

# Ops Challenge XXX Enters the Record Books

With final standings too close to call at press time, it was safe to characterize the 30th annual Operations Challenge event as an unqualified success.

Enthusiasm and energy were the rule as teams checked in for Tuesday morning's events.

Michael Earl, captain of Utah's "Wasted Gas," said that his Central Valley Water team, said that this was his fifth time at WEFTEC® and his second time competing in "The Ops Challenge Nationals."

Asked about his team's training regimen, Earl said that the team practices "every other Wednesday" in the period leading up to the regional competitions at the Water Environment Association of Utah.

"Then when it gets closer, we practice full weeks," he said. "For this event we practice once a week with more in the period immediately prior."

Referring to the Laboratory Event competition on Monday, Early expressed belief that the team "did

*continued on p. 6*



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Preliminary counts as of Tuesday afternoon indicate that 22,706 water professionals registered for WEFTEC® 2017.

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# Utility Leaders' Morning Underscores Resource Recovery

Water leaders gathered Tuesday at "Utility Leaders' Morning," jointly hosted by the Water Environment Federation (WEF) and the National Association of Clean Water Agencies (NACWA). Rick Warner, WEF president, welcomed attendees, acknowledging the strong partnership between the organizations. "It's critically important that WEF and NACWA continue to collaborate to bring you, the leaders, the knowledge, and resources that you need to ensure your



SUE MURPHY

communities stay vibrant, healthy, and to continue to provide safe, clean water to your communities," he said.

Cathy Gerali, NACWA president, echoed the importance of collaboration in the water sector. "We find ourselves in a period of almost constant change, and working together has never been so important as it is now," she said.

Following the opening remarks, attendees took full advantage of

*continued on p. 11*



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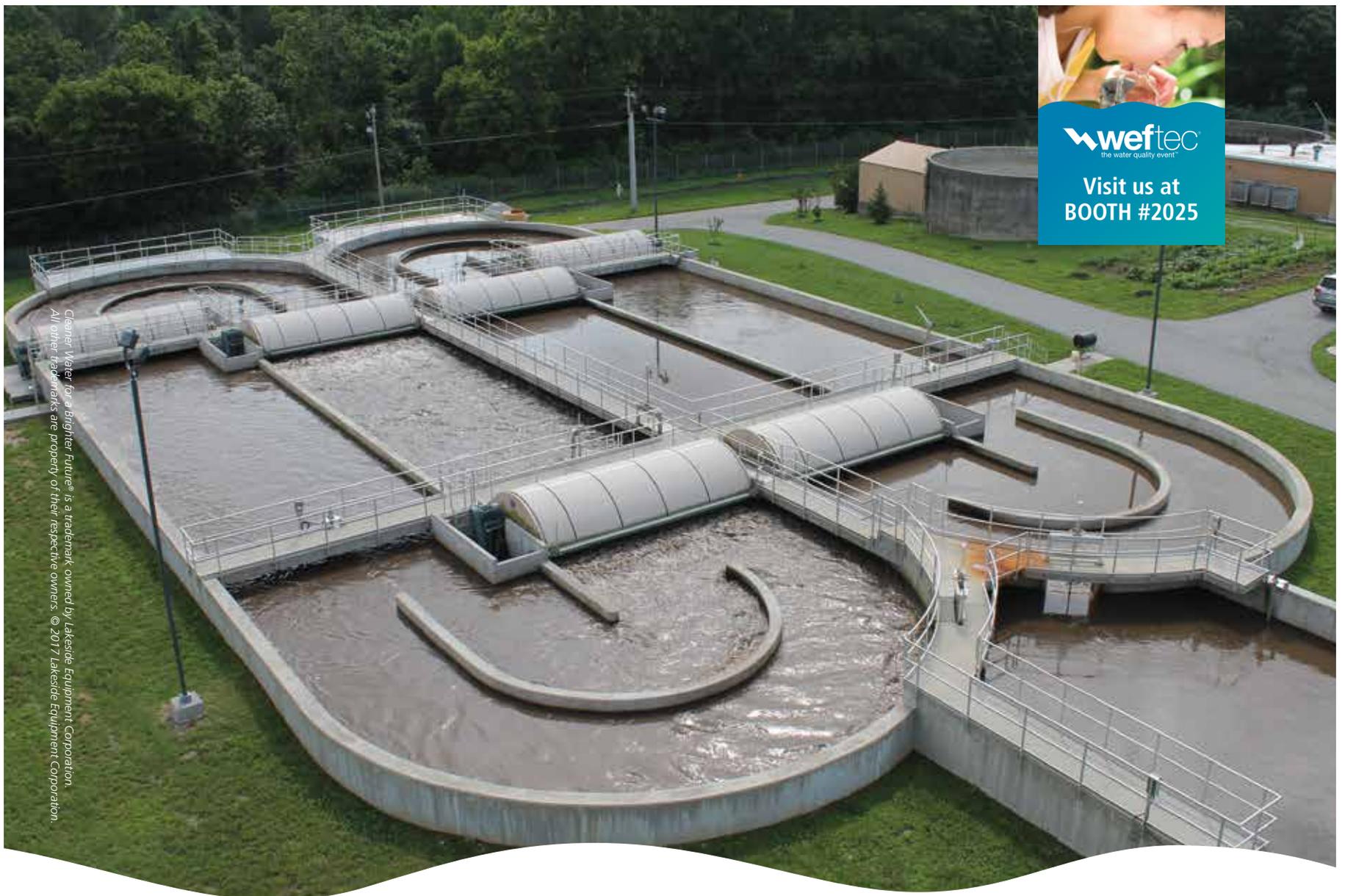




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## New Microbial Data Available On Chicago Waterways

**M**ore than 100 miles of natural and artificial waterways, including the Chicago and Calumet rivers, make up the Chicago Area Waterways System (CAWS). A special local-interest session this afternoon will highlight a groundbreaking study of microbial communities in CAWS and share baseline water quality data.

Scientists with the Metropolitan Water Reclamation District of Greater Chicago (MWRD) and the U.S. Department of Energy Argonne National Laboratory are halfway through the 7-year CAWS Microbiome Study, which is showing early indications of healthy and diverse microbial communities. The study examines the complex microbial communities in CAWS using advanced analytical and

computational tools to explore what microorganisms are in the CAWS, where they came from, and what are they doing.

Speakers from Argonne and MWRD will highlight data that show how MWRD's new developments in water quality innovation are making a difference in the quality of CAWS.

Invited speakers include Geeta Rijal, section head of Analytical Microbiology & Biomonitoring, and David St. Pierre, executive director, of MWRD.

*A New Era for the Chicago Area Waterway System: Updates From the Metropolitan Water Reclamation District of Greater Chicago and Argonne National Laboratory (Session 613), 1:30 - 3 p.m., Room S404d.*

## Young Professionals Tackle Sustainable Development Goals

UNLEASH SESSIONS HIGHLIGHT PROJECTS FOCUSED ON SOLVING INTERNATIONAL WATER PROBLEMS

**A** pair of sessions in the Innovation Pavilion will highlight projects designed by young water professionals to address the UN Sustainable Development Goals (SDGs).

Presenters all participated in the inaugural UNLEASH innovation lab held in Denmark this August. The 9-day event brought together 1000

participants from 129 countries to create real, scalable solutions to the SDGs, including water projects.

Roughly 200 teams worked through innovation processes with facilitators and experts. After refining their ideas, the teams pitched their solutions they had developed for the SDGs to the UNLEASH judges.

The first session, Champions for Visionary Resource Recovery, will feature a presentation from one of the top honorees in Denmark. Water Environment Federation (WEF) member and Water Environment & Reuse Foundation staffer Fidan Karimova, who was awarded the Most Visionary Idea, will discuss her team's winning project, which uses gasification of ocean plastic to fuel water resource recovery facilities.

Later today, another session will bring together some of the WEF participants from the program. Vanessa Borkowski, Melissa Butcher, Haley Falconer, Fidan Karimova, Jessica Rozek, Megan Yoo Schneider,



Several WEF members traveled to Denmark in August to work toward achieving the UN Sustainable Development Goals related to water.

Brian Shell, and Jennifer Walsh will discuss their team's projects, solutions, and plans for the future.

Presenters will share their biggest take-aways from UNLEASH. "While my team didn't advance to the final round, we framed a real problem that the experts and peers could connect with, and came up with a scalable

solution that could have a real impact in a local community," said Rozek.

*Champions for Visionary Resource Recovery (Session 534), 11 a.m. - 12 p.m.; WEF Members UNLEASHed: Reflections on a Global Innovation Lab (Session 536), 1 - 1:30 p.m., both in the Innovation Pavilion, Booth 7739, Hall B.*

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## Recent Storms Put Stormwater Issues Front And Center

Christine Zimmer, P.Eng., MSc, of Credit Valley Conservation in Mississauga, Ontario, Canada, spoke to a packed room of stormwater professionals at Monday's Stormwater Congress Luncheon. Highlighting vulnerable stormwater infrastructure and its impact on people as well as interconnected systems such as public health, emergency services, transit and communications, she focused on actions needed to address the stormwater crisis.



"When I moved from the private sector to the public sector, from wastewater to stormwater, I was shocked at the lack of attention stormwater received in comparison to wastewater and drinking water. But that is changing. It has to change," she said. Referring to a dramatic photo of flood victims on the screen, she added, "When you see images like these, how can it not grab your emotions? This is why we do stormwater – to protect our vulnerable populations."

## Love Provides Inspiring AEESP Master Lecture

PROMINENT RESEARCHER CHALLENGES SECTOR TO RETHINK FUTURE WATER SYSTEMS



Monday morning's sessions included the Association of Environmental Engineering and Science Professors (AEESP) and Water Environment Federation (WEF) 2017 WEF/AEESP Master Lecturer, Dr. Nancy G. Love from the University of Michigan. The lecture is awarded to a prominent researcher who has served the profession and WEF with distinction.

Dr. Love was introduced by a series of former students and current colleagues, who praised her for her passion for water and her mentorship that has helped to transfer that passion to a new generation of water professionals.

Referring to his own graduate studies, Dr. Charles Bott, current director of Water Technology and Research for the Hampton Roads Sanitation District (Va.), called

her "an ideal collaborator and an ideal advisor."

Erika Bailey, from Raleigh, N.C., concurred, adding that Dr. Love had "instilled a spark" in her students.

"And that spark remains," she said, "And the incredible passion for what we are doing in the environmental engineering industry. And I like to think that that spark she helped instill in me is something that I continue to have and will carry throughout my career."

After several more testimonials, Dr. Love began her lecture, immediately departing from the previously-announced topic to focus on a "rethinking" of water systems and cycles.

She described "a complex, evolving, and aging system" in which facilities built in the early 1970s as a result of The Clean Water Act represented "a substantial investment in our infrastructure."

With an estimated design life of approximately 50 years, she said that the aging infrastructure presented both "challenges and opportunity."

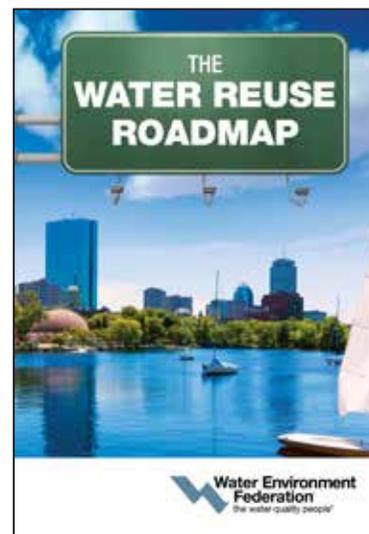
"It provides an opportunity to rethink what we want in a centralized water system – or decentralized or hybrid system – to look like in the future, as we consider investing," she said.

## New Book Maps Pathway To Water Reuse

The *Water Reuse Roadmap* provides an overview of all the opportunities, challenges, and benefits associated with projects working to harness natural water cycles to augment water demand.

The resource was developed to help water managers facilitate successful water reuse programs from concept through implementation and maintenance. Guidance in this book helps water managers determine the social, technical, and financial feasibility of water reuse options in their specific situations. It also helps managers initiate a water reuse program when appropriate and expand existing programs based on new approaches and opportunities for innovation.

This detailed resource includes case studies to help water managers holistically identify, evaluate, and implement water reuse options. Pick up your copy at the WEFTEC® Bookstore, and save on shipping!



## Can We Talk?

### Strategies for Engaging With the Public

SESSION COVERS HOW TO LEAD WITH YOUR UTILITY'S STRENGTHS, PROMOTE VALUE OF WATER

In water, as in life, the strongest relationships are based on trust. If you need to communicate with your community about a water main break, you don't want it to be the first time they have heard from you. This afternoon's public communication session will feature case studies from utilities that are leading the charge toward communicating the value of water. From all corners of North America, experts will discuss their successes and challenges in legitimate engagement with their communities.

In a panel discussion kicking off the session, invited speakers from California, Michigan, and Florida utilities will describe their real-life experiences with proactive communications emphasizing the value of water.

Following the panel, Katelyn Biedron of CDM Smith and Meg Tabacsko of the Massachusetts Water Resource Authority will share the success of the New England Water Environment Association

(NEWEA) "Water Champions" campaign. The campaign's advertorial approach offers an educational platform to explain key topics including how Earth's water cycle works, where our water comes from and goes, what investing in infrastructure really means, water safety and storm preparedness throughout the New England seasons, and rewarding, long-term career opportunities in the water sector. The speakers will focus on how to measure the success of the campaign, budgets, lessons learned and the future of the program.

The session also will feature presentations on Michigan's industry recruitment task force, and the infrastructure investment needed to sustain and enhance New York's water resources.

*Public Communication: Selling the Value of Water, (Session 616), 1:30 - 5 p.m., Room S501a.*

# Happy Birthday, WEFTEC Daily!

Thank you to WEFTEC® attendees (human and reptilian) for helping us celebrate the 10th *WEFTEC Daily*! The staff hopes you enjoyed the *Daily* this week, and we look forward to seeing you next year.



## WEF HONORS OUTGOING CHAIRS

Water Environment Federation (WEF) committee and community of practice chairs who complete their terms of service this year will be recognized this afternoon at a special appreciation luncheon. WEF would like to thank these dedicated volunteers for their leadership and service.

### Awards

Alec Mackie | 2015 - 2017

### Collection Systems

Luis Roberto León | 2016 - 2017

### Committee Leadership Council

John Trofatter | 2015 - 2017

### Disinfection

Naoko Munakata | 2015 - 2017

### Laboratory Practices

Stacie Crandall | 2014 - 2017

### Membership

George Vercelli | 2014 - 2017

### Residuals & Biosolids

Chris Peot | 2015 - 2017

### Stormwater

Heather Harris | 2015 - 2017

### Students & Young Professionals

Michelle Hatcher | 2015 - 2017

### Technical Practice

Eric Rothstein | 2014 - 2017

### Treatment Community of Practice

Janet Cann | 2015 - 2017

### Sustainability Community of Practice

Ifetayo Venner | 2015 - 2017

### Outreach & Innovation Community of Practice

Todd Boling | 2015 - 2017

### Leadership Development & Recognition Community of Practice

Terry Krause | 2015 - 2017

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## Water Reuse Innovation: Slow But Steady Progress

"We had the first international symposium on water reuse in 1979 in Washington D.C., with over 600 people who came to that conference. I recently found my proceedings for that conference, and if you look at those proceedings you will see that the things we are talking about today are exactly the same things we were talking about in '79. So if you think we are going in some 'rocket science' area, we're not. But we are making some great progress..."

– Dr. William J. Cooper, keynote speaker, Association of Environmental Engineering and Science Professors Scientists' Luncheon



SOME OF TODAY'S NEW, LESSER KNOWN, OR OTHERWISE NOTEWORTHY EVENTS

### SPOT THE CROC

Find the mini Niles the Crocodile in the Bookstore, and you could win a Kindle with your choice of free WEF e-book. While you're there, check out the latest releases including the new edition of Design of Water Resource Recovery Facilities (MOP 8).

*Spot the Croc, 12:30 p.m. today in the Bookstore, WEF Plaza.*

### CSI: WASTEWATER

Molecular biology is proving its importance again in environmental process engineering. This session will cover topics ranging from understanding microbial ecology in activated sludge reactors to improving process engineering through a better understanding of microbial diversity.

*What's in Your Sludge? Application of Modern DNA Tools (Session 500), 8:30 a.m. - 12 p.m., Room S402b.*

### PROVING PATHOGEN REMOVAL

Wastewater and drinking water treatment have long been on separate sides of the water spectrum, but now the lines between the two are blurring. An impressive line-up of water reuse researchers will talk this morning about indirect and direct potable reuse, and using data to predict public health.

*Getting Rid of Your Pathogens and Proving It (Session 524), 10:30 a.m. - 12 p.m., Room S505a.*

### CHARTING THE COURSE FOR FUTURE RESEARCH

Hear from Kartik Chandran of Columbia University in this knowledge development forum designed to solicit and develop new research topics to be included in the research agenda of the semi-newly merged WE&RF.

*WE&RF Knowledge Development Forum: Charting New Research Territories (Session 600), 1:30 - 5 p.m., Room S406b.*

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## Quotable

**“Infrastructure is a key part of the [Trump] Administration’s agenda, and water infrastructure will be a major part of that discussion.”**

D. Lee Forsgren,  
deputy assistant  
administrator,  
U.S. Environmental  
Protection Agency,  
Office of Water

## Mahendra Receives Paul L. Busch Award

The Water Environment & Reuse Foundation (WE&RF; Alexandria, Va.) has chosen Shaily Mahendra, an associate professor in the Department of Civil and Environmental Engineering, and Samueli Fellow at the University of California, Los Angeles, to receive the 2017 Paul L. Busch Award. The award, which carries a \$100,000 research grant, was given yesterday at WE&RF’s annual subscriber luncheon.



Mahendra seeks to develop an innovative enzyme-based technology to remove or destroy water contaminants inexpensively and safely.

“I sometimes wonder if we are really developing new and innovative ways for treatment,” said Michael K. Stenstrom, distinguished professor,

Department of Civil and Environmental Engineering, UCLA, a 45-year member of the Water Environment Federation, a former chief editor of *Water*

*Environment Research*, and a two-time winner of the Eddy applied research prize. “[This] proposal is an example of what I believe to be a truly innovative approach to treatment.”

She proposes to encapsulate enzymes in nanoparticle cages called vaults.

Enzymes currently are applied for removing petroleum hydrocarbons, industrial solvents, metals, dyes, explosives, pharmaceuticals, and disinfection by-products from water.

However, their limited stability caused by being too short-lived to effect complete treatment. With support from the Paul L. Busch

Award, Dr. Mahendra will pioneer the expansion of vault applications from the biomedical field to the environmental field.

To date, the Paul L. Busch Award has provided more than \$1.5 million in funding to up-and-coming researchers who are making major breakthroughs in the water quality industry.

Among her many recognitions, Mahendra has received the National Science Foundation CAREER Award, DuPont Young Professor Award, Northrop Grumman Excellence in Teaching Award, Hellman Fellowship, Poptech Science and Public Leadership Fellowship, and Environmental Science & Technology Excellence in Review Award. She also was cited as one of the 10 Trendsetters of 2010 by *Public Works Magazine*.

## Inspiration, Perspiration, and Maybe Some Duct Tape

Not all innovations come from a research lab. Sometimes, you need to tackle a persistent problem using whatever is at hand – along with a big shot of ingenuity. This morning attendees can hear the 2017 winners of the 6th annual Operator Ingenuity awards give an overview of their clever ideas at the Innovation Pavilion.

This year’s submissions of simple but effective fixes cover all aspects of the water cycle. Highlights include

return activated sludge sampling innovations, clever spill prevention devices, collection system maintenance hacks, and a collection of simple tools and practices to make jobs easier and keep operators safer.

During the last few months, operators in storm-damaged communities have demonstrated their dedication and heroism. In recognition of their quick thinking, the Water Environment Federation will present honorary

Operator Ingenuity awards to two Houston water professionals who paved the way for first responders following Hurricane Harvey.

This session is your chance to support the outstanding operations professionals who engineer these resourceful solutions, and even ask their help to solve your challenges. Deborah Houdeshell of Hazen and Sawyer will moderate.



*Operator Excellence: Operations Ingenuity Contest Winners (Session 533), 10 - 11 a.m., Innovation Pavilion, Booth 7739, Hall B.*

## Spotlight on Changing Dynamics of Water Reuse

Speaking to water industry environmental scientists and engineers at a Monday morning breakfast meeting, Krishna Pagilla, Ph.D., P.E., BCEE, from the University of Nevada-Reno shared his unique perspective on water reuse concepts, citing examples from recent experience derived from a potable reuse project in the Reno area.

The Water Environment Federation, in collaboration with the American Academy of Environmental Engineers and Scientists and the Inter-American Sanitary



and Environmental Engineering Association, produced the event.

Pagilla offered the audience a series of drivers that he credited with “making water reuse an important part of water management, both in regions that have a need for water in quantity and quality as well as other issues.” Other drivers, he said, include receiving water

quality requirements, land subsidence due to overdrafting of aquifers, seawater intrusion in coastal aquifers, water resilience and storm-water management.

Pagilla discussed the triple-bottom-line analysis for water reuse projects in terms of judging project sustainability through impacts to society, the environment and the economy.

He concluded by emphasizing that “drivers for water reuse are more than water security,” adding that water reuse has positive effects on water quality; it is a key tool for water resilience, and it provides numerous opportunities for research, development and implementation.

“Public acceptance is very, very important, but also the regional agencies have to be convinced,” he said. “The idea is to look in a comprehensive way at the benefits and costs involved.”

## Quotable

**“We’re going to be the team that has the most fun!”**

Flemming Møller,  
Operations Challenge  
coach for the  
Great Danes team

# Putting Wastewater and Environmental Designs to the Test



A record number of teams from 17 schools participated the Student Design Competition Sunday. The University of Guelph, Water Environment Association of Ontario (left), won in the Environmental Design category, and the University of Colorado-Boulder, Rocky Mountain Water Environment Association, took top honors for Wastewater Design.

## WEF Welcomes Newest President

Jenny Hartfelder of Colorado is the newest Water Environment Federation (WEF) president and seventh female to serve in this role. She was officially ushered in as 2017-18 president yesterday at the WEF Awards and Presidential Celebration.

Hartfelder, a vice president of MWH, said she was humbled by the honor of being WEF president, and thanked the Rocky Mountain Member Association and all of the individuals who have helped and mentored her during her career.

"None of us would be here without the mentors who helped us along the way. Now, we need to be

the mentors," she said.

One of Hartfelder's priorities as president will be building on the momentum created by the #MyWaterLegacy and other public outreach campaigns.

"We need to continue to engage children, students, and young professionals in science, technology, engineering, and math (STEM) programs and show them the exciting opportunities in the water industry," she said. She also stressed the importance of continuing to educate water professionals – part of WEF's mission – and providing more resources for operators.

Hartfelder concluded her remarks with a challenge to the audience.

"I would like to ask each of you as you return home from WEFTEC® to encourage and support a young professional to get involved in WEF or another water-related organization," she said.

Prior to the passing of the presidential gavel, WEF honored a number of awardees for contributions in operations, public policy, research and technology, education and training, and public outreach.




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# As Seen at WEFTEC



## What's your biggest surprise about WEFTEC?



The size. It's so enormous, from the vendor displays to the programs. Sometimes it's hard to choose because there are competing events happening all the time, so you have to plot your course and hope you've chosen the right path.

**Frank Loethen**  
Gwinnett County Department of Water Resources  
Lawrenceville, Ga.

## What are the top three things you need to get the most out of WEFTEC?

Having a sense of calm to soak everything in is



helpful, because it can get overwhelming. Another one is being open to new ideas. The third one would be taking the opportunity to talk to people. There are people from all over the world here, so taking time to get to know others is important.

**Sheila Joy**  
NPM/PP  
Irvine, Calif.

Comfortable shoes, a game plan, and patience.



I'm driving in from the suburbs, so patience for driving in, and if you're trying to engage with somebody and they're at a booth that's not busy, they're easy to talk to, but at crowded booths sometimes it's hard to have a conversation.

**Bob Trueblood**  
Fox River Water Reclamation District  
South Elgin, Ill.

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From left: Treasurer Jamie Eichenberger, Denver, Colo.; Ifetayo Venner, Tampa, Fla.; Jackie Jerrell, Charlotte, N.C.; Peter Vanrolleghem, Quebec City, Canada; President Jenny Hartfelder, Denver, Colo.; Mark Poling, Portland, Ore.; President-Elect Tom Kunez, Chicago, Ill.; Lynn Broaddus, Wauwatosa, Wis.; Joan Hawley, Muskego, Wis.; Past President Rick Warner, Reno, Nev.; Secretary and Executive Director Eileen O'Neill, Alexandria, Va.; and Claus Homann, Aarhus, Denmark.

### Utility

*continued from p. 1*

the opportunity to network and collaborate with lively conversations on specific key issues identified at their tables, discussing topics such as fostering innovation, resilience, being a utility of the future, resource recovery, and public engagement.

Tom Kunez, WEF vice president, introduced the keynote speaker, Sue Murphy, CEO, Water Corp., Perth, Australia. Murphy spoke about resource recovery and reuse by citing examples from the western Australia region. She provided context on the geography and characteristics of the huge region her organization serves, describing it as "about 3.6 times the size of Texas."

Murphy described how climate change has affected the region. Since the early 1970s, she said, "our climate has changed dramatically," with significantly less rain and less runoff during that period, adding that the population has trended upward at the same time. She described the effects in terms of historical streamflow into Perth dams and water supply, water recovery and groundwater replenishment efforts, and emphasized that in designing solutions, "you need to bring the community along."

A key point, she emphasized, is that "we have to all understand that wastewater is not waste," a reality that became all too clear as things dried out.

"Even though that realization comes quickly, you have to bring your customers along," she said. "And if you do bring your customers along,

they're the most powerful advocates you could ever have."

Following Murphy's remarks, Kunez added perspectives with further discussion about resource recovery, and the idea of establishing measurements and goals.

In a deviation from the agenda, Warner returned to express "with our partners," appreciation for the partnership with the U.S. Environmental Protection Agency (EPA), recognizing the Utility of the Future Today program as "a very fine example of that key partnership." He presented a special "President's Recognition Program Award" to Jim Horne, sustainability program manager in the EPA office of wastewater management as a "champion of that program."

Warner also recognized George Hawkins, who has announced his departure from the position of CEO and general manager of DC Water, citing Hawkins' influence on students and young professionals, "the emerging leaders in the water industry. For his impact on our community, I'm very pleased to announce that WEF has established a scholarship fund in George's name, directed at our Water Leadership Institute."

The morning's program then featured an opportunity for attendees to engage with a panel of office directors from EPA, with questions and discussion on topics including affordability, resource recovery, and enforcement and compliance.

The event concluded with recognition of 18 Utility of the Future Today recipients, and seven additional utilities, were recognized for a second year for a new area of performance.



### Automation for a Changing World

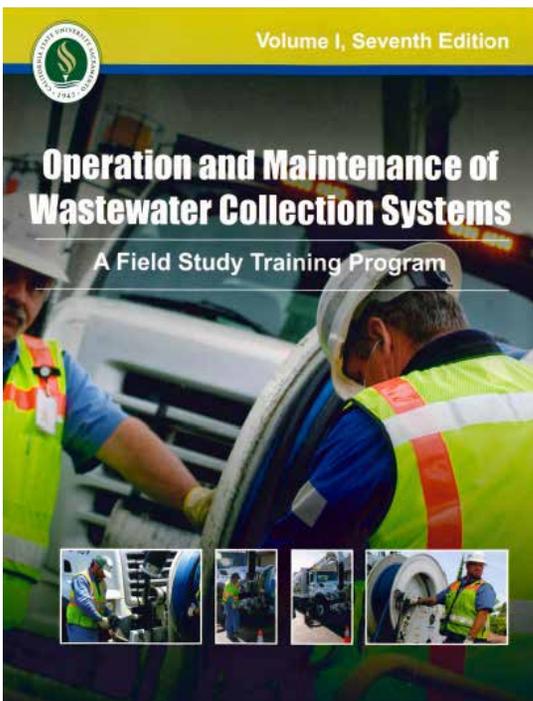


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