

Front Page July/August 2007, Vol. 44, No. 6

Top Story

Planning for a Rainy Day

Kansas City's '10,000 Rain Gardens' Initiative Curbs Stormwater, Pollution



Black & Veatch employees plant a rain garden at the company's corporate headquarters in Kansas City, Mo. Photo courtesy of Black & Veatch.

Kansas City, Mo., residents are stepping up their efforts to help the environment as part of the 10,000 Rain Gardens — an initiative that has city dwellers digging in the dirt to improve the region's water quality and reduce stormwater runoff.

Rain gardens consist of native plants planted in shallow basins. The plants' deep roots allow water to infiltrate the soil. A well-designed rain garden can trap and retain a significant percentage of pollutants common in stormwater runoff, thereby improving water quality, according to a news release from engineering, consulting, and construction company Black & Veatch (Kansas City, Mo.). 10,000 Rain Gardens educates Kansas City residents about how to plant their own rain garden and why it is important for the environment. Read more.

More Features

Arizona SJWP State Winner to Represent United States at International Competition

NBP Chair Bob Hite Announces Retirement from Denver Metro Wastewater Reclamation District

Intel International Science & Engineering Fair: A Meeting of the Young Minds

News & Events

WERF Seeks Volunteers to Guide Research
WERF Releases \$600,000 in Funding for Water Quality Research
Registration Now Open for World Water Monitoring Day™ 2007
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Features

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Dan McCarthy, right,
president and chief executive
officer of Black & Veatch,
plans his personal rain
garden with his wife Jan, and home rain garden.
Kristopher Dabner, owner of
The Greensman, a garden

design and installation business in Kansas City, Mo.

Kansas City, Mo., residents are stepping up their efforts to help the environment as part of 10,000 Rain Gardens — an initiative that has city dwellers digging in the dirt to improve the region's water quality and reduce stormwater runoff.

Rain gardens consist of native plants planted in shallow basins. The plants' deep roots allow water to infiltrate the soil. A well-designed rain garden can trap and retain a significant percentage of pollutants common in stormwater runoff, thereby improving water quality, according to a news release from engineering, consulting, and construction company Black & Veatch (Kansas City, Mo.). 10,000 Rain Gardens educates Kansas City residents on how to plant their own rain garden and why it is important for the environment.

The initiative started a few years ago when members of KC-One, the city's stormwater management program, had a conversation at the city's stormwater steering committee meeting about engaging residents to work on stormwater issues.

"We were looking for a way to communicate with [residents] about their own issues and how they could help," said Jeff Henson, director of water resources for Black & Veatch and KC-One project manager. The idea of a rain garden program came up as part of a brainstorming session at that meeting, and with Mayor Kay Barnes' approval, the initiative went into effect with funding from KC-One, explained Henson.

In the past few years, 10,000 Rain Gardens workshops and educational programs have informed residents on the benefits of rain gardens, as well as how to plant and maintain one in their own yards. The initiative's Web site, www.rainkc.com, offers many diagrams, downloads, a list and photographs of native plants, and other resources for both novice gardeners and green thumbs.



"It's very much an information and awareness system," said Scott Cahail, environmental manager for the Water Services Dept of Kansas City. "The Web site is by far the biggest tool to reach the most people. We're well over 100.000 visits."

Workshops offered to residents have been extremely popular. "We've sold each one of those out, with about 80 people at each," Cahail said.

Although Cahail said he couldn't gauge Kansas City's water challenges in comparison to other urban environments, any measures citizens taken to help improve water quality and reduce stormwater runoff are beneficial.

"There are concerns, as there are in most urban situations, about water quality," Cahail said. "Kansas City is actually a very large city, area-wise. And the Missouri River runs somewhat through the middle of it ... there [are] a lot of challenges that come along with that."

Cahail said a few streams that run through the city are prone to flooding and have caused flash flooding, resulting in human fatalities in the past. "Then you add in water quality issues and it's 'wow, we've got to sort this out."

Gardening Goes Corporate

The 10,000 Rain Gardens initiative got a boost from Black & Veatch, which has planted Kansas City's first corporate rain garden, and now is upgrading the bioretention basin at its headquarters.

"We're involved in a variety of projects to help government, utilities, and industry apply best management practices to improve drainage and manage urban runoff," said Dan McCarthy, president and chief executive officer of Black & Veatch's global water business. "Some stormwater management approaches necessitate substantial technology expertise, while others require the type of corporate leadership and environmental stewardship inspired by [this] initiative."

About 100 Black & Veatch employees have picked up shovels and put on gardening gloves to help construct the office's rain garden. The group is known as the Rain Garden Brigade.

"As this program got developed through the mayor's office, our leadership got interested in it ... and we opened up the program to volunteers within Black & Veatch who wanted to help plant our corporate rain garden, help maintain it, and also to commit to rain gardens at their own homes," explained Henson.

Families of Black & Veatch employees have also pitched in to help with the corporate rain garden, added Linda Bond, media communications specialist for Black & Veatch Water.

This summer Black & Veatch is transforming the existing retention basin at its headquarters into a bioretention basin full of native plants. "[The plants] help the water to infiltrate" into the soil, Henson said. This is especially helpful during periods of frequent storms, he explained, as then less water is "discharged into the sewer system [and] the plants help remove some pollutants through uptake," said Henson.

The office's existing detention basin was built when the building was constructed in the late 1980s, explained Henson, "and at the time it was primarily to address flood control so that we weren't increasing ©2008 Water Environment Federation. All rights reserved.



runoff from our site." However, the retention basin wasn't designed to help with water quality improvement. The addition of native plants will help increase the quality of water that runs off from the parking lot and other surfaces during wet weather events.

"We thought it would be a great idea to go back in and redesign that detention basin so that not only does it control the flood flows, but it also helps clean up the water before you discharge it," Henson said.

At press time, the Black & Veatch bioretention basin was in the design phase. The company expects to complete the basin by the end of the summer.

— Meghan H. Oliver, WEF Highlights

Arizona SJWP State Winner to Represent U.S. at International Competition

Jingyuan Luo of Chandler, Ariz. was named the winner of the 2007 U.S. Stockholm Junior Water Prize (SJWP) for her project, "Toxicity and Bioaccumulation of Nanomaterials in Aquatic Species." Her project was selected from 45 state winners nominated by Water Environment Federation (WEF; Alexandria, Va.) member associations. The national competition, held in Phoenix June 21–23, was sponsored by ITT Corporation (White Plains, N.Y.), The Coca-Cola Company (Atlanta), and Delta Air Lines Inc. (Atlanta). The Arizona Water and Pollution Control Association (AWPCA; Prescott) hosted the SJWP event.

The U.S. winner (center) and finalists of the Stockholm Junior Water Prize, left to right: Yupeng Liu, South Carolina; Jordyn Wolfland, Maryland; Jingyuan Luo, Arizona; Keely Goodgame, New Mexico; and Kelydra Welcker, West Virginia.



"After spending time with the 2007 State SJWP Winners, I'm increasingly optimistic about the waterrelated challenges we face," explained WEF President Elect Adam Zabinski. "These bright young scientists are blazing the way with their science research and novel thinking for a better water future."

Jingyuan won a water molecule sculpture and \$3000. She will represent the United States at the international competition where more than 30 countries will compete during World Water Week, August 11–17. Sweden's Royal Highness Crown Princess Victoria is the patron of the prize.



In addition, Jingyuan will give a poster presentation of her project at the WEF's annual conference and exhibition, WEFTEC[®], this October in San Diego. Her school also will receive a check for \$1000 USD to enhance water environment education, and her science teacher will accompany Jingyuan to Sweden.

Four other finalists will be awarded \$1000 USD each and receive an invitation to WEFTEC. The finalists include:

- Jordyn Wolfand of Bethesda, Md., for her project, "Effects of 17 alpha-ethinylestradiol on Male Competitive Courtship Behaviors and Secondary Sexual Characteristics in Fathead Minnows (*Pimephales promelas*)":
- Keely Goodgame of Logan, N.M., for her project, "An Economical, Portable, Pocket-Sized, Arsenic Filtering Device";
- Yupeng Liu of Charleston, S.C., for her project, "Algicide Resistance in the Growth Rate and Toxin Production of a Coastal Harmful Algal Isolate, *Microcystis aeruginosa*"; and
- Kelydra Welcker of Parkersburg, W.V., for her project, "Quantification, Removal, and Recovery of the Teflon® Surfactant APFO."

The AWPCA hosted event offered 3 days of educational and entertaining Southwest cultural activities, including a casino night and an awards ceremony at the Native American Heard Museum. Participants were also treated to a tour of the Chaparral Water Treatment Plant (Scottsdale) and a presentation by host sponsor the Salt River Project, which provides water and electricity to central Arizona residents.



NBP Chair Bob Hite Announces Retirement from Denver Metro Wastewater Reclamation District

Robert W. Hite, who has served Metro Wastewater Reclamation District (Denver) for nearly 4 decades, announced his retirement Dec. 31 as district manager.

Photo courtesy of Metro Wastewater Reclamation District

"Bob Hite will be deeply missed by the staff and members of the board," said Metro District Chairman of the Board Tony Ferraro. "Under his direction, the District has experienced unprecedented fiscal stability and is widely recognized as a national leader in the wastewater treatment field."

Hite served on the Metro District's Board of Directors as a representative of Denver for 17 years before being appointed district manager in 1988. His board service included an unprecedented three terms as chairman of the board.

"Serving at the pleasure of the board as district manager has been an honor and a unique privilege. I have great respect for the variety of community involvement and selfless service each member brings to the board," said Hite.



He also credits the Metro District's 364 employees for his success. "District staff is extremely talented and capable, and their collective and individual successes, growth, and achievements are remarkable. They are the ones responsible for making Metro an award-winning agency year after year," Hite said.

Under Hite's leadership, the Metro District has achieved national and international recognition as one of the top wastewater utilities in the United States. The District has won multiple awards from the U.S. Environmental Protection Agency (EPA), the National Association of Clean Water Agencies (NACWA, Washington, D.C.), the Water Environment Federation (WEF; Alexandria, Va.), the American Public Works Association (Kansas City, Mo.), and the Rocky Mountain Water Environment Association.

Hite is a past president of NACWA. He will continue serving as the NACWA representative on the board of Water for People (Washington, D.C.), as chairman of the board of the Mountain States Employers Council (Denver), as a member of the board of the Water Environment Research Foundation (Alexandria, Va.), and as chairman of the National Biosolids Partnership (Alexandria, Va.), which is a consortium of representatives from NACWA, WEF, and EPA that addresses biosolids management.

Metro District is the largest wastewater treatment facility in the Rocky Mountain West, serving about 1.5 million people in a 380-mi² service area that includes Denver, Arvada, Aurora, Lakewood, Thornton, part of Westminster, and more than 45 sanitation and water and sanitation districts.

A Meeting of the Young Minds

High School Student Recaps International Science Fair

Sikander Porter-Gill, who was <u>featured in an article in the May issue of WEF Highlights</u> for his winning science fair project on microbial fuel cells, recently attended the <u>Intel International Science and Engineering Fair</u> (ISEF) in Albuquerque, N.M. The fair stands as the world's largest pre-college celebration of science, bringing together nearly 1500 students from more than 40 nations to compete for scholarships, tuition grants, internships, scientific field trips, and the grand prize: a \$50,000 college scholarship.

Following is the Maryland high school student's account of his trip to New Mexico for Intel ISEF this past May. To read the May issue's article on Sikander, click here.

It is hard for me to put into words the excitement and total anxiety of being an entrant at the Intel ISEF fair. There are ceremonies, celebrations — it is a whirlwind international gala. I competed at the fair with my project, "Improvement of a Single-Chamber Microbial Fuel Cell Utilizing a Novel Concept of a Hydrophobic Coating at the Cathode and the Incorporation of Graphite Granules at the Anode Electrode."

The first day of the fair was one filled with stress. Participants must arrive at the host city, Albuquerque, N.M., and quickly assemble his or her display, and do so under ISEF's display rules. If one does not follow these rules, his or her project may be listed on the Project Violation List. Often times, the violations are easily repaired, but I saw a few entrants walk away devastated when their project was disqualified.



There are workshops to attend and pins to exchange with students from all over the world. Students proudly display their flags and you often cheer those from your own state on to success. You meet other parents and students at the hotel and affairs, and often form a comradely bond.

Judging started early on Wednesday morning and lasted until 6 p.m. The judging was extensive and detailed — there was no chance of fooling one of the Intel judges. I had a slight error on my poster that I did not notice until it was set up. The fair director thought no one would notice, but that was not the case! One judge spotted the mistake right away, despite the flaw being up in the corner of my 6-ft poster!

My stomach lurched when the special and government award ceremonies began. Then came the grand awards! When my category came up, I jumped with a hopeful glee.

I came home with a fourth-place win in the Energy and Transportation category. I was so happy and proud as my name and city were spoken.

— Sikander Porter-Gill

News & Events

WERF Seeks Volunteers to Help Guide Research

The Water Environment Research Foundation (WERF; Alexandria, Va.) is seeking thoughtful leaders from the wastewater and water quality industry and consulting sectors, state environmental agencies, and relevant academic fields to serve on its Research Council starting in January 2008.

The Research Council is composed of a dozen senior technical advisors, appointed by the WERF board of directors, who help create the vision for wastewater treatment and water quality-related research, provides oversight and coordinate across program areas of the research portfolio, and develop recommendations for funding of research programs.

Please note that there will be openings within the Research Council for utility, equipment manufacturer, and federal government leaders in 2009.

If selected, volunteers may serve for up to two 3-year terms. WERF covers travel expenses for council meetings (two per year), and all sponsored liaison activities to WERF research programs.

If interested, please e-mail, by July 23, your curriculum vitae and letter of interest to Dan Woltering, WERF director of research, at dwwltering@werf.org. If you know of any individuals who should be considered, please forward this announcement to them and ask them to respond directly to WERF.

WERF Releases \$600,000 in Funding for Water Quality Research

The Water Environment Research Foundation (WERF; Alexandria, Va.) is seeking pre-proposals for its Unsolicited Research Program for research that will advance knowledge and understanding in water quality and that could transform how WERF subscribers perform their business.

WERF also will consider proposals that would take existing research to the next level of completion, resulting in practical solutions to water quality problems.

"This is the second year of our revitalized unsolicited research program," said WERF Director of Research Dan Woltering. "It is a key component of WERF's overall research effort and a tangible commitment to future science and technology advances."

Proposals in all relevant wastewater and water quality areas are welcome. WERF has research underway on the following topics: wastewater treatment and reuse; solids treatment and reuse; infrastructure management; operations optimization including energy efficiency; stormwater; decentralized collection and treatment systems; risk assessment and communication; watershed management; and water quality.

WERF has up to \$600,000 (in total) for unsolicited research under this call for pre-proposals and will allocate these funds in a manner that proposed research outcomes will benefit WERF subscribers as much as possible.

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All pre-proposals are due in WERF's offices by 5 p.m. EST on July 20, 2007.

The call for pre-proposals can be viewed at www.werf.org, along with complete instructions.

Online Site Registration Now Open for World Water Monitoring Day™ 2007

Online site registration is now open for World Water Monitoring DayTM (WWMD) 2007. Held annually from Sept. 18 through Oct. 18, WWMD is an international outreach program that builds public awareness and involvement in protecting water resources around the world by engaging communities in performing monitoring tests on local rivers, streams, estuaries, and other waterbodies.

"As awareness of issues such as global water supply and environmental stewardship continue to increase, it is more important than ever to find ways of connecting people to their local waterbodies," said Bill Bertera, executive director of the Water Environment Federation (WEF; Alexandria, Va.). "This program is an excellent way of demonstrating the role each of us has in the health of our water supply and the importance of working together to preserve it both now and in the future."

An easy-to-use test kit allows everyone from children to adults to sample local waterbodies for a core set of water quality parameters including temperature, acidity (pH), clarity (turbidity), and dissolved oxygen. Field results are then put into an international database and summarized on the program's Web site.

"Last year, we collected data from 3900 sites in 39 countries and hope to build upon that success," said Linda Kelly, WEF's managing director of public communications. "In 2007 we're aiming for 6000 sites, with a goal of engaging 1 million people in monitoring their local waterways by 2012."

Designed to be an accurate yet accessible technology for all levels of experience, the WWMD kits (\$13 plus shipping and handling within the United States; international costs may vary) contain a step-by-step instruction booklet, one set of hardware (collection jar, pH test tube, DO vial, Secchi Disk decal, and a thermometer) and enough pH and dissolved oxygen reagent tablets to perform 50 tests. A Material Safety Data Sheet is also included.

Developed in 2002 by America's Clean Water Foundation (Washington, D.C.), the program was formally adopted by the Water Environment Federation in July 2006 to provide a larger platform for program delivery. Coordinated by WEF and the International Water Association (London), the program receives support from the U.S. Environmental Protection Agency, U.S. Geological Survey, CDM (Cambridge, Mass.), CH2M Hill (Englewood, Colo.), Smithfield Foods (Smithfield, Va.), and ITT Corporation (White Plains, N.Y.).

For more information about the program, site registration, or to order monitoring kits, visit www.WorldWaterMonitoringDay.org.

WEFTEC®.07: Earn Educational Credits, Advance Professional Development

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Stay ahead in the water and wastewater field by participating in the WEFTEC®.07 Workshop Program. Workshops complement the conference's technical sessions, enhancing one's educational experience by allowing a group of participants to focus on a specific skill set or topic.

These interactive workshops — comprised of group exercises, hands-on activities, and extensive Q&A sessions — are both challenging and rewarding, providing participants knowledge and skills directly applicable to their work. When you participate in WEFTEC.07 workshops, you can earn up to a total of 1.2 Continuing Education Units (CEUs).

For more information, such as workshop descriptions and how to register, visit www.weftec.org. Register by Aug. 6 to receive the discounted rates.

New Online IP Subscription: Unlimited, Simultaneous Access for All

The American Public Health Association (Washington, D.C.), American Water Works Association (Denver, Colo.), and the Water Environment Federation (Alexandria, Va.) have expanded Standard Methods Online to include the ability to grant unlimited access to all users managed under a subscribed IP address. Standard Methods Online is the source for up-to-date water analysis methodology.

Online features include:

- more than 100 methods approved by the U.S. Environmental Protection Agency (EPA),
- unlimited downloads,
- fully searchable text,
- access to a community of experts,
- e-newsletter highlighting the latest issues and trends.
- notification of revisions, new materials, and EPA approvals.

Institutions can connect to Standard Methods Online to maximize research with the most state-of-the art research tool available in today's regulatory environment.

For more information, contact Tracy Hardwick at thardwick@wef.org or (703) 684-2400, ext. 7781.

Calling All Treatment Works!

Operations Forum, a special section of WE&T magazine, is looking for a few good treatment facilities. The Forum's Profile section provides an up close look at water and wastewater treatment plants, collection systems, and outstanding operations and maintenance personnel. The Forum currently is seeking new entries, so here's your chance to brag about the features, approaches, and people that make your facility exceptional.

To see past profiles, visit the <u>Plant Profile Archive</u>.

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