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Top Story

Powering Water Treatment With the Sun's Rays

A solar trend is sweeping the nation's wastewater treatment facilities

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This idea has occurred to many in the wastewater industry. With continuously rising energy costs, an increasing number of solar energy systems has been appearing at water treatment facilities across the country. Read more

A 1.1-MW solar tracking system at the City of Chico Water Pollution Control Plant (Calif.) includes 5824 solar tiles on 2 ha (5 ac) and provides around 40% of the plant's energy needs. Photo courtesy of Quené Hansen, projects manager, City of Chico. Click for larger image.

Conspicuous Consumption

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If you visit Bling H20's website, www.blingh2o.com/store, you can see the hottest celebrities toting their luxury water, packaged in Swarovski Crystals and founded on the promise that you'll make a statement. And at $40 for a 750 ml bottle, they ask one simple question, "Do you Bling?"

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From the President: Our Fragile Planet

Farewell

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I have enjoyed meeting and working with many of you this year in my role as president. I am equally excited about going back to working with you as colleagues. So rather than say good-bye, I prefer to ask "what's next?" Our work is never done. Read More

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Features

Powering Water Treatment With the Sun's Rays

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As the long, hot days of summer pass it is easy to appreciate the benefits of a brightly shining sun. Environmentally minded individuals might even contemplate harnessing the sun's power through photovoltaic panels.

This idea has occurred to many in the wastewater industry. With continuously rising energy costs, an increasing number of solar energy systems has been appearing at water treatment facilities across the country.

Solar Power

Solar power is generated when photons in sunlight contact the surface of solar cells, creating free electrons that flow to produce electricity, according to the U.S. Environmental Protection Agency's (EPA's) *Auxiliary and Supplemental Power Fact Sheet*. This process is also known as generating photovoltaic (PV) energy.

An individual solar cell will typically produce between one and two watts. To increase the power output, cells are combined into panels, panels are joined to form modules, and modules can be connected to form an array.

The average factory price of a solar panel is about $5/W, which equals from $6000 to $10,000/kW with additional costs for equipment, support structures, battery storage, installation, and insurance, according to EPA. Solar energy prices have declined an average of 4% each year in the past 15 to 20 years and are expected to continue to decrease. In the early 1980s, systems cost more than $25/W.

The fact sheet describes solar power as "one of the most promising renewable energy sources today," and explains that PV cells can be used as supplemental power for wastewater treatment plants.

City of Chico Water Pollution Control Plant

The solar system at the City of Chico Water Pollution Control Plant (Calif.) is described by the city as "the world's largest ground-mounted solar tracking facility at a wastewater treatment plant." Photo courtesy of Quené

The City of Chico, Calif., first considered solar energy in 2002. After learning about a rebate available from Pacific Gas and Electric Company (PG&E; San Francisco), the city installed a 91-kW pilot solar project on a downtown parking structure, said Quené Hansen, projects

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Hansen, projects manager, City of Chico. Click for larger image.

manager for the City of Chico.

The city's second solar project was a 1.1-MW PV tracking system that automatically adjusts its tilt to the sun to increase the amount of sunlight captured. The system was installed in 2005 at the City of Chico Water Pollution Control Plant (WPCP). The plant was chosen because it is the single highest user of electricity among the city's facilities and it had a stable source of funding. The project cost a total of $7.6 million but with a $3.7 million rebate the city was responsible for paying $3.9 million for the system.

"The City of Chico decided our organization's green power purchase should be economically feasible," Hansen said. Without the rebates the city determined that the solar systems were not economically feasible.

The WPCP solar system includes 5824 solar tiles on 2 ha (5 ac). The system has generated approximately 1.75 million kWh in the past year, which is around 40% of the plant's energy needs. In a 2006 press release, the City of Chico described the system as "the world's largest ground-mounted solar tracking facility at a wastewater treatment plant."

The city anticipates average annual savings of $250,000 in avoided electricity purchases with a total net savings of $4 million over the next 30 years. Hansen estimates that the system will pay for itself in 15 years. In addition, the city's two solar systems, combined, will reduce emissions of carbon dioxide by 12,711 Mg (14,000 tons) during their 30-year lifetimes, which equals not driving 35 million miles or removing almost 2850 cars from the area's roadways, according to Powerlight (Berkeley, Calif.).

"It has been a cost savings for us, it benefits the environment, which has been a great public relations opportunity for us, and it has stabilized our utility costs," Hansen said. In addition the city continues to monitor for opportunities to install solar and other renewable energy systems in publicly owned areas.

The city has joined the EPA's Green Power Partnership Leadership Club and received the 2007 Green Power Leadership award from EPA for its solar projects.

Sonoma County Water Agency

The Sonoma County Water Agency (SCWA; Santa Rosa, Calif.) has installed solar systems at its administration building and at two different water treatment facilities in 2005.

"The water agency has a program of carbon-free water by 2015, meaning we are trying to get all of our energy from renewable resources, non-fossil-fuel-based resources," said Jim Flessner, principal engineer at SCWA. These solar systems were the start of this plan, he explained.

The agency's solar projects include a $3.5 million (costing the agency $1.9 million after subtracting a $1.6 million rebate), 500-kW system installed on the administration building's roof and on a parking structure. A 500-kW system was installed at the Airport-Larkfield-Wikiup Wastewater Treatment Plant in Santa Rosa. This $4.4 million system (costing $2.65 million after a $1.75 million rebate) was installed on the embankment of a treated water holding pond with a natural 22-degree tilt toward the sun. The third solar project is a 1-MW tracking system at the Sonoma Valley Wastewater Treatment Plant. This system worth $7.8 million cost the agency $5 million after a $2.8 million rebate.

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The 500-kW solar system at the Airport-Larkfield-Wikiup Wastewater Treatment Plant in Santa Rosa, Calif. sits on the embankment of a treated water holding pond with a natural 22-degree tilt toward the sun. Photos courtesy of SPG Solar Inc. (Novato, Calif.). Click for larger image.

"We were able to justify it to our board of directors by showing that over a long period, these would be financially advantageous," Flessner said. He explained that for each of the systems the agency expects to earn revenue after 15 years. "The outputs that we've gotten from them have been higher than we had estimated by about 5% to 10%," he added.

Atlantic County Utilities Authority Wastewater Treatment Facility
The Atlantic County Utilities Authority (ACUA; Township, N.J.) Wastewater Treatment Facility has a 500-kW, $3.25 million solar system that cost the authority $1.45 million after a $1.8 million rebate from the New Jersey Board of Public Utilities (BPU; Newark, N.J.) Clean Energy Program.

"There were very nice incentives out there from the New Jersey BPU," said Kate Vesey, comptroller – director of research and development at the ACUA. "It was kind of a common-sense management decision, with the rebate [and the rising] energy prices," she said. "It made economic and environmental sense."

The system was installed in two phases between April 2005 and June 2006. It includes five arrays with 2700 panels, installed in one parking-canopy, two ground-mounted, and two roof-mounted arrays. The expected payback for the solar project is 6 years, Vesey said.

According to Vesey, about 3% of the energy required by the water treatment facility is provided by the solar system. An additional 57% of the facility's energy needs are provided by an onsite wind power system. Jersey-Atlantic Wind LLC (City, State) owns the wind farm and sells ACUA electricity from the wind farm at a fixed rate for 20 years. The wind power includes five turbines that generate a total of 7.5 MW. "[Wind and solar] are very complimentary to one another," she explained.

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The Atlantic County Utilities Authority Wastewater Treatment Facility has a 500-kW solar system and a 7.5-MW wind power system that provides a total of 60% of the facility's energy needs. Photo courtesy of Kate Vesey, comptroller—director of research and development, ACUA. Click for larger image.

"We're pretty aware of environmental and energy issues and do what we can but they all have to make economic sense," Vesey said. "[Renewable energy projects] become more and more attractive as energy prices increase."

ACUA joined the Chicago Climate Exchange (CCX) in February 2007, which issues a legally binding greenhouse gas emission allowance trading system. By joining CCX, the ACUA has committed to cut its greenhouse gas emissions by a minimum of 6% below 2000 levels by 2010.

Recommendations for Installing Solar

Solar energy has many benefits including no moving parts or emissions, quiet operation, and limited maintenance requirements. But there are disadvantages, including high initial costs, large sunlight and space requirements, and difficulty of repairs when maintenance is needed, according to EPA. Many times solar systems are covered by warranties from the installing companies. The warranties are typically about 20 years for solar panels and about 5 years for the additional equipment included in the systems mentioned

"Do your homework before making a green power purchase," Hansen recommends. "If you understand the system before you choose a contractor, your green power purchase will be a much smoother process." In addition, Flessner encourages any wastewater treatment facilities interested in solar to contact installation companies for an estimate because in his experience they are good at estimating the costs and efficiencies of systems that vary depending on locations.

"Renewable sources have to be put where the renewable asset is," Vesey said. She recommended looking into the type of energy that would be best in individual areas because electricity from renewable energy powers the building just like a nonrenewable source.

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"We've had very good experiences with [solar and wind energy]," Vesey said. "We would recommend them." She believes that eventually businesses are going to pursue renewable energy, if not for an environmental reason, then for the need for cheaper electricity.

— ***Jennifer Fulcher**, WEF Highlights*

Conspicuous Consumption
Bottled water goes upscale

If you visit Bling H20's website, www.blingh2o.com/store, you can see the hottest celebrities toting their luxury water, packaged in Swarovski Crystals and founded on the promise that you'll make a statement. And at $40 for a 750 ml bottle, they ask one simple question, "Do you Bling?"

While most people don't "bling," millions of people do spend money on more moderately priced bottled water. What was once driven solely by the desire to be chic is now driven largely by fear, with one in five people drinking only bottled water, according to a 2002 survey sponsored by the U.S. Environmental Protection Agency (EPA) and conducted by the Gallup Organization.

Bottled water critics attribute such an increase on effective marketing, not a superior product. In fact, argues Deborah Lapidus, national organizer for Corporate Accountability International (Boston, Mass.), more than 30% of bottled water comes from the tap. Such information has been widespread in the media recently, ousting Pepsi's (Purchase, N.Y.) Aquafina, and Coca-Cola's (Atlanta, Ga.) Dasani. Now both companies state on their Web sites that their products begin with public water sources before further purification.

Whatever the drive, the industry is more booming than ever. According to a survey conducted by the International Bottled Water Association (Alexandria, Va.) in conjunction with Beverage Marketing Corp. (New York), more than 33.3 billion L (8.8 billion gal.) of bottle water were purchased in 2007, a 6.9 % increase from the previous year.

"It's simple. It is just clever marketing and tricky labels that are used to make people think that bottled water is better tasting, or of better quality," Lapidus said. "You can put snow-capped mountains on your label, but it's still tap water in a pretty bottle. It's our job to let the public know this."

Corporate Accountability International has launched a campaign to sway public opinion — Think Outside the Bottle — working with city officials throughout the United States to enhance local municipalities' public water marketing efforts, to create and produce a number of educational guides promoting tap water, to supply reusable water bottles, and to host community events nationwide that raise awareness. One event, the tap water challenge, asks random people throughout the country to participate in a blind taste test between name brand bottled water and local tap water. According to Lapidus, very few can tell the difference. As part of the campaign, the agency has received 33,000 pledges from individuals promising to opt for public tap water and encourage local officials to do same.

But these grassroots marketing efforts offer little competition for the $15 billion bottled water industry.

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"It is only in the past decade that bottled water has inserted itself, and it has a snowball effect," Lapidus said. "More revenue for the industry means more intense marketing efforts, and it can be hard to dispel their inaccurate messages that their water is safer."

Tap water is regulated by the EPA, and bottled water is regulated by the Food and Drug Administration (FDA). While both have seemingly similar standards, critics of the bottled water industry say that the FDA is more lax, while pro-industry people support the FDA's policies, noting that bottled water undergoes the same scrutiny as any other food product on grocery store shelves.

At the U.S. Conference of Mayors, June 20–24, mayors across the country made a statement of their own, adopting a resolution encouraging cities to "phase out, where feasible, government use of bottled water and promote the importance of municipal water."

"We are sending the message that our water is just as good, everyday," said Albuquerque Mayor Martin Chávez, co-chair of the water counsel, the task force that brought the initiative to the forefront. "The [bottled water] industry is making money hand over foot, filling up landfills, increasing dependence on oil, and raising question in the public mind, and they show no interest in righting this."

According to Tom Lauria, vice president of communications for the International Bottled Water Association, there is nothing to "right." He argues that bottled water only accounts for 0.33 % of the waste stream, and is providing the public with a healthier drinking option.

"They [the mayors] are discouraging hydration. Water is the healthiest, most convenient drinking option. People are drinking bottled water because it is a convenient option and they would otherwise choose caffeinated products or products with dye," Lauria said. "We aren't competing with tap water … everybody has a choice."

In a statement released after the resolution, the American Beverage Association took a more aggressive stance accusing the mayors of choosing "sound-bite environmentalism rather than sound public policy by creating a false choice between bottled water and tap water." The press release also said that the resolution was instigated by San Francisco Mayor Gavin Newsom, but didn't reflect the views of most American mayors.

According to Mayor Chávez the resolution was passed unanimously, and comes on the heels of city initiatives already enforced throughout the nation. More than 60 cities prior to the resolution had taken steps toward eliminating or reducing bottled water consumption.

In 2007 New York City launched a marketing campaign, spending more than $700,000 to purchase ads displayed on the subway and bus kiosks and aired on the radio that promoted public water. Chicago placed a tax on its bottled water. Minneapolis partnered with artists to paint water fountains. San Francisco issued an executive directive more than a year ago discouraging spending city dollars on bottled water, and dozens of other municipalities throughout the nation followed suit.

"The resolution passed overwhelmingly because the mayors wanted to make a statement against the perception that the bottled water industry has created … that it is healthier or safer, and it's not," Chávez said. "I don't have any problem with the bottled water industry. Hey, if you can sell a pet rock, by all means. Suggesting that tap water is not good quality, however, is simply not accurate."

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— ***Ashley Jordan-Nowe***, *WEF Highlights*

From the President: Our Fragile Planet

Farewell
As this is my last article as your president, I want to thank you for the opportunity to serve. It has been a pleasure and honor to do so, and I will treasure the memories. It has truly been a life–changing experience for me.

One of the beauties of Water Environment Federation (WEF; Alexandria, Va.) is that governance is invisible to us as members because everything we do is about protecting and enhancing our global water environment and nothing is about us as individuals. It allows us to keep drawing on everybody's strengths and not get sidetracked from our mission.

I have enjoyed meeting and working with many of you this year in my role as president. I am equally excited about going back to working with you as colleagues. So rather than say good-bye, I prefer to ask "what's next?" Our work is never done.

Importance of Being Stewards to the Environment
In earlier articles I have touched on the passion of our members to protect the environment, the WEF committees where they devote so much of their time and energy to improve the environment, and the member associations that are the building blocks of WEF, our grass roots. With this final article, I want to take an opportunity to talk about our planet itself and offer some context for why I think what we do is so very important.

We live on the surface of our planet, and it seems so very huge. How could anything we do have a real impact? Quite frankly this was the thinking of nearly everyone who lived before us. It seemed that anything we did, Mother Nature could absorb and correct. What we are finding is that Earth is not infinitely able to absorb impact without change.

There is more texture on the skin of an orange than on all the earth's surface; in fact, the skin of a peach might be a more accurate representation. The most extreme variation on the surface, from the top of Mt. Everest to the depths of the Mariana Trench is less than 22.5 km (14 mi), and that is where everything we do and need occurs. Our livable range is much narrower. When you consider that the earth's diameter is about 12,872 km (8000 mi) you can really appreciate how thin our realm is. Even today we consider astronauts flying at little more than 160.9 km (100 mi) to be in outer space because no atmosphere remains.

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This brings our need to be stewards of the environment into very clear focus. Once our populations became large enough and our technology sophisticated enough to actually alter the environment on a large scale, significant impact on the world, and humanity in particular, became inevitable unless we do something to change our course. With the growth of cities our predecessors saw the causal link to impacts on public health and pollution of our resources. They set to work to tackle these problems.

Protecting the Water Environment

We have made great strides in North America, Europe, and parts of the rest of the world protecting the water environment. It should be apparent to all by now that protecting water requires a broad focus. Even where the technology of industry and the population centers of cities protect their discharges to waterbodies, there are still impacts from all the forms of energy use. This brings in the entire issue of global warming and climate change.

For those of us in the water world, the issues of global warming and climate change all relate to water. Very few people would care if the average temperature were a little warmer except for the fear of what the effect on water might be. The timing, place, and manner in which water descends to the planet's surface determine where we are able to live and under what circumstances.

Will deserts grow and make more of today's agricultural land unavailable? Will dry areas get even less water? Will mountains see less snow and thus provide less water through the year? Will fluctuations in climate and weather cycles become more severe and unpredictable, leading to drought, flood, tornadoes, or hurricanes? All these questions are related to water.

Nature will find a balance. Whether it is favorable to us or creates more suffering is unknown. That is why those of us who have dedicated our lives to water quality must increasingly worry about water quantity and distribution.

My personal fear is that world suffering will increase unless we find ways to address short– and long–term needs regarding water issues. This is the question of sustainability. But for now we must continue to act. We dare not chance that there is a time where our ecosystem's equilibrium is unbalanced and only nature on nature's schedule can restore it. Our role as stewards of the water environment requires more of us.

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

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News & Events

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Top News

Joyce Chai of California Named 2008 SJWP International Winner

Joyce Chai of Rancho Palos Verdes, Calif., has been named the international winner of the 2008 Stockholm Junior Water Prize (SJWP). She was selected from national winners of more than 30 countries at the international competition that is held every August at World Water Week in Sweden.

Joyce Chai (center) poses with WEF president Adam Zabinski (left) and WEF president-elect Rebecca West after winning the 2008 International SJWP. Photo courtesy of Jenny Hartfelder, SJWP chair. Click for larger image.

Chai's project, "Modeling the Toxic Effects of Silver Nanoparticles under Varying Environmental Conditions," demonstrated a new technique to quantify the potential toxicity of silver nanoparticles to the world's water sources and the environment. Her research took steps toward proving that silver nanoparticles, found in many common products, could be harmful.

Chai was named the U.S. SJWP winner earlier in the year, in a competition organized by the Water Environment Federation (WEF; Alexandria, Va.) and sponsored by the ITT Corp. (White Plains, N.Y.), The Coca-Cola Co. (Atlanta, Ga.), and Delta Air Lines (Atlanta, Ga.).

As winner of the U.S. prize, she received $3000 and an all-expense-paid trip to Stockholm for the international competition. In addition, Chai's school received a $1000 grant toward enhancing water science education, and she will present her research to water quality professionals at WEFTEC®.08 this October in Chicago. For winning the international competition, Chai received $5000 and a crystal sculpture from HRH Crown Princess Victoria of Sweden during a royal ceremony in Stockholm.

The SJWP is presented each year to a high-school student or group of students for water-related projects of environmental, scientific, social or technological importance.

WEFTEC®.08 Deadlines Approaching

WEFTEC®.08 in Chicago will be here soon. The following are important dates to remember:

Sept. 19

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1. Deadline to preregister by fax or mail. Any registrations after this date must be completed online (and can be done up to and throughout WEFTEC.08).
2. Deadline for cancellation/substitution requests. All requests must be received in writing. If substitution requests are not sent by this date, they must be brought onsite to process.
3. Advance deadline for receiving badge correction requests.
4. Hotel reservation cut-off date for reserving hotel rooms through the Water Environment Federation's housing bureau.

Oct. 10

1. Registrants who have paid in full will receive an express badge pick-up confirmation by e-mail, or badge by mail no later than Oct. 10.
2. Express Registration is a new service being offered for WEFTEC® in Chicago. You must bring your express badge pick-up confirmation with you to scan the barcode, and a badge will be printed automatically. Express Registration areas will be located at the Sheraton Chicago Hotel, Hyatt Regency Hotel, and Chicago Hilton Hotel on Oct. 18 and 19 and at McCormick Place (Convention Center) throughout the conference.

For more information, see www.weftec.org.

World Water Monitoring Day Kicks Off Sept. 18
Encourage members of your community to give their local waterbodies a "check-up" in honor of World Water Monitoring Day (WWMD). Last year, more than 45,000 people in 43 countries participated in this international effort, helping to boost awareness of the importance of water quality in countries from Argentina to Zimbabwe.

WWMD is officially observed on Sept. 18, but the monitoring period extends to Oct. 18. This month-long window allows groups to celebrate according to their schedule. The WWMD program is an inexpensive but effective way to get community groups — including schools, scouts, faith-based groups, and civic organizations — engaged with their local water resources.

To learn how you can get involved in this global effort, see www.WorldWaterMonitoringDay.org.

More WEF News

Water Organizations Join to Encourage Membership and Certification

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The Water Environment Federation (WEF; Alexandria, Va.) has joined two other organizations to encourage all water and wastewater certification authorities to join as members.

On June 7, WEF president, Adam Zabinski, and executive director, Bill Bertera, signed a memorandum of understanding (MOU) with the American Water Works Association (AWWA; Denver) and the Association of Boards of Certification (ABC; Ames, Iowa).

Left to right, Alan Cherubin (ABC president), Paul Bishop (ABC executive director), Adam Zabinski (WEF president), Nilaksh Kothari (AWWA president), and Gary Zimmerman (AWWA executive director). Photo courtesy of American Water Works Association. Click for larger image.

The MOU not only promotes association membership but also encourages all water and wastewater system personnel to become certified. WEF, AWWA, and ABC have agreed that water system personnel must be thoroughly trained, qualified, and certified to obtain a proper level of protection for the environment and public health.

AWWA and WEF assist in these efforts by providing resources such as Manuals of Practice, which ABC uses to help develop their voluntary certification exams. AWWA and WEF also will participate in a joint session at ABC's Annual Conference in La Quinta, Calif. scheduled for January 2009. The session will include a history of the collaborations between the three organizations and roundtable discussions on how to strengthen the relationship between the organizations.

For more information about ABC's voluntary certification, see www.abccert.org.

PBS Documentary on Infrastructure to Air This Fall

Penn State Public Broadcasting (PSPB), with funding from the Colcom Foundation, has produced a documentary called "Liquid Assets: The Story of Our Water Infrastructure". The media event will begin airing Oct. 1. It is the centerpiece of the 2008–2009 strategy for the Water Environment Federation's (WEF's; Alexandria, Va.) ongoing educational initiative Water Is Life, and Infrastructure Makes It Happen™.

WEF, the National Association of Clean Water Agencies (Washington), American Civil Engineering Society (Reston, Va.), and other sister organizations are outreach partners to promote the film and leverage the attention brought to water and wastewater infrastructure issues during the election season.

A toolkit has been produced for public outreach including press releases, posters, bill stuffers and more. Sign up for the webcast and complimentary toolkit with 90 minute program DVD (while supplies last) by visiting www.WaterIsLife.net.

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WEF HIGHLIGHTS

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Click for a larger image.

New, downloadable bill stuffers including the one pictured and ads that can be customized with your utility's message can be found on the Web site under the "toolkit" menu bar.

WEF Proceedings Now Available Online

The Water Environment Federation (WEF; Alexandria, Va.) has created an archival library of the papers presented at the annual Water Environment Federation Technical Exhibition and Conference (WEFTEC®) and other conferences held since 2000. WEF members can access the archive at no charge. These proceedings are not peer-reviewed.

Papers are available as follows:

- 2000–2006 Proceedings. Individual papers for 2000–2006 conferences may be viewed and downloaded in the archival library online.
- 2007 and 2008 Proceedings. Proceedings for 2007 and 2008 conferences are available on CD-ROM only, and must be ordered through WEF Customer Service.

Click here to access the proceedings archive or order CD-ROMs.

WEF Wraps Up Successful Summer Intern Program

The Water Environment Federation (WEF; Alexandria, Va.) is dedicated to helping young professionals develop their careers. The WEF internship program provides one example of this dedication. This year eight interns started working in different departments within WEF at the beginning of the summer. The program continues to grow, and includes the largest number of interns that have ever worked at WEF this year.

The Federation's summer interns have a range of education and experience. They include previous Stockholm Junior Water Prize (SJWP) U.S. state winners, current college students pursuing a variety of bachelor's and master's degrees, and recent college graduates. Summer interns include the following:

- As the 2004 SJWP winner for Georgia, **Abby Blocker** is pursuing a bachelor of arts in political science and bachelor of science in environmental studies with a minor in biology and business. This is her second year as a WEF intern and she has worked in WEF's Marketing Department.
- **Matt Cheston**, an intern for International Programs, is studying international business at Notre Dame University (Notre Dame, Ind.).
- **Catherine Colliatie** is studying business and planning to major in finance at Virginia Polytechnic Institute (Blacksburg, Va.). This was her second year as an intern at WEF and she worked both years in Technical Programs.
- As a recent graduate of the University of Delaware (Newark, Del.), **Laura Herman** has bachelors in communications and spent the summer as an intern for the World Water Monitoring Day program.

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- **Kiri Kroner** is pursuing a masters degree in public policy with an environmental policy concentration at George Washington University (Washington, D.C.). She is a registered professional engineer and has worked since 1997 as an engineering consultant. During the summer she worked as an intern on the operator training program and assisted in Government Affairs at WEF.
- **Emily Munday** is studying marine biology at Boston University. She was the 2006 SJWP winner for Montana and interned in the SJWP department at WEF this summer.
- **Megan Rash** is pursuing a bachelor of arts in political science and a bachelor of science in environmental studies with a minor in asian studies at Randolph Macon College (Ashland, Va). She was an intern for the Sustainability Program.
- **Kathleen Wavro** has a bachelor of arts in communications and a minor in political science from Purdue University (West Lafayette, Ind.). She recently moved to the Washington, D.C., area after living in Indiana for 9 years. After interning this summer in Technical Programs, she has been hired as a permanent WEF employee.

WEF Offers International Exhibiting Opportunities

For those with business development plans that include the Middle East, Europe and Asia, the Water Environment Federation (WEF; Alexandria, Va.) offers the opportunity to exhibit with WEF International Pavilions at the Water, Energy Technology, and Environment Exhibition (WETEX); Wasser Berlin; and the China Water Show (formerly WSDWTF). This opportunity allows businesses to exhibit products and services to thousands of new customers under the WEF banner in a prime location.

WEF Pavilion at WETEX

The Water, Energy Technology, and Environment Exhibition (WETEX) will take place March 10–12, 2009, at the Dubai International Convention & Exhibition Centre in Dubai, United Arab Emirates. This annual event will provide access to Emitati and other growing Arab Gulf and Middle Eastern markets. The 2008 WETEX show attracted more than 10,000 trade visitors and 275 exhibiting companies from 28 countries.

WEF Pavilion at WASSER Berlin

Wasser Berlin will take place March 30-April 3, 2009, at the Messe Berlin in Berlin, Germany. This show is hosted every 3 years and is a must-attend event for access to European markets. The 2006 Wasser Berlin show attracted over 41,000 trade visitors and 546 exhibiting companies from 30 countries.

WEF Pavilion at the China Water Show (formerly WSDWTF):

The China Water Show will take place April 28–30, 2009, at the Intex-Shanghai and Shanghai Mart in Shanghai. This annual event will provide access to Chinese and other growing Asian markets. The 2008 WSDWTF show attracted more than 28,000 trade visitors and 750 exhibiting companies from 24 countries.

WEF International Pavilion benefits include:

- Prominent WEF Pavilion location in exhibit hall
- WEF Pavilion included on the VIP tours
- Booth sizes from 9 m² (smaller than most show minimums)
- Shell scheme build-out
- Furnishings (to include entry desk, table and chairs, wastebasket, literature stand, lighting)

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- Carpeting
- Cleaning services included
- Translation services (as required)
- WEF sponsored lounge and meeting area with complimentary beverages
- WEF sponsored on-site reception
- Assistance with connecting to the local US Department of Commerce representative
- Pre and post-show promotion in WEF's publications including WWEE and WE&T
- Pavilion staffed by WEF employees
- Aid in obtaining official invitation letters for visas (as needed)
- Assistance with hotel arrangements close to exhibit hall

For more information, please contact Laila Sukkariyyah at lsukkariyyah@wef.org, or 703-684-2458.

The Water Environment Federation would like to thank the following exhibiting companies for their support of the 2008 WEF International Pavilion Program – WSDWTF in Shanghai, and IFAT in Munich, Germany: ADS LLC, Aqua-Aerobics Systems Inc., Aries Industries/Vac-Con, Bio-Microbics Inc., Groth Corp., Hayward Flow Control Systems, Hydro Instruments, Kemira Chemicals (Shanghai) Co. Ltd., LobeStar Pump, Mody Pumps Inc., NEFCO Inc., Neuros Co. Ltd., Penn Valley Pump Co. Inc., Pulsafeeder Inc., Robbins and Myers Fluid Management Group, Ross Valve Mfg Co. Inc., Selwood Pumps, and World Water Works Inc.

Member News

Plant Spotlight: Loudoun Water Boasts Next Generation Water Reclamation

Loudoun Water (Ashburn, Va.) opened the doors to the new Broad Run Water Reclamation Facility (BRWRF) in June. Designed to deposit the cleanest water possible into the Potomac River, the water source for the nation's capitol, this $200 million facility is the culmination of 20 years of planning by Loudoun Water.

The new Broad Run Facility in Ashburn, Va. opened its doors this summer. Photo courtesy of Samantha Villegas, manager of communications, Loudoun Water. Click for larger image.

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The BRWRF was constructed in phases beginning 4 years ago on 137 ha (340 ac). According to Loudoun Water, it is the only water reclamation facility in the United States to combine membrane ultrafiltration, granular-activated carbon, and ultraviolet disinfection for treatment.

Loudoun Water currently collects an average of nearly 52,990m³/d (14 mgd) of wastewater from residents and conveys it to Washington, D.C.'s Blue Plains facility for treatment. The BRWRF will accommodate the service area's additional wastewater treatment needs. The new facility was designed to be able to treat 75,700 m³/d (20 mgd) but will start by treating 11,355 to 15,140 m³/d (3 to 4 mgd).

The facility employs a combination of chemical and biological processes. Membrane bioreactor technology will be used with biological nutrient removal to clean the water and remove particles three orders of magnitude smaller than a human hair follicle.

More than $7 million was spent on odor control alone for the project. Other site investments include architecture that is consistent with the area, best management practices for stormwater control, and an interpretive trail and indoor educational center known as the Aquiary.

Aquiary is a name created by a member of the citizen advisory committee that advised Loudoun Water on the exhibits and their content. Its origin lies in the words aviary, to mean a museum for birds, and aqueous, to mean water. Aquiary is Loudoun Water's word for water museum.

The Aquiary, a new 325 m² (3500 ft²) indoor education center, and 4-ha (10-ac) outdoor interpretive area known will open this fall. The center will provide the public with an opportunity for hands-on exploration of how water is treated, used, reclaimed, and conserved within the county.

Loudoun Water's (Ashburn, Va.) Aquiary, a new indoor education center and an outdoor interpretive area is scheduled to open this fall. The center features more than two dozen interactive exhibits that offer hands-on exploration to the community. Photo courtesy of Samantha Villegas, manager of communications, Loudoun Water. Click for larger image.

The Aquiary features more than two dozen interactive exhibits divided into three basic areas of watersheds, resource, and water's worth inside a two-story atrium of Loudoun Water's administrative office. In the watersheds section, visitors learn about the subwatershed in their backyard and how

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activities around their home can impact the health of the Chesapeake Bay. In the resource section, visitors can manipulate exhibits to mimic the processes of advanced treatment. In the water's worth section, visitors learn about how their water use compares with other global citizens, and how almost everything they touch has water in its history.

The outdoor interpretive trail will wind around 4 ha (10 ac) of undeveloped land and feature a dozen learning stations where visitors can stop and learn about man's interaction with nature and water. For example, one station features a bioretention pond and another station features a natural watershed map. The first phase of the trail is scheduled for completion this fall.

- *Has your facility experienced a major upgrade? Let us share your news. Send information and photos to jfulcher@wef.org*

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WEF Member Recognized for Engineering Education

The University of Idaho's Department of Civil Engineering recently received the Walter LeFevre Award from the American Society of Civil Engineers (ASCE; Reston, Va.). The award specifically recognizes the efforts of Water Environment Federation (WEF; Alexandria, Va.) member, professor Erik Coats, for instilling professionalism in the next generation of civil engineers.

From left: WEF member, Erik Coats examines an experiment to microbially convert biodiesel waste to thermoplastics with graduate students Nicholas Guho and Chris Horgan. Photo courtesy of Leah Andrews, University of Idaho. Click for larger image.

The award is given based on the percentage of students in the department that choose to take the national Fundamentals of Engineering exam, the percentage of students who pass the exam, and the percentage of faculty in the department who are licensed engineers. Engineering graduates must pass the exam to work toward a professional engineering license.

All of the professors in the University of Idaho's Department of Civil Engineering are licensed professional engineers and they bring real-world experience to the classroom, according to a university press release. In addition, most students with majors in civil engineering at the university take the Fundamentals of Engineering exam, with an almost-perfect pass rate over the past 10 years while the national average pass rate for the exam is around 73%. Graduate student, Chris Horgan, nominated the department for the award.

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For more information, see www.engr.uidaho.edu.

Georgia Student Wins Journalism Award for Water Article

Katy Wood, 17, of Acworth, Ga., is the recipient of the third annual ITT Award for Excellence in Student Water Journalism. The award recognizes her exploration of the southeastern water shortage in her article, "A Lack of Lakes: Georgia Water Crisis."

The award was created to recognize aspiring journalists and encourage them to explore and report on water-related environmental issues, according to the ITT Corp. (White Plains, N.Y.) press release.

"Each year this award encourages young people to play an active role in educating the public on the severity of these water issues and contributing to the dialogue that leads to solutions," said Gretchen McClain, president of ITT's fluid technology business.

Wood's article discusses the impact drought has had on local communities. She explains how Georgia has struggled during the past 2 years with water restrictions and water rights as Lake Lanier, Atlanta's primary water source, recedes.

A panel of industry leaders and top environmental and water journalists selected Wood's article for the award. The award included a $1000 scholarship from ITT and a trip to the 2008 Stockholm Water Symposium in Stockholm Sweden for Wood and her journalism faculty advisor, Sarah Wheatley. Wood, a 2008 graduate of Wheeler High School's Center for Advanced Studies, will attend Duke University this fall. Wood's article can be read at http://itt.com/news/global-activities/water-journalism.

California Water/Sanitation District Receives the 2008 Stockholm Industry Water Award

California's Orange County Water District and the Orange County Sanitation District have won the 2008 Stockholm Industry Water Award for their work in developing the world's largest water purification plant for groundwater recharge, according to a press release from the Stockholm International Water Institute.

The two districts developed the Groundwater Replenishment system, a water purification system designed to provide enough water to meet the needs of an additional 500,000 people without diminishing groundwater resources for current and future generations. Sufficient water is not guaranteed in increasingly arid regions like Orange County in California with its 2.3 million residents.

The system diverts highly treated wastewater that is currently discharged into the ocean and purifies it through a series of techniques including microfiltration, reverse osmosis, ultraviolet disinfection, and hydrogen peroxide. The cleaned water is then returned to the groundwater basin to increase water supply and water quality, according to the press release. This system has created a blueprint for large-scale wastewater purification that is already being emulated in other dry areas.

The award was presented Aug. 21 during the 2008 World Water Week in Stockholm. Every year the award is presented at this event to honor contributions from the business sector to sustainable development in the water sector. For more information, see www.siwi.org.

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WEF HIGHLIGHTS

News & Events

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Kentucky Sewer District Receives 21st NBP EMS Certification

The Louisville and Jefferson County Metropolitan Sewer District in Louisville, Ky., has been recognized by the National Biosolids Partnership (NBP) as the 21st wastewater agency in the country to be certified and admitted to the partnership's environmental management system (EMS) for biosolids program.

The district, the first wastewater agency to be certified in Kentucky, is one of 100 wastewater agencies currently participating in the NBP EMS program. The achievement recognizes that the district has an effective biosolids environmental management system.

Water Reclamation Facility Receives Earle B. Phelps Award

The Hillsborough County (Fla.) Northwest Regional Water Reclamation Facility received the Florida Water Environment Association's 2008 Earle B. Phelps Award in the advanced wastewater treatment plant category.

The plant uses a TETRA® DeepBed™ Filtration system provided by Severn Trent Services (Fort Washington, Pa.) to remove total suspended solids from wastewater.

The Earle B. Phelps Award honors outstanding wastewater treatment plants in Florida that have maintained the highest removal of pollutants. Awards are given in the categories of advanced treatment, advanced secondary facilities, and secondary treatment facilities. The size of facilities and type of treatment are also taken into consideration for the award.

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