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Top Story

Reading, Writing … and Water?

Look, look!

See Dick paint a picture of a water molecule.

See Jane purify a gallon of dirty water.

See school children all over America learn about the global water crisis and what they can do about it.

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WEF HIGHLIGHTS

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Above: Students at Boulder, Colo.'s Casey Middle School learn about the water cycle and global climate change during an educational program developed by MWH. Photo Courtesy of Will Shanley, account executive, Linhart Public Relations. Click for larger image.

Top and above: Students at Monarch Junior High School in Louisville, Colo., learn about the water cycle and climate change through an educational program developed by the global engineering firm MWH. Photos Courtesy of Will Shanley, account executive, Linhart Public Relations. Click for larger image.

Stockholm Junior Water Prize Finalist Studies Hormone's Effect on Minnows

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We've come a long way since the days when first graders spent reading class learning the latest adventures of Dick and Jane. Today's students are more likely to participate in water conservation "SWAT teams" that check for leaks in water fountains, or write poems about water shortages and carbon footprints. They are more ecologically aware than perhaps any previous generation, thanks in large part to the integration of environmental education into virtually every facet of their studies.

Take for example Kathryn Singey's sixth grade class at Casey Middle School in Boulder, Colo., which recently spent 5 weeks reading and preparing research projects on global warming, water pollution, and related topics as part of a nonfiction reading unit. Singey could have chosen any topic for these projects. So why water?

"As responsible educators, we must work within our standards and teach what is current and relevant," she explained. "And what is more relevant than the condition of the world we live in?"

The unit culminated in a presentation by engineers from MWH Global Inc. (Broomfield, Colo.) on the water cycle, including a game that allowed students to experience life as a water molecule.

MWH is one of a growing number of private companies, public utilities, and nonprofit organizations that have developed water education programs for the nation's schools. Their efforts come in all shapes and sizes.

Water activist Christopher Swain, for example, has swum the full length of the Columbia, Hudson, and Charles rivers. He now frequently speaks to schools about his long swims, and offers water-related curriculum for subjects ranging from music to geography, all available online at www.swimforcleanwater.org . Another organization, the Council for Environmental Education (Houston) creates hands-on water education and stewardship programs such as Wet in the City for school use at no charge.

Beyond the Classroom
Many educational programs go beyond science class lectures and homework assignments, motivating children to take a personal role in solving global water problems. While studying rural Africa in social studies class, students from McCulloch Intermediate School in Dallas learned about women who had to walk more than 8 km (5 mi) a day to obtain clean drinking water. To better understand the daily challenges these women face, students walked a lap around the school track carrying a bucket full of water.

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The exercise was an eye-opener. It inspired the students to sponsor a “fun run” to benefit PlayPumps International (Washington, D.C.), a nonprofit organization that provides African schools and communities with PlayPumps® — playground merry-go-rounds that are designed to double as water pumps. Together, the 400 middle school students raised more than $28,000, enough to install two of the devices and provide access to clean water in two sub-Saharan Africa villages.

As these children in Africa play on a PlayPump® water system, water pumps into a 2500-L (660-gal) storage tank, easily accessible by the simple turn of a tap. Photo courtesy of PlayPumps International. Click for larger image.

Members of the Human Rights Club at Scarsdale Middle School in New York felt similarly inspired. They created their own makeshift PlayPump water system out of hula hoops and rope, which they demonstrated during school lunch periods to raise both awareness and money for the program.

Educational outreach programs are a natural outgrowth for organizations involved in global water projects, according to Steve Byers, director of development and communications for WaterPartners International (Kansas City, Mo.), a nonprofit that provides safe drinking water and sanitation to people in developing countries.

“We were getting regular requests for educational programs, and it fits right with our mission,” said Byers. “Understanding the problem is the first step toward solving it.”

WaterPartners has created entertaining and informative lesson plans for students at all grade levels, all focused on the importance and relevance of drinking water in the developing world.

A “Mock Muck” lesson for high school students simulates the water treatment and purification process. It calls for students to purify a sample of dirty water using oil–water separation, sand filtration, and charcoal absorption–filtration. Students are then challenged to create the most effective filtration and treatment system with the materials provided. Their efforts are judged both on the amount of water they recover and the purity of the results.

But such lessons are not limited to science class. They are part of larger units that cover a broad scope of subjects including English, geography, art, civics, and economics.

The seventh grade class of East Garner Middle School in Raleigh, N.C., designed calendars featuring the winners of a water-themed art contest. Proceeds from calendar sales were donated to WaterPartners, which used them to complete “low-cost, high-impact projects for the poorest of the poor,” said Byers.

“We do a lot of spring protection systems in countries like Ethiopia,” said Byers. “We’re also building a lot of containment and filtration systems to provide safe water for villages of 200 people.”

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Children in Keelakarthigaipatti, Tamil Nadu, India enjoy access to drinking water at their new school well. Photo courtesy of Gary White, WaterPartners International. Click for larger image

Educators, however, don't want to leave the impression that water quality is a third-world problem that can be solved through creative fundraising.

"Areas like Raleigh have experienced their own severe drought," noted Byers. "That has helped sensitize students to the idea that we've got problems here, too, that they can play a role in solving."

MWH's presentation to Kathryn Singey's sixth grade class illustrated the predicted impact of climate change on the water cycle. It also included activities the students could do at home or school to reduce their own carbon footprint.

"It's important that these programs focus on solutions," said Singey. "Our students have to know what they can do to make things better. Otherwise, it's just too sad or frightening."

— ***Mary Bufe**, WEF Highlights*

Stockholm Junior Water Prize Finalist Studies Hormone's Effect on Minnows

Despite the tone of recent Associated Press news articles and congressional hearings, the presence of low levels of chemicals associated with pharmaceuticals, personal care products, and other consumer products in the nation's waters is not new. For many years researchers have tested for the presence of these compounds as well as their environmental effects.

In fact, Jordyn Wolfand, one of the four finalists in the 2007 U.S. Stockholm Junior Water Prize (SJWP) competition, earned that distinction for her research on the effects that residual concentrations of the active ingredient in birth control pills have on minnows.

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Wolfand said she wasn't surprised by the national coverage of microconstituents in the drinking water. She explained that she's been reading journal and research articles for some time that found small concentrations of different chemicals in streams, rivers, and other bodies of water.

Moreover, the formulations of the birth control pills she used in her research have a large dose of active ingredient in each pill.

"A lot of it isn't absorbed by the body and is flushed down the toilet and, of course, ends up in our water," Wolfand said.

Specifically, Wolfand's research investigated whether the hormone 17α–ethinylestradiol affected the physiology and breeding practices of male fathead minnows. Her findings indicate that the hormone does have some effects.

During breeding, male fathead minnows compete for, defend, and maintain structures for spawning. She found that male minnows exposed to hormones for 21 days exhibited fewer competitive and aggressive behaviors and displayed less motivation to clean and defend the nest than minnows that had not been exposed. On the physiological side, her research indicates that exposure to the hormones caused male secondary sex characteristics to shrink and disappear. In some cases, the males also developed an ovipositor — a female egg-laying organ.

In the report on her research, Wolfand writes, "Reduced aggressive and protective behaviors could directly affect the reproductive capabilities of an individual or population. These results may be applied to other aquatic organisms, illustrating that hormones in effluent and other pollutants can alter breeding behaviors, and the reproductive dynamics and gene flow in natural fish populations."

As you conducted your research on the effects of these residual hormones on fathead minnows, did you become concerned about the potential human health effects of these concentrations?

"Not really," Wolfand said. She said she was often asked what about human health effects, but her research did not address that. However, she added, that because the residual concentrations are so small, her only real concern might be in eating fish or other aquatic animals that could bioaccumulate these compounds.

"But concentrations are so tiny, they're in parts per trillion," Wolfand said. "So, yes, it crossed my mind. But I didn't really put a lot of thought into it."

So, should utilities have to test for the presence of microconstituents in wastewater effluent or drinking water supplies?

"That's a tough one," Wolfand said. "I'm not quite familiar with the impacts on human health, but to me there seems to be crazy panic about this, and I'm not sure it's warranted."

It would be great to implement monitoring plans for these compounds because concentrations are likely to increase as population increases, she said. However, to reduce their concentrations, she suggested turning to pharmaceutical manufacturers.

Wolfand said that like the birth control pills she used in her research, the dose of active ingredient in many medications is higher than needed because the drugs don't absorb fully. She said that reducing the

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active ingredients in pharmaceuticals and working to have those ingredients absorb into the body more readily has merit in reducing microconstituent concentrations. She added that she was aware of some oral contraceptives that are manufactured with less active ingredient.

“It seems like that could be a solution; stop it at the source,” Wolfand said. She added that educating people on the proper disposal of drugs — specifically not flushing them down the toilet — would an important step as well.

Wolfand’s research was part of an internship she held at the University of Maryland (College Park) Aquatic Pathobiology Center. The U.S. SJWP is supported by the Water Environment Federation (Alexandria, Va.) along with ITT Corp. (White Plains, N.Y.), The Coca-Cola Co. (Atlanta), and Delta Air Lines Inc. (Atlanta).

This spring, Wolfand completed her freshman year at Tufts University (Medford, Mass.), where she is pursing degrees in environmental engineering and pre-med.

— ***Steve Spicer**, Highlights*

From the President: Getting Involved in WEF

I am often asked, “What is the most effective activity someone can participate in to be involved in the Water Environment Federation?” The answer is really quite simple. Join a committee that interests you.

The Water Environment Federation (WEF;Alexandria, Va.) is structured in an interesting fashion. By paying dues, we automatically become members of both WEF and the Member Association where we live or work. We then have the opportunity to become active at both the local and federation level, which is what I did.
I have greatly enjoyed serving on five committees in the New York Water Environment Association (NYWEA; Syracuse, N.Y.) and on three committees at WEF over the years. The same experience is repeated time and again by many others. That’s the great thing about our volunteer organization: There are so many opportunities to get involved.

Committees
WEF has three types of committees. *Ad hoc* committees are created for a single purpose and have a short duration (less than a year). Standing committees serve as the backbone of the committee structure with an ongoing life (subject to periodic review to ensure the mission’s ongoing relevancy). Communities of Practice (CoP), cover subject matter that crosses several standing committees’ areas of interest. The CoPs are intended to have a limited life lasting the length of time it takes to investigate the subject area. This column focuses on standing committees because that is where most actions get accomplished.

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Not surprisingly given WEF's strong orientation toward knowledge and technology transfer, most of our 42 committees are what we categorize as knowledge committees. These range from Collection Systems to Municipal Wastewater Treatment Plant Design to Laboratory Practices. Each committee is different, but the consistent thread is to find and develop knowledge of interest to water professionals and find mechanisms to share that knowledge.

The obvious ways that we share this knowledge include WEFTEC® and specialty conferences, periodicals such as *WE&T*, *Water Environment Research*, and *Water Practice*, publications such as our highly regarded Manuals of Practice, and the latest tools such as webcasts and webinars. In addition, several less obvious ways WEF distributes information include finding the means to work with Member Association committees and to use and be used by them as a resource. We also partner with other organizations to enlarge the breadth of what we can share. All of these opportunities are very exciting and challenging and are limited only by the desire of committees to assess needs and develop programs, staff resources to assist with logistics, and volunteer time to make it all happen.

Delivery committees, another large group of committees, take knowledge and products and make them available to our members and the world. Thousands of abstracts are received, evaluated, selected, and ultimately sorted into the multiple sessions and workshops at WEFTEC through these committees. The Program Committee, responsible for the WEFTEC technical program, is an ultimate example of delivery. Other excellent examples of delivery include the Public Communication and Outreach Committee, which works to educate the public about WEF's mission of protecting and enhancing the global water environment, and the Specialty Conference Committee, tasked with coordinating the specialty conferences developed by the knowledge committees.

Management committees, such as Audit, Membership, and Constitution & Bylaws, relate to how WEF functions as an organization. These appeal to individuals who enjoy process and are intrigued by the mechanics and dynamics of a complex organization such as WEF.

Something for Everyone

Such a vast array of committees means, very simply, that there is something for everyone. Committees have always been the backbone of WEF. Staff and governance exist to make sure our products and services address our mission and strategic plan, but committees always have developed those products for which we are so highly regarded in the industry. We know how important committee work is to WEF and constantly are seeking ways to enhance the links with and between committees. At the moment nearly every officer and trustee on the current Board of Trustees has been a committee chair or vice-chair.

Committee members have a direct opportunity to affect the future of WEF. While I have discussed the intellectual capital and the mechanics of our organization, another very important aspect must be mentioned. Committees are created because some particular aspect is considered important to WEF and our members, and individuals join committees out of personal interest in the subject. This gives our committees a voice, usually through their leadership, to offer opinions to the board and to offer suggestions on how the strategic plan might be modified and WEF's priorities be shifted. This is a powerful tool and one I urge committees to make use of more frequently. All too often we get focused on the immediate task and don't look at how we fit into the larger picture and how that picture might be improved. On a fundamental level, who has a better feel for what we need than our grass roots of committed committee members? Our passion for water makes us unique and healthy as an organization.

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I recommend that if you are involved, stay involved. If you are not already involved, get involved with a committee. Participation brings meaning and fulfillment to membership and helps us improve the world.

— ***Adam Zabinski**, 2007–08 WEF President*

Pro to Know: LaVene Brenden

LaVene Brenden, vice president and senior project manager for Bartlett & West Inc. (Topeka, Kan.), has dedicated his career to solving water and wastewater issues in the Midwest. Working in the industry for more than 36 years, Brenden draws on his regulatory knowledge as well as his engineering design and project management skills to improve city, county, and state water quality practices.

Brenden has earned bachelor's and master's degrees in civil engineering and a master's degree in public administration. His experience includes 9 years of writing and issuing permits for wastewater discharges, 4 years with the U.S. Air Force, 3 years as a city engineer, and 20 years as a consulting engineer. He has extensive knowledge and expertise in the design of municipal improvements, including water supply, sanitary sewer, street, and drainage public works projects.

At Bartlett and West, Brenden serves as a wastewater technical advisor and quality control advisor to all of the company's offices. Through recent projects, Brenden has provided technical wastewater process consulting to local and international governments, designed water and wastewater infrastructure improvements for an expanding industrial park, provided facility planning for wastewater improvements, designed a 13,250-m^3/d (3.5-mgd) ultraviolet disinfection facility, and planned and designed municipal water line replacements.

"He is committed and enthusiastic in his pursuit of ensuring access to affordable, clean water."

— ***Nominated by Stacey Lamer**, Bartlett & West*

Know a wastewater "pro" who deserves recognition? Contact Jennifer Fulcher at jfulcher@wef.org for information on how to nominate a hard-working friend or co-worker.

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WEF HIGHLIGHTS

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News & Events

WEF Announces 2008 State Winners of the U.S. Stockholm Junior Water Prize

The Water Environment Federation (WEF; Alexandria, Va.) has announced the 2008 state winners of the U.S. Stockholm Junior Water Prize (SJWP). WEF Member Associations selected and will sponsor state winners and their science teachers to attend the national competition, hosted by the Florida Water Environment Association, June 19–21, in Orlando, Fla. Click here for the list of winners.

The purpose of the SJWP program is to increase students' interest in water-related issues and research and to raise awareness about global water challenges. The competition is open to projects aimed at enhancing the quality of life through improvement of water quality, water resources management, water protection, and water and wastewater treatment.

The U.S. winner will receive $3000 and an all-expense-paid trip to Stockholm, Sweden, for the international competition as well as the opportunity to present his or her research to water quality experts at WEFTEC®.08, WEF's 81st annual technical exhibition and conference in Chicago, this October. In addition, the U.S. winner's school will receive $1000 toward enhancing science education, and as many as three finalists will receive $1000 each.

In the United States, WEF and its Member Associations organize the national, state, and regional SJWP competitions with support from sponsors, including ITT Corp. (White Plains, N.Y.), The Coca-Cola Co. (Atlanta), and Delta Air Lines (Atlanta).

The national winner will represent the United States at the international competition in Stockholm, Sweden, during World Water Week, Aug. 17–23. The international winner will receive $5000 presented during a royal ceremony by the prize's Patron HRH Crown Princess Victoria of Sweden.

Click here for more information about the SJWP competition.

World Water Monitoring Day to Increase Impact with Soap Partnership

The 2008 World Water Monitoring Day™ (WWMD) program, in partnership with Procter & Gamble (the makers of Safeguard® and Ivory®; Cincinnati), will feature a campaign to recognize the United Nations International Year of Sanitation. Beginning this spring, WWMD will distribute some 12,000 water monitoring kits, including bars of soap and a handwashing fact sheet, to people in more than 50 countries as part of its "Wash Your Hands, Save a Life" campaign.

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The WWMD program, which is coordinated by the Water Environment Federation (Alexandria, Va.) and the International Water Association (London), is an international educational program designed to build public awareness and participation in water resource protection. It is expected to surpass participation records for last year, when more than 46,000 people from 43 countries tested water quality worldwide.

Using kits provided by WWMD or ordered online, participants test water quality indicators including dissolved oxygen, acidity, temperature, and turbidity. Results are reported online, tabulated, and presented in a year-end report that documents program participation. The integration of the "Wash Your Hands, Save a Life" campaign into this year's WWMD program provides an opportunity to offer a key message about basic hygiene to people around the world. In countries where adequate sanitation systems and hygiene knowledge are lacking, this message can save lives.

The 2008 WWMD program, which runs from Sept. 18 to Oct. 18, is sponsored by the U.S. Geological Survey, the U.S. Environmental Protection Agency, PerkinElmer (Waltham, Mass.), ITT Corp. (White Plains, N.Y.), CH2M Hill (Englewood, Colo.) and Smithfield Foods (Norfolk, Va.).

To get involved, see www.WorldWaterMonitoringDay.org.

Parsont Joins WEFTEC® Exhibition Sales Staff

On June 9 Marc Parsont will be joining the Water Environment Federation (WEF; Alexandria, Va.) as the assistant director of exhibition sales, responsible for WEFTEC® exhibit and sponsorship sales in WEF's Conferences & Exhibitions Group.

Parsont's background includes 10 years at the International Association of Amusement Parks & Attractions (IAAPA; Alexandria, Va.), where was responsible for booth and sponsorship sales. In 2006 the IAAPA annual trade show was ranked No. 44, based on net paid square feet, in the *Tradeshow 200* listing published by *Tradeshow Week*® (Los Angeles). (WEFTEC.06 ranked No. 103.) IAAPA's 2006 meeting featured a comparable number of exhibiting companies as WEFTEC with more than twice the net square footage.

Parsont can be reached at mparsont@wef.org or 703-684-2434.

Water Is Life Offers Free Infrastructure Webcast

Water Is Life, and Infrastructure Makes It Happen™ will offer a free webcast called "Leveraging *Liquid Assets*" June 20 at 2:00 p.m. EDT. It is Chapter 3 in a series of webinars designed to put public outreach tools in the hands of utilities for building public support of infrastructure investment.
See www.WaterIsLife.net to register.

"Leveraging *Liquid Assets*" will preview the PBS documentary that exposes the looming crisis in water and wastewater infrastructure due to lack of investment. (It is scheduled to begin airing in the fall.) The

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webinar will showcase Water Is Life, and Infrastructure Makes It Happen communication strategies and the *Liquid Assets* toolkit to create local opportunities for multimedia promotion in order to elevate infrastructure issues to the political debate during the election season.

Promoted as the "Inconvenient Truth" for infrastructure, the PBS documentary was produced by Pennsylvania State University (State College) and sponsored by the Water Environment Association (Alexandria, Va.), National Association of Clean Water Agencies (Washington, D.C.), the American Society of Civil Engineers (Reston, Va.), and a number of other sister organizations. It features all aspects of water, wastewater, and stormwater to assess the crumbing condition of U.S. infrastructure. New York City; Pittsburgh; Herminie, Pa.; Los Angeles; Santa Monica, Calif.; Orange County, Calif; and Las Vegas are all featured in explaining a variety of issues from sustaining water resources to asset management.

For more information about the Water Is Life education initiative and how you can become involved, contact Lorraine Loken, at lloken@wef.org or 703-684-2487.

WEFTEC®.08 on the Horizon

There is still time to register and reserve housing for WEFTEC®.08, which will be held in Chicago, Oct. 18–22. Reserve your housing early, as space sells out quickly. Click here for more information.

Don't miss your opportunity to showcase your products at the exhibition. Space is very limited, and remaining spots are selling out quickly. Contact Marc Parsont at 703-684-2434 or mparsont@wef.org to reserve your space.

Operations Challenge Registration Opens

Registration begins June 1 for the Operations Challenge competition at WEFTEC®.08 in Chicago. This annual demonstration of excellence in wastewater operations will be limited to 40 teams. This year the process control and laboratory events will be held on Monday, Oct. 20, and the collection, safety, and Godwin maintenance events will follow on Tuesday, Oct. 21. The competition will be followed by an awards ceremony at the Sheraton Chicago Hotel & Towers.

See www.weftec.org for a registration form, or request one by sending an e-mail to opschallenge@wef.org.

The Rocky Mountain Water Environment Association's Commode Commandos won their second Operations Challenge competition in 2007. The Commandos, of the Littleton–Englewood (Colo.) Wastewater Treatment Plant, are coached by Leonard Robb. Stacey Walker is the team's captain, and Brian Pritekel, Caleb Vannice, and Chong Woo complete the roster. The Commode Commandos will return to defend their title.

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Be part of a continuing tradition by making trophies for Operations Challenge. Combine your creative and professional skills by designing and assembling these awards that acknowledge excellence in wastewater operations. Trophy Coordinator Dale Burrow needs volunteers for the Safety, Maintenance, Laboratory, and Collections prizes. For more information, contact Burrow at 972-263-2251; or Steve Harrison at 703-684-2400, x7715, or sharrison@wef.org.

Alexandria Sanitation Authority Becomes 20th NBP EMS-Certified Agency

The Alexandria (Va.) Sanitation Authority (ASA) has been recognized by the National Biosolids Partnership (NBP) as the 20th wastewater agency in the nation to be certified and admitted to the partnership's environmental management system (EMS) for biosolids program.

ASA is one of 100 wastewater agencies currently participating in the NBP EMS program, and the first wastewater agency in Virginia to be certified and admitted into the NBP EMS program. ASA's achievement recognizes that the agency has been independently verified as having an effective biosolids environmental management system. The ASA biosolids EMS was independently verified on April 29, 2008, by the audit firm NSF International Strategic Registrations (Ann Arbor, Mich.). ASA is planning an EMS celebration in early July.

Virginia Expert Biosolids Panel Meets

The Virginia Expert Biosolids Panel, created through a 2007 Virginia General Assembly Joint House resolution, met for the second time on April 23 as part of a series of planned meetings. The panel was created to study the impact of land application of biosolids on human health and the environment. The panel composition and charge are described here. Twenty-two individuals, with broadly distributed interests and opinions, were appointed to the panel. The directive from the Virginia General Assembly asked the panel to respond to specific questions, including:

- Are citizen-reported health symptoms associated with the land application of biosolids?
- Do odors from biosolids impact human health and well-being and property values?
- To what degree do biosolids-associated contaminants accumulate in food (plant crops and livestock)?
- To what degree do biosolids-associated contaminants affect water quality?
- What are the effects of an accumulation of biosolids-associated contaminants in wildlife?

In an attempt to respond to the specific questions asked by the General Assembly, panel members divided topics into portions that could be addressed more easily. For example, on April 23 the panel discussed the three methods (Soil Test Method, Environmental Threshold Method and Phosphorus Index) allowed by the Commonwealth for handling the challenges associated with phosphorus concentrations and agronomic rate. Some panel members felt that the allowed initial-year overapplication of biosolids using either the Threshold or Phosphorus Index methods was a prime reason for many citizen odor and health complaints. They questioned the efficacy of an initial overapplication of phosphorus that is permitted using either the Environmental Threshold Method or Phosphorus Index. Either of these

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methods, it was explained, can allow for application of phosphorus beyond the agronomic rate in the first year with stipulation that ensuing year applications will compensate.

As a result of the discussion on this issue, the Virginia Department of Environmental Quality (DEQ) was asked to gather information that would help compare the financial impact of each of the three phosphorus tests on the management of solids by the generator and applicator. DEQ also was asked to gather and provide information on two related questions concerning the percentages of organic and inorganic phosphorus as determined by the Soil Test Method and the likely variance between phosphorus levels measured at the plant versus at the application site.

The next meeting of the panel is scheduled for June 25 and will include a presentation on alternative solids management technology. The panel's preliminary report is due in November 2008, with a final report planned for January 2009.

For information on the panel activities, or to contribute to the information-gathering process, contact Neil Zahradka at nrzahradka@deq.virginia.gov.

WERF Seeks Proposals for Decentralized Stormwater Research

The Water Environment Research Foundation (WERF; Alexandria, Va.) requests proposals for research that will provide education, outreach, and training on decentralized stormwater management techniques to critical target audiences in order to

- supplement existing stormwater management approaches;
- create more hydrologically functional site designs;
- provide new tools for urban retrofit;
- reduce the overall design, construction, and maintenance costs of the stormwater management infrastructure; and
- help address larger watershed-scale goals

WERF will provide $112,000 for the development of innovative tools and training that lead to greater awareness, understanding, and use of decentralized stormwater management techniques; appropriate implementation for stormwater management; improved water quality; energy savings; and other benefits (such as aesthetics).

Proposals must be received by 5:00 p.m. (EDT) on June 20. See WERF's Open RFPs page or contact Jane Casteline at jacasteline@werf.org for more information.

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