 1.7 million people

To protect one of Texas’ most valuable water resources from harmful stormwater pollutants, the Texas Commission on Environmental Quality (TCEQ) has approved the Stormceptor system for use in the Edwards Aquifer.

“The Stormceptor system is a perfect fit for such a sensitive area as the Edwards Aquifer,” said Kenneth Waite, Rinker Materials Manager for South Texas.

Covering over 4,350 square miles in 11 counties, the Edwards Aquifer is the sole source of drinking water for 1.7 million people and provides water for municipal, industrial and agricultural uses. Because non-point source pollution such as stormwater accounts for 80% of water pollution, the TCEQ sought measures to protect water quality.

“The Edwards Aquifer springs are also habitat for several endangered species, so we’re trying to protect both drinking water quality and



Horseshoe Park, part of Edwards Aquifer
© Gregg Eckhardt

threatened species,” said Dr. Michael Barrett, a researcher at the University of Texas who assisted the TCEQ with its review process.

The Stormceptor system’s small footprint, simple maintenance and proven performance contributed to its approval for protecting the Aquifer’s recharge zone – the area where surface water enters the aquifer.

Stormceptor is no stranger to Texas. In addition to the Edwards Aquifer, there are currently over 400 Stormceptor systems protecting natural water resources across the state.

Stormceptor® protects power plant

A Submerged Stormceptor system is helping a Georgia power plant keep its cool.

Located in northern Georgia, Plant Hammond has provided coal-powered electricity for over 40 years. To reduce harmful emissions, Georgia Power installed a Wet Flue Gas Desulphurization System to remove sulfur dioxide from gases released into the atmosphere.

The system's operation involves the transport and storage of large amounts of crushed limestone and gypsum which generate a high concentration of dust and particles.

Turbines need to cool off

Stormwater pipes from this area lead into a stormwater sump which feeds a nearby retention pond used for cooling the plant's turbines and generators. Suspended solids carried in stormwater runoff could damage the sump pump and pollute the detention pond, jeopardizing the plant's ability to safely cool the turbines.

Conscious of the site's sensitivity, lead site engineer Charles Crowell from Atlanta-based URS Corporation decided a Submerged Stormceptor system was needed. "We've had a

lot of success with Stormceptor in the past – from ease of installation, ease of design, and the product itself always functions very well," said Crowell.

Submerged Stormceptor up to the challenge

The treatment device needed to operate with partially submerged pipes. "Not a lot of products can handle a submerged installation, whereas the Stormceptor has standard submerged applications," said Crowell.

The pipe's positioning required the inlet pipe and outlet pipe be set at exactly 91 degrees. The Stormceptor system's design flexibility made this simple and "installation went off without a hitch," said Crowell. And because the area is subject to frequent truck loading and unloading, the unit is ideal, as it is designed to capture oil from stormwater runoff as well as any dry weather spills.

"That's why Stormceptor was a perfect fit for this site," said Crowell. "It met all of those needs with one unit without having to install multiple pieces of equipment to carry out different functions."

Imbrium's R&D - driving new product development

Building on the success of the Stormceptor® system, Imbrium's Research and Development Center in Toronto has been ramping up, developing and evaluating a broad range of leading stormwater treatment technologies.

Imbrium's R&D Center has the equipment, the resources, the personnel and the attitude to develop new industry-leading products. "Complacency is our biggest enemy," said Dr. Darren Lawless, the Center's Director.

Core competencies

The Center houses a number of PhDs and a team of professional researchers that cover a wide spectrum of scientific fields including materials science, physics, applied chemistry, inorganic chemistry, membrane research and environmental engineering.

Together, the team conducts research from the bench top to full-scale commercial units including rapid prototype and



Imbrium R&D's water analysis lab

product development assessment, as well as research to enhance existing products. Analytical work is done within the Center's water analysis lab, which follows the Standard Methods for Examination of Water and Wastewater, backed by APHA, AWWA and WEF.

With these resources, the Center is exploring progressive technologies which will meet not only today's needs, but the future needs of stormwater as well. "We are focused on

Continued on page 3

Continued from page 2

developing unique, sustainable technologies which will change the way requirements are being met,” said Lawless.

Established relationships with universities, research centers

In addition to its own research, the R&D Center also works closely with top universities, leading innovation centers and renowned stormwater experts across North America. It

also benefits from several public sector partnerships with government research councils.

This vast research network undoubtedly enhances Imbrium’s product development, which ultimately helps our customers.

“This promises to be a very exciting year for Imbrium’s R&D,” said Lawless.

Particle size matters

PSD is crucial when sizing stormwater treatment systems

When sizing a stormwater treatment device, some municipalities ignore a crucial piece of data that has a significant impact on stopping pollutants from reaching natural waterways – Particle Size Distribution (PSD).

A defined PSD identifies sediment particle sizes in a stormwater runoff sample, including their diameters, content and concentration. It’s a blueprint of what is barreling down the pavement.

“PSD is a critical design parameter when sizing a stormwater treatment device,” said Mark Smith, a Stormceptor® marketing representative for Hanson Pipe & Precast.

Suspect stormwater treatment sizing

However, when sizing stormwater treatment devices, PSD is rarely considered – something Smith feels needs to change if municipalities want to stop harmful stormwater pollutants from entering natural waterways.

Instead, stormwater treatment devices are often sized to meet a water quality objective defined by the removal of Total Suspended Solids (TSS) which can be defined as the dry mass of solids retained on a 1-µm filter.

Many regulating authorities are content with achieving a standard water quality objective of removing 80% of TSS. But the question is, 80% of what? The answer is 80% of whatever solids are trapped by this filter, regardless of particle size. The breakdown in terms of gravel, sand, clay and silts is anyone’s guess.

Stormwater treatment systems are then sized with developers seeking the most inexpensive device that meets this 80% removal rate.

By not using a PSD, inadequate systems may be implemented, capturing larger coarser particles, but letting smaller particles pass untreated. And yet, smaller particles are the most harmful to natural waterways.

Revealing highway runoff study

The Center for Research in Water Resources (CRWR) at the University of Texas in Austin’s report *Particle Size Distribution of Highway Runoff and Modification through Stormwater Treatment* sums up the particle size debate well.

The report’s message – be far more concerned with smaller particles.

Finer particles such as clays and silts have the most surface area by mass, which allows them to carry more pollutants (heavy metals, hydrocarbons, nutrients, etc.) found in stormwater runoff.

The CRWR noted, “The concentration of metal, zinc for example, in terms of total per cent of stormwater solid mass, increased as the particle size decreased.” As well, smaller particles carried higher concentrations of copper, phosphorus and nitrogen.

Add to this the way that finer particles travel. “Larger particles in stormwater runoff settle out, but smaller particles remain suspended in stormwater runoff and travel greater distances,” reads the report.

All of these characteristics led the CRWR to conclude, “Treatment systems must be able to effectively remove fine particles in runoff to significantly reduce pollutant loads.”

California supermarket giant relies on flexible Stormceptor®

A leading California supermarket chain building a new head office was eager to cross off "stormwater management system" from its shopping list.

Operating more than 150 stores across the state, the company is constructing a new headquarters and distribution center that covers a mammoth 1.8 million square feet of warehouse space and 350,000 square feet of office space.

For effective stormwater management, it wasn't the site's size that the owners were concerned about. Rather, what worried them was the fact there was next to no room for head loss across the entire area.

"Available head loss was a problem, but not for Stormceptor," said Jim Johnston, Rinker Materials' Los Angeles Region Engineer. "A lot of the other devices need at least 24 inches of head loss, Stormceptor only needed three

inches...we can fit into tight corners."

Easily able to meet the small head loss requirements, three Stormceptor systems were installed - two STC 16000 units and a STC 7200 unit. (The low head loss also made these systems compatible with existing infrastructure.)

The three systems provide stormwater treatment for over 162 acres, capturing suspended solids (including fine sediment) and hydrocarbons from parking areas and loading docks, easily complying with stringent local water quality standards.

The company owners also wanted to be sure that long-term maintenance costs wouldn't break the bank. The Stormceptor system's low annual maintenance costs and ease of maintenance (including the speed at which the units could be cleaned), quickly put any worries to rest.

By choosing Stormceptor, this supermarket chain knows that efficient, cost-effective stormwater management is in the bag.

Upcoming Stormceptor® trade shows

APWA

Henry B. Gonzales
Convention Center
September 9-12, 2007
San Antonio, TX
Booth# 2720
www.apwa.net

WEFTEC

San Diego Convention Center
October 15-17, 2007
San Diego, CA
Booth# 7137
www.weftec.com

WCWWA

Shaw Conference Centre &
Sutton Place Hotel
October 23-26, 2007
Edmonton, AB
Booth# 84
www.wcwwa.ca

Stormceptor is manufactured under license by:

IN CANADA



IN THE USA



IN AUSTRALIA



IN NEW ZEALAND



THE STORMCEPTOR SYSTEM IS PROTECTED BY ONE OR MORE OF THE FOLLOWING PATENTS

Australia Patent No. 693,164; 693,164; 707,133; 729,096 -693,164 / Canadian Patent No. 2,009,208; 2,137,942; 2,175,277; 2,180,305; 2,180,383; 2,206,338 / China Patent No. ZL 97 1 13074.4
European Patent Treat Patent No. 95 307 996.9 / Japan Patent No. 9-11476 (Pending) / Korea Patent No. 10-2000-002601 (Pending) / Malaysia Patent No. PI9701737 (Pending) / New Zealand Patent No. 314646 / United States Patent No. 4,985,148; 5,498,331; 5,725,760; 5,753,115; 5,849,181; 6,068,765

DRAINage



Performance Claim Verified
by the ETV Program

Imbrium Systems Corp.

9420 Key West Ave,
Suite 140, Rockville,
MD 20850
T 888 279 8826
F 301 279 5433

Imbrium Systems Inc.

2 St. Clair Ave. W.
Suite 2100
Toronto, ON M4V 1L5
T 800 565 4801
F 416 960 5637

Stormceptor®
www.stormceptor.com