MINUTES
MOLINE CITY COUNCIL MEETING
City Hall, 619 16th Street
Tuesday, January 7, 2014

Council Meeting: The City Council meeting came to order at 6:43 p.m. The Council met in regular session in the Council Chambers at City Hall.

Pledge: The Council and audience recited the Pledge of Allegiance.

Roll Call: Roll call was taken with Mayor Raes, Aldermen Knaack, Parker, Bender, Brown, Turner, Schoonmaker, Liddell and Acri present. Absent: None.

Items on Consent:
Approval of Minutes
Committee-of-the-Whole and Council meeting minutes of December 17, 2013.

Omnibus Vote: Alderman Liddell, seconded by Alderman Parker, moved to approve and adopt, by omnibus vote, these items. Motion carried on roll call with the following vote: ayes: Aldermen Knaack, Parker, Bender, Brown, Turner, Schoonmaker, Liddell and Acri; nays: none.

Council, Staff and Citizen Comments:
Michael P. Waldron, Public Works Director, submitted the attached article detailing the "Water Treatment Operator of the Year" award given to Greg Swanson, Utilities General Manager. It is a well deserved award and the Staff is very proud of this! The audience responded with a round of applause.

Alderman Turner expressed appreciation to all of the Library Staff who responded so quickly to the water main break over the Christmas holiday.

Ron Miller, 2812 32nd Avenue Drive, stated that he believes that the City of Moline should investigate a "Staffing for Adequate Fire and Emergency Response" (SAFER) Grant as an alternative to eliminating positions in the Fire Department. Additionally Mr. Miller stated that he continues to disagree with the TIF District created for Genesis Health Systems because that company continues to expand in other Quad Cities locations.

On motion of Alderman Knaack, seconded by Alderman Liddell, Council adjourned at 6:48 p.m.

The next regularly scheduled City Council meeting is on January 14, 2014.

Respectfully submitted,

Tracy A. Koranda
City Clerk

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December 2013
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Cool in Crises

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Robert Longo
Water Dept. Superintendent
Bristol, Conn.

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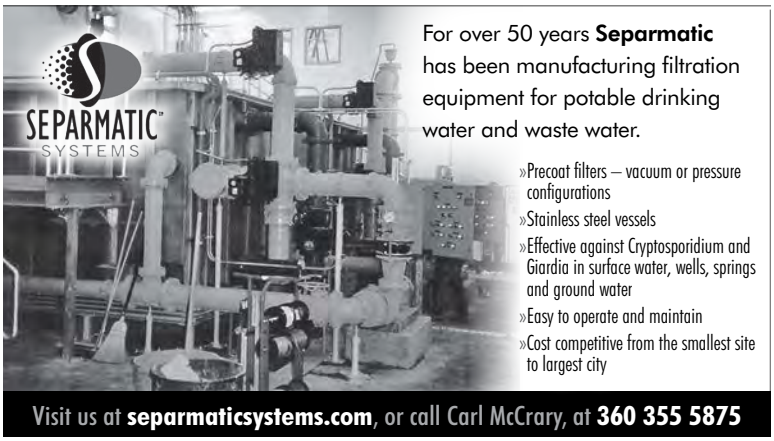

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Robert Longo has defined "grace under pressure" in dealing with tropical storms, blizzards, heavy rain and tornadoes as superintendent of the Bristol (Conn.) Water Department. He's shown with a new sodium hypochlorite injection system at water treatment plant. (Photography by John Marinelli)

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- Winning Them Over: Delivering water messages in Wyoming, Mich.
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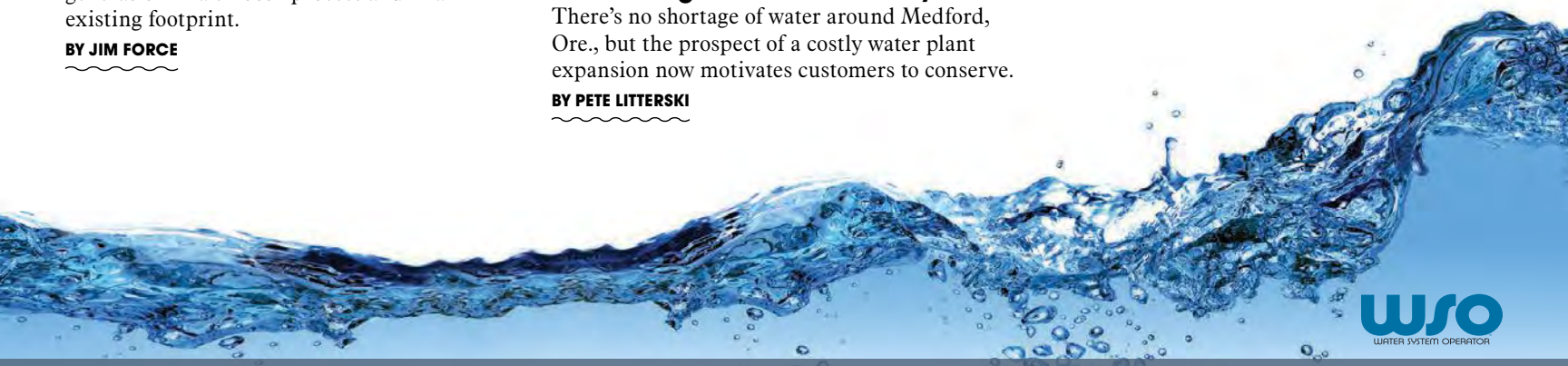

ON TAP

BY TED J. RULSEH, EDITOR

'Conserve? We Have Plenty'

In some localities, water shortages are nonexistent and unimaginable. In such cases, how can a utility make the case for conservation?

In dry areas, it's easy to convince people to conserve water. When there's a real prospect of not having water for lawn irrigation or car washing, or of someday having no water coming out of the tap, people respond to conservation programs.

But what if you're the water utility in Two Rivers, Wis., where I grew up? Two Rivers is a city of 13,000 on a point in Lake Michigan. How vast is that resource? Well, a few years ago my brother brought his two young boys for a visit and I told them about the big lake. As we drove the four-mile lakefront highway, one of the boys, looking out the window, kept saying, "It's still going."

In places like that it's impossible to imagine running out of water. Back in high school, around the very first Earth Day, a friend of mine tried to promote water savings as part of a "save the earth" initiative. He almost got laughed out of school. Cruel and unfair, yes, but the other kids could see that lake.

What to do?

So if you're the utility in a place of water abundance, how do you line people up behind a conservation initiative? This issue of *WSO* tells how one utility does it. For the Medford (Ore.) Water Commission, conserving was all about delaying the major expense of expanding its water plant. So the staff rallied residents around a pocketbook issue: If you help us save water, we'll be able to keep your rates down.

What if you have a nearly infinite water source and a plant with excess capacity, and your community isn't growing rapidly?

But what if you don't have even that incentive to call on? What if you have a nearly infinite water source and a plant with excess capacity, and your community isn't growing? That gets difficult, especially when conservation may mean the opposite of lower rates.

Many utility costs are fixed and unrelated to plant flow (salaries, building operation and maintenance, fleet costs, distribution system upkeep). So less water sold means fewer gallons on which to spread the costs. Customers are "rewarded" for conservation by seeing their rates rise. And the higher rates no doubt offset some of the savings from the gallons conserved.

For this reason, some utilities (though their executives might not freely admit it) are not the least bit interested in conservation. For them, all conservation seemingly does is constrict their revenue — and funds are scarce to begin with.

Do it anyway?

And yet, my old hometown water utility, which has a new water plant with ample capacity, bravely lists water conservation tips for homeowners on its website. So does Manitowoc Public Utilities, serving the city on the opposite end of that lakefront drive.

Why do it? Why ask people to conserve when all the water in the world is outside the utility office windows? There are a number of good reasons, though perhaps none of them easy to sell to a customer base with numerous other priorities.

For one, conservation is good. Efficiency matters. Waste not, want not is always a good rule to live by. Doesn't a public ethic that accepts needless waste ultimately creep over into other areas of public service?

Then there is still the question of cost. In the long run, wasting water can't be good. Pumping more than necessary means things wear out faster. Maintenance, repair and replacement costs go up. Sooner or later, someone has to pay for it.

Energy connection

And of course there's the question of energy. In a place of water abundance, conservation is largely about energy. Pumping and treating water, and then treating the wastewater that comes back from the homes, takes a great deal of energy. Water and wastewater operations account for a major share of the energy it takes to run a city. Again, someone has to pay for that. Why use more than necessary?

And speaking of energy, where does it come from? Mainly electricity, generated mostly by coal and natural gas. That means emission of air pollutants and use of finite resources (though what with the shale gas boom, natural gas looks less finite than ever). So using water wisely means keeping the air clean and reducing greenhouse gas emissions.

Admittedly those arguments aren't as compelling as the threat of an outright water shortage. But they make sense and they are messages worth delivering. If you operate a utility where water is abundant, how do you address conservation? We'd be glad to share your story with others in the industry. Send me a note to editor@wsomag.com. WSO

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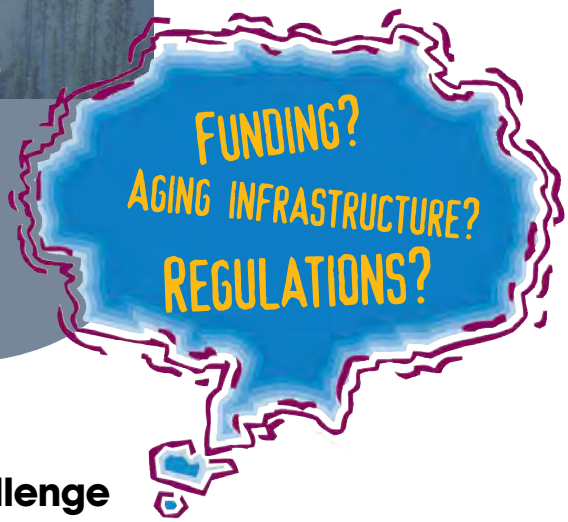

THE TOP 10

Take the Challenge

What is the greatest challenge for the water and wastewater industry? Is it funding? Regulations? Aging infrastructure? Find out how professionals from across the industry ranked their greatest concerns.

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Sam Thomason, water plant superintendent in Kingsport, Tenn., has led her team to multiple awards. She is shown near the plant's sedimentation basin.

MEETING THE GOAL

A Tennessee plant optimizes operations to earn four consecutive Partnership for Safe Drinking Water Director Awards

STORY: **TRUDE WITHAM**
PHOTOGRAPHY: **CHAD GREENE**

Determination, hard work and attention to detail have paid off for operators at the Kingsport (Tenn.) Water Treatment Plant. The plant was one of only three in the state to receive the 2012 EPA Partnership for Safe Drinking Water Director Award. Superintendent Sam Thomason is proud of her staff for the achievement.

"We started working toward this award in 2005," she says. "My predecessors, Niki Ensor and Laura Phillips, established the program, and I picked it up two years ago. I asked my team their opinion on what needed to be done to continue our success, and they met that challenge."

The Partnership award recognizes commitment to the highest level of water quality by optimizing plant operations. Monitoring the incoming turbidity, filters and chemistry are key to optimal performance in case of high demand or a serious rain event. The Kingsport plant team constantly monitors the filters so that no turbidity breaks through. They also backwash regularly. "In 2009, we achieved 0.07 NTU turbidity with the combined filter effluent [CFE]," says Thomason. "The cutoff is 0.1 NTU to meet the Partnership goal.

"Working toward the award makes you look at everything with a fine-toothed comb. It has made us a better plant. The Partnership goals are more stringent than EPA and state regulations, and they encourage plant operators to go above and beyond the normal to produce the best and safest water for the community."

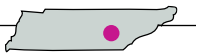
The plant has won other awards: 2007 Best Tasting Water, East Tennessee region, from the Tennessee Association of Utility Districts (TAUD); and the 2005 Julian R. Fleming Award for Outstanding Water Treatment Plant from the Tennessee Water and Wastewater Association (TWWA), presented to one plant in the state each year.

A long history

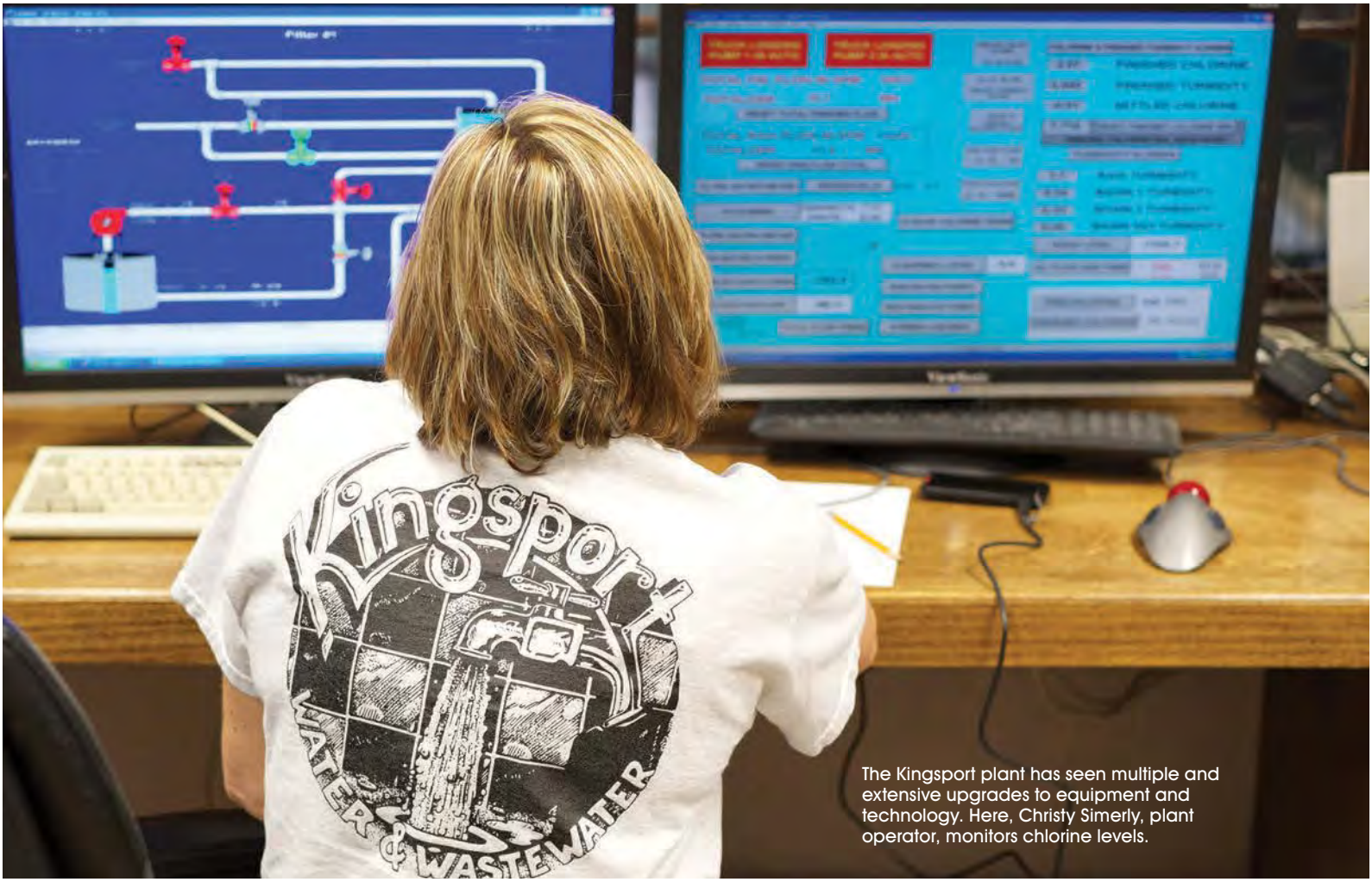
The utility was established in 1914 as Kingsport Waterworks Corporation, and a small conventional treatment plant was built in 1916. In 1929, a new 4 mgd water treatment plant was built that included raw water pumping with upstream screening. At that time, a 16-inch raw water transmission main was constructed up the rock cliffs and through a rock tunnel to the water treatment plant.

The plant was expanded to 8 mgd in 1947 with an improved river intake and screening system, a new sedimentation basin, additional pumping equipment and two new storage tanks. The system was expanded to 12 mgd in 1949 with a larger filter building and two more filters. These sand/gravel filters incorporated surface sweeps to aid in filter backwash.

Kingsport (Tenn.) Water Treatment Plant



BUILT: |	**1929**
POPULATION SERVED: |	**87,000**
SERVICE AREA: |	**120 square miles (4 counties)**
SOURCE WATER: |	**Holston River**
TREATMENT PROCESS: |	**Conventional**
DISTRIBUTION: |	**835 miles of water mains**
SYSTEM STORAGE: |	**18.1 million gallons**
KEY CHALLENGE: |	**Turbidity, achieving Phase IV Partnership status**
ANNUAL BUDGET: |	**$2.8 million (operations)**
WEBSITE: |	**www.publicworks.kingsporttn.gov/waterfp**



The Kingsport plant has seen multiple and extensive upgrades to equipment and technology. Here, Christy Simerly, plant operator, monitors chlorine levels.

Surface sweeps or filter bed agitators were also incorporated into the plant's existing four filters. Plant upgrades continued to a capacity of 28 mgd (daily average 15 mgd). Major equipment includes:

- Intake traveling screens (Screening Systems International; Siemens Water Technologies)
- Clarifier/thickener to dewater the settling basin solids and backwash water before treatment at the wastewater plant
- Five sedimentation basins
- 1.5-million-gallon clearwell
- Three high-service pumps (Flygt - a Xylem Brand, Fairbanks Nijhuis)
- 12 filters
- 22 storage tanks
- Chlorine storage and feed facility
- SCADA system (National Instruments)

From the intake piping, the raw water goes through a 42-inch Venturi flowmeter (Westfall Manufacturing), flash mix (Philadelphia Mixing Solutions), aluminum chloride addition, coagulant/polymer addition and prechlorination. Water is then sent to a distribution box to each of five basins.

Meeting challenges

Meeting the Partnership goals is a constant challenge, "but the potential benefits are great," says Thomason. "Utilities review their plant operation using the structured approach provided in the Partnership guidance manual to identify areas that limit improved performance. The plant then develops a site-specific plan to address these areas and improve water quality."

For the Director Award, the plant provided raw and finished turbidity data, a copy of the plant's standard operating procedures (SOPs) and a self-assessment report that listed plant improvements and the results. The report was reviewed by a team of utility peers who are members of the Performance Evaluation Assessment Committee (PEAC). They determine whether the report reflects a "good faith effort by the utility toward treatment plant optimization." If so, the PEAC recommends that the plant receive the Director Award for completing Phase III.

The plant staff has dealt with heavy rains and power outages. "In June 2013, we got 5 inches of rain in three hours, and our highest raw turbidity peaked at 75 NTU," says Thomason. "The operators use the live feed from our security cameras to stay ahead of and prepare for the rise in raw turbidity, and adjust the chemical feed accordingly."

The team installed three Cummins generators in April 2013 for the major pump stations. The generators activate on their own during a power failure, and the SCADA system lets operators know when the plant has switched to generator power.

In July 2012, a 30-inch line break in the plant's yard flooded the parking lot. A quick reaction from the staff prevented further damage. "There was 14,000 gpm of water going out, so the operators shut down the plant to keep the tanks from going dry," recalls Thomason. "This was a difficult repair and a lengthy process, but our maintenance crew was able to get us back online."

Plant upgrades have made the operators' lives easier. The SCADA system with Allen-Bradley Lookout software (Rockwell Automation) was added in 2000, automating the backwash sequence with individual settings for each filter. Each filter has its own turbidimeter, and operators constantly monitor the surface wash sequence at the end of the backwash. The filter is placed back online only when it meets its individual NTU requirement.

Adding filters has helped meet demand. "We still have the four original

EDUCATING THE COMMUNITY

The Kingsport Water Treatment Plant team takes education seriously.

"We offer plant tours, do presentations for civic clubs and schools, and have information on the local cable channel," says Sam Thomason, plant superintendent. "We also have an annual public works day where we set up a display with information about the plant and answer questions."

Thomason handles the tour scheduling and introductions, and the operators and lab technician lead different parts of the tour. Community interest is high.

"We had a group from the city Parks and Recreation Department who wanted to see how the plant operates," says Thomason. "At this year's Earth Day, we set up a table with the theme 'What do you know about H_2O?' We don't have anything fancy — just coloring books with puzzles and activities explaining the treatment process from the river to the tap."

Thomason especially likes the school tours: "We had some children with disabilities visit, and we had them perform alkalinity and hardness analyses. Seeing the color change gets their attention. We also showed them the positive total coliform samples and the positive E. coli that fluoresces under the UV light. It is always rewarding for me to see that spark in the kids' eyes, like a light coming on, when they realize that getting clean water is more than just about turning on their faucet."

A SCADA system makes it easy for Kingsport plant operators like Christy Simerly (right) and Dustin Hammonds to monitor all plant functions.

sand filters from 1929, but they have been rebuilt," says Thomason. The utility has also added 24 hours of storage capacity and fire protection capacity.

Experienced team

Thirteen staff members with more than 200 years of collective experience run the Kingsport plant. Thomason reports to water/wastewater facilities manager Niki Ensor and holds Grade IV water treatment (WT4) and Grade II water distribution (DS2) licenses. Her team includes:

- Water Treatment Grade IV plant operators Wayne Case (22 years at the plant), Steven Flanary (19 years), Timothy Gibson (16 years) and Christy Simerly (two years).
- Water Treatment Grade III plant operators Dustin Hammonds (seven years), William McClintock (19 years), Steven Thornburg (21 years) and Kirby Walker (one year).
- Billy Barrett, equipment operator (five years).

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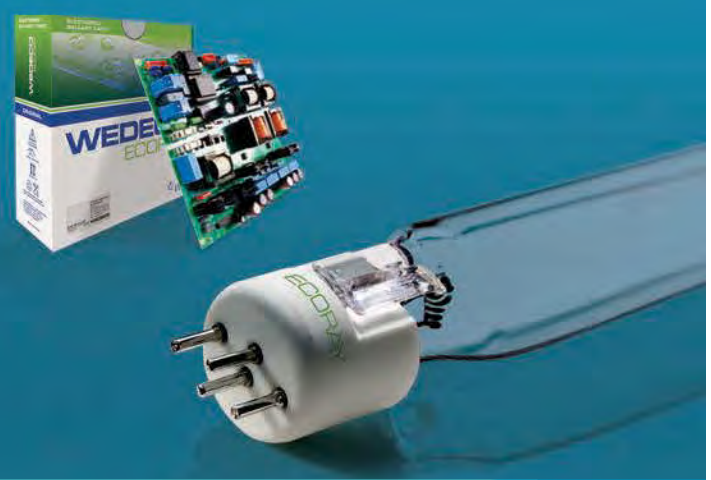

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> **SAM THOMASON**

Team members at the Kingsport Water Filtration Plant include, front row, from left, Sam Thomason, superintendent, and Niki Ensor, water/wastewater facilities manager; second row, Wayne Case and Steven Flanary, Grade IV operators; third row, Steve Thornburg and Kirby Walker, Grade III operators, and Christy Simerly, Grade IV operator; fourth row, Timothy Gibson, Grade IV operator, and William McClintock and Dustin Hammonds, Grade III operators; back row, Mark Erwin, maintenance worker, Ronald Haynes, lab technician, and Billy Barrett, equipment operator.

Pipes carry raw intake water from the Holston River over a ridge to the Kingsport Water Filtration Plant.

- Ronald Haynes, lab technician (WT4, 23 years).
- Mark Erwin, maintenance worker (31 years).

Many of the operators also hold DS2 licenses. The city requires all plant operators to obtain Grade IV certification within six years of employment.

Four teams of shift operators rotate so that nights and weekends are covered. "Some members of the team came from other city departments," says Thomason. "Wayne became an operator after working as a lift station worker, and Dustin moved from distribution to operations. They are all very experienced, and I have 100 percent confidence in them."

Equipment operator Barrett drives the truck that transports solids from the clarifiers to the wastewater treatment plant. He helps with basin cleanings, pressure washing and pumphouse painting, and also assists at the wastewater plant.

Sticking to procedures

The water plant maintains a detailed list of SOPs, which operators follow closely. It covers everything from operator duties and laboratory analysis to equipment operation and chemical addition. It even covers what to do in a power outage. "We prepared the SOPs for the Partnership program and are constantly revising and updating them as we make improvements and upgrades, and as issues arise," says Thomason. "We try to make the SOPs as detailed as possible."

Operators are also responsible for grounds work, painting and cleaning, minor maintenance, turbidimeter calibration and assisting with laboratory testing. They take continuing education classes, including filter optimization.

"TAUD sends out a schedule of classes for the year, and they come around to our area," Thomason says. "The city pays for our operators to take classes to maintain their CEUs. They also pay for training classes so the Grade III operators can prepare to take their Grade IV or DS2 exam," says Thomason. "I have an outstanding team. They care, and they're proud of the service they provide to customers. When I started, they called me ma'am, but now they treat me like a little sister, which is fine with me. We're like family here."

Planning for the future

The operators were pleased when they won the 2007 TAUD Region 1 Best Tasting Water award, beating 15 utilities in the region. "Maybe we'll win again this year," says Thomason. "There is a panel of five judges, and nobody knows whose water they're drinking. We are required by the state to maintain a chlorine residual in the system, but it doesn't affect the taste of the water."

The plant hopes to achieve the Phase III award again next year and will then start preparing to meet Phase IV. "As we maintain the turbidity requirements for the Partnership, we can't have any violations if we're going to achieve the Phase III award next year," Thomason says. "If we do this, we will receive the Director Award for plants that have maintained Phase III status for five years, have demonstrated improved performance and have made progress toward optimized plant operation."

The plant's greatest challenge will be staying on top of rules and regulations. "The Revised Total Coliform Rule, which will be implemented in 2016, is one example," says Thomason. "I'm trying to learn all I can to make sure we can meet the new requirement."

In May 2011, Hazen and Sawyer developed a master plan that covers the next 30 years for both the plant and distribution system. The plant has hired engineering firm CDM Smith to complete design by 2014 on a new raw water intake system. "The raw water lines have been exposed to the elements since 1929," says Thomason. "A new tunnel will replace the exposed lines, and new intake pumps will be installed behind the plant.

"The water treatment plant building is a historical landmark, and it would make a good continuing education training center for our operators and the utilities surrounding our area. Maybe we can showcase some of our old equipment that's no longer in use." wso

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Let's Solve Water

Power Trip

Fairfield takes control of unnecessary electricity usage and high energy bills by operating its water treatment plant more efficiently and adding renewable sources

BY LISA BALCERAK

In 2000 and 2001, an electricity crisis in California caused rolling blackouts and brownouts affecting hundreds of thousands of customers. The state Public Utilities Commission had already provided for options to implement time-of-use conservation measures to help protect the state's power grid.

Those restrictions caused the Water Department in Fairfield, Calif., to begin an aggressive power reduction initiative that has cut energy bills by 20 percent, reduced reliance on the grid and enhanced operating efficiency.

Even before the power crisis, in 1999, the department installed a power monitoring system at the North Bay Regional Water Treatment Plant (jointly owned with neighboring Vacaville) to help identify where to reduce power use. The 40 mgd capacity plant uses conventional treatment and granular activated carbon (GAC) filtration.

"This plant is not meant to start up and shut down, but the power company wanted us to shut down because they couldn't keep power on the grid," says Gil Hernandez, water treatment manager. "We did energy studies to figure out where to shave power and stay within the time-of-use constraints." Data analysis revealed a new way of thinking that operators still observe. During peak energy times, the plant refrains from running some pumps and holds off on filter backwashes.

> **"The operators challenged themselves to figure out ways to deal with the situation, working with what they had."**
> **GIL HERNANDEZ**

PHOTOS COURTESY OF FAIRFIELD WATER DEPARTMENT

Aerial view of the treatment plant and solar array.

"Operators had to get into the mindset of performing filter backwashes during off-peak times," Hernandez says. "They had to plan ahead to backwash filters and pump the return wash water to backwash another filter. They challenged themselves to figure out ways to deal with the situation, working with what they had. They did a great job stepping up."

Reducing consumption

Fairfield found other energy efficient solutions in the study data. First, the department installed variable-frequency drives (VFDs) on pumps in the contact basin, on sump pumps for flow drains and on motors on the ozone basin blowers. To help regulate flows in the wash water recovery system, a VFD was installed on a 40 hp recycling pump that ran constantly. Now, the pump runs 30 percent less while maintaining optimum flow.

By replacing an aging air preparation system with a liquid oxygen system to supply the ozone generators in 2009, Fairfield has saved energy and increased its ozone concentration. The air preparation system required

OPPOSITE PAGE: Gil Hernandez, North Bay plant manager, checks an actuator on a solar panel tracking unit.

refrigerant driers, desiccant dryers, liquid ring compressors and heaters to super-dry the air, all of which required substantial electricity. "The new liquid oxygen system uses less electricity and generates twice the concentration of ozone [6 percent versus 3 percent] to help better meet increasingly stringent regulatory requirements for total organic carbon removal," says Mike Monroe, senior instrumentation technician.

In 2010, an ozone dose study revealed that by increasing the ozone gas concentration delivered to the pretreatment basin, Fairfield could shut down its post-treatment ozone injection point. Instead of running three 100 kW ozone generators at full output, the plant now needs, on average, only a single generator operating at 50 kW. The VFDs, the switch to liquid oxygen and the ozone dosage reduction have meant 20 percent energy savings worth about $100,000 a year. Fairfield's continuing investments in energy savings include:

- An energy management system for optimizing HVAC performance.
- Interior lighting upgrades to LED fixtures along with occupancy sensors.
- A downsized boiler for the heating system.
- A small water heater for domestic use instead of using the master boiler.
- A switch to ambient air instead of air conditioning for cooling the ozone generator cabinets.
- Sun screens on doors and windows to reduce heat buildup.

Getting off the grid

To further reduce reliance on grid power and cut energy costs Fairfield, in 2007, began a long road to find a renewable energy solution. At the time, wind turbines seemed the best option because of consistently strong winds in the area. However, the Department of Defense informed the city that the turbines would interfere with the radar systems at nearby Travis Air Force Base.

Next, the team looked at solar power. Subsidies from the California Energy commission would support a solar array up to 1 MW that would cover 8 acres. However, the area around the plant was a potential habitat for the California tiger salamander, an endangered species, and mitigation would have been a cost-prohibitive proposition. The solar power plan was put on hold until 2012, when the city negotiated with area land developers to pay the mitigation costs.

A 1 MW ground-mounted solar array with 4,312 sun-tracking panels went online in August 2013. It fulfills 18 percent to 22 percent of the plant's electrical demand. Fairfield entered a 20-year power purchase agreement with solar panel maker SolarWorld. The company owns and operates the solar array and charges a 20-year fixed price on the power generated.

Over the life of the project, the city expects to save $1.5 million to $3 million by purchasing power at the agreed rate of 11.5 cents per kWh instead of buying higher-priced grid power. "The idea has been to reduce our carbon footprint and lower our costs related to energy consumption," Hernandez says. "We are able to do those things with this solar project. We've reduced our energy consumption from the grid, and it will save our ratepayers money in the future. Everybody's a winner." *wso*

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Let's Solve Water

Homemade Disinfection

A Scottsdale water plant team converts from chlorine to on-site sodium hypochlorite generation in a smooth process and in an existing footprint

BY JIM FORCE

PHOTOS COURTESY OF SIEMENS WATER TECHNOLOGIES CORP.

PRODUCTS:	**OSEC B-Pak 500 OSG system, Chemtube pumps**
MANUFACTURER:	**Siemens Water Technologies**
USER:	**Scottsdale (Ariz.) Water Resources Department**
APPLICATION:	**Disinfection**
BENEFITS:	**Replaces conventional chlorine gas; generates sodium hypochlorite**

The OSEC B-Pak is fully automated and prepackaged. The system generates sodium hypochlorite solution through electrolysis of brine, using only water, salt and electricity.

Water treatment plants near and far are moving away from conventional chlorine gas for disinfection. The decision to convert is driven by concerns over the safety of transporting and handling chlorine gas, which is toxic; costs; and the efforts of many communities and utilities to make their operations as green as possible.

One alternative is to generate sodium hypochlorite on site. On-site generation systems (OSG) use water, salt and electricity to produce a stable sodium hypochlorite solution with a free available chlorine content of about 0.8 percent. In addition, OSG systems typically store only a two- to-three-day supply of sodium hypochlorite at a time, eliminating the risk of the chemical degrading, as can happen when sodium hypochlorite is brought in and stored for long periods.

While the capital costs for on-site generation systems may be higher than for conventional chlorination, plants using OSG hypochlorite usually see a return on their investment of two to three years, according to online information from the National Environmental Services Center.

A case in point

The 13.5 mgd Central Groundwater Treatment Facility (CGTF) in Scottsdale, Ariz., changed out its disinfection from chlorine cylinders to sodium hypochlorite within a four-month installation window. The new equipment required no increase in footprint, fitting inside the existing chlorine storage and feed facilities.

Scottsdale is home to more than 200,000 residents in Maricopa County near Phoenix. Historically, the city was totally dependent on groundwater, but in the mid-1980s it began putting together a multifaceted water resource portfolio, intended to provide a long-term sustainable water supply.

This portfolio includes surface water supplies, groundwater resources and reclaimed water. In the process, the city has become a national leader in innovative water reuse and groundwater recharge projects. The CGTF is one of several treatment and reuse facilities that ensure an adequate supply of high-quality water to residential, industrial and commercial customers.

> **"We were able to fit the new equipment into the existing chlorine storage and feed room. The existing electrical service was adequate. It worked out very well from a footprint standpoint."**
> **BRIAN PAULSON**

The plant draws groundwater from wells previously contaminated with trichloroethylene (TCE), and passes it through packed towers where the TCE is removed. The flow is disinfected, then pumped to storage reservoirs. From there, it is directed to the city's distribution system.

Making the switch

Since startup in the early 1990s, the CGTF had used a conventional Wallace & Tiernan chlorination system supplied by Siemens Water Technologies. Chlorine was supplied by two 1-ton cylinders — one in service and one in reserve. However, in 2007, as the treatment plant was being upgraded, Scottsdale water officials determined that on-site chlorine generation would be a better and safer choice, especially since the facility lies in a residential area and next to a community park.

The CGTF rehabilitation project was on a tight timeline and had to be completed without interrupting water production at the plant. The city installed a pair of OSEC B-Pak 500 on-site hypochlorite generation systems and four Chemtube PPS peristaltic hose pumps from Siemens to replace the chlorine gas system.

According to Daryl Weatherup, product manager for Siemens, the OSEC B-Pak is a fully automated, prepackaged system designed for fast

The OSEC B-Pak on-site hypochlorite generation system at Scottsdale's Central Arizona Project (CAP) surface water treatment plant.

WSO welcomes stories about your plant and system innovations for future "Bright Ideas" articles. Send your suggestions to editor@wsomag.com or call 715/277-4094.

and economical installation, safe operation and easy maintenance. Skids are shipped completely piped, wired and tested.

The system generates a sodium hypochlorite solution through the electrolysis of brine, using only water, salt and electricity. The converted plant has been operating successfully since late 2009.

Brian Paulson, Scottsdale water production manager, cites the key reasons for the transition to OSG: more control over the disinfection process, and greater operational safety and security.

Transportation and storage of chemicals is an important area of concern these days, he notes.

Overall, the move to OSG has gone as planned, with no major obstacles. "We were able to fit the new equipment into the existing chlorine storage and feed room," Paulson says. "The existing electrical service was adequate. It worked out very well from a footprint standpoint."

Temporary supply

During the four months while the old chlorination system was taken offline and the new equipment installed and started, the plant purchased sodium hypochlorite from a local vendor and stored it in tanks that fit into the space previously occupied by the chlorine scrubber.

In Paulson's mind, one of the most important lessons learned in the change to on-site generation is to pay close attention to the transition process. "It's hard to design and construct a temporary system that will operate flawlessly," he says. "From an engineering and setup standpoint, temporary systems are different than full-scale systems that are designed to function for years."

Every situation is unique, he says, noting that differences in water quality, flow rates and potential scaling can affect the operation of temporary systems. "Look closely at your temporary system," he says. "Examine all the variables before designing or using it."

Weatherup reports that since startup of the on-site system at the CGTF, Scottsdale has partnered with Siemens on additional conversion projects at the 70 mgd CAP plant which treats Central Arizona Project water from the Colorado River, and at the city's AWT plants, which supply 20 mgd for turf irrigation and groundwater recharge. In both projects, teams completed the conversion from gas chlorination to on-site generation without interrupting water production by retrofitting existing chlorination structures. wso

Greg Swanson, utilities general manager in Moline, Ill., is a mentor to his team and a long-time contributor to industry associations. The Illinois Section AWWA named him Water Professional of the Year for 2013.

QUALITY LEADERS OPERATOR

Greg Swanson, City of Moline, Ill.

POSITION: | Utilities general manager

EXPERIENCE: | 37 years in water industry

CERTIFICATIONS: | Class A Public Water Supply

MEMBERSHIPS: | Illinois Section AWWA, Illinois Potable Water Supply Operators Association

GOALS: | Bring more young people into the profession, help operators develop knowledge and skills, complete UV disinfection upgrade project

WEBSITE: | www.moline.il.us

TIME TO GIVE BACK

Greg Swanson has spent 37 years helping the Moline water utility excel. Now he does his part to encourage young people to enter a rewarding profession.

STORY: **TRUDE WITHAM**
PHOTOGRAPHY: **TAYLOR GLASCOCK**

As general manager of utilities for the City of Moline, Ill., Greg Swanson works hard to promote the water treatment industry and its professional organizations, while helping those who wish to follow him into a rewarding career. He has found satisfaction in developing his talents over the past 37 years, while mentoring others.

"I'm a grassroots kind of guy, but when I stumbled upon the water industry, I found it so interesting, and it allowed me to develop innate skills and abilities I didn't know I had, from electromechanical troubleshooting to leadership," he says.

Before being hired at 20 for his first water treatment job, Swanson attended college for a while. He enjoyed playing the sitar (and still does). "Until I found my calling in the water business, I wanted to be a hippie and play music," he says. "A friend worked for Moline in the water department and suggested I apply. At the time, I was a farm hand at an Arabian horse farm, but I took his advice."

He didn't get the job at first. "I got a haircut and got rid of my ponytail, and asked again if they would give me a try," he recalls. "It was a jack-of-all-trades job with some maintenance. They made a utility man out of me."

A year after he came on board, Swanson was promoted to an operations, maintenance and distribution position at the 12 mgd Moline water plant. He later became lead man, was promoted to plant manager in 1991, and became utilities general manager in 2001. For the last five years he has overseen the water and wastewater sides of the city utilities.

Public outreach and career education are part of Swanson's passion. Here, he leads a treatment plant tour for students of Augusta College in Rock Island, Ill.

Continuing to grow

After his first promotion at the Moline plant, Swanson discovered that he had much to learn. It was a challenge to treat the highly variable Mississippi River source water and operate the lime softening technology. "I used a combination of hands-on experience, networking with other water professionals, formal coursework and involvement with the Illinois section of AWWA to grow my knowledge and skill," he says. "Lots of really great people helped me along the way."

His mentors included the city's previous water general managers, Gene Marquardt, Lloyd Grantz and Rob Schab. Swanson believes his experience carries an important message for other water operators. "If you are dedicated and work hard, keep an open mind and take advantage of various opportunities to grow your knowledge and skill, today's water operator can become tomorrow's water utility manager. My professional growth continues to this day, which is one of the many reasons I love my job."

He has seen many changes at the Moline treatment plant. One of his greatest challenges was as project manager for a $21 million plant upgrade that spanned 15 years and addressed a host of issues, including aging treatment equipment, an outdated electrical system and lack of central control.

ENGAGING WITH ART

Community outreach is important to Greg Swanson, general manager of utilities in Moline, Ill. He's always looking for ways to engage the public and educate them on water issues, and one way is through art.

"For the past seven years, we have had an annual contest where we ask students to communicate through art the valuable role Moline tap water plays in their daily lives," says Swanson.

The 2012 contest's theme was "Water – Celebrate the Essential." Third graders from the city's 12 elementary schools illustrated the importance of water and the public water supply system.

One finalist is selected from each school, and students, families and friends, city council members and city officials attend a ceremony in the finalists' honor. The winning artwork appears on the cover of the city's annual water-quality report, and the finalists' work appears on the back cover.

Moline's public outreach program includes a student art contest as part of the annual water quality report. Swanson observes, "I believe plants must offer tours and interact with the public."

The upgrade included replacing problematic clarifiers with ClariCone clarification systems (CB&I), and adding an administration building with laboratory, training room, geographic information system (GIS) and records storage. "People don't like change, so I had to get buy-in from plant staff," he says. "We wanted technology to help operators do a better job.

"Before the upgrade, we had to manually start the distribution pumps, and the chemicals came in bags, buckets and barrels rather than in bulk. We wanted the benefit of automation, but a computer can't take the place of a good operator. They know the plant's sights, smells and sounds. You have to marry the technology with the operators' experience and skill."

> **"You can be the brightest and most technically competent, but you have to communicate, cooperate and be accountable."**
>
> **GREG SWANSON**

Treating river water

Commissioned in 2001, the new plant is better suited for treating Mississippi river water:

The two 7 mgd helical upflow ClariCone solids contact clarifiers improved water softening and turbidity performance. Reconfiguration and reuse of existing clarifiers allows pretreatment of river water before the ClariCone systems during especially adverse river conditions. Conversion from liquid chlorine to sodium hypochlorite disinfection improved safety, as did new space-saving bulk chemical storage facilities.

River water enters the intake, where a small dose of potassium permanganate is added to control zebra mussels and oxidize organics. The water passes through screens that remove aquatic life and debris. Powdered activated carbon is added to remove taste, odor and chemical pollutants. Next, chlorine and ammonia (chloramines) are added as the water is pumped to the treatment plant.

The water flows into the cone-shaped clarifiers, where ferric sulfate, lime and polymers are added. Here, the water is also softened with lime to remove nearly half of the calcium and magnesium. Next, it flows to recarbonation basins for pH adjustment; a small dose of phosphate is also added to improve filtration.

Clarified and stabilized water passes through dual-media filters, then to underground reservoirs where additional chlorine and phosphate are added, along with fluoride. The plant produces water, with turbidity typically about 0.06 NTU (the limit is 1.0). TOC removal averages about 50 percent, and finished water total trihalomethane (TTHM) averages 13 ppb.

Floods and droughts

Things at the treatment plant aren't always routine. A 100-year flood in 1993 presented Swanson and his staff with a "monumental challenge," even though they managed to keep the water flowing. "The plant was completely surrounded by the Mississippi River for an extended period, and plant staff used mountains of sand bags, numerous pumps and raw tenacity to hold back the raging river," recalls Swanson.

A drought in 2012 changed the character of the river water: algae blooms caused taste and odor problems. "We had enough water, but the temperature rose and so did organic levels," says Swanson. "We had to change the chemistry by adjusting our coagulation process and adding more powdered activated carbon."

The plant upgrade also created a treatment challenge: "During spring 2005, we were trying to treat the cold water runoff melt water. The new clarifiers operated much differently than our old clarifiers, so we had great trouble achieving turbidity control."

That challenge was compounded by break-in problems with new equipment, contractor errors and SCADA system bugs.

"The plant manager [Dave Owens] and I lived at the plant for two weeks. We would go home and sleep for a few hours and then go back. Working with the plant operators as a team, and networking with other water plants, we used a systematic approach to work through various problems. You can be the brightest and most technically competent, but you have to communicate, cooperate and be accountable. My staff did that."

An open door

Swanson holds a Class A Public Water Supply license and works with 11 operations staff members at the water plant:

- Dave Owens, plant manager (Class A, 21 years at the plant)
- Barry Kahl, operations and maintenance specialist (Class A, 16.5 years)
- Bob Bohannon, chemist (Class A, six years)
- Robin Markle, lab technician (five years)
- George Fellows (30.5 years), Bruce Eaker (17.5 years), Randy Oetgen (14.5 years) and Tom House (Class A, four years), operators
- Scott VanHoutte (Class C, 21.5 years), Jon Kunzle (Class A, 22 years) and Barry Buckholtz (Class A, six years), mechanic operators

The facility runs around the clock, with one operator on duty at all times. The mechanic operators perform maintenance and fill in for operators as needed. "We made significant staffing changes after the plant upgrade," says Swanson. "We used to have two operators on duty at all times. We created jobs on the distribution side for the displaced operators, and it took a lot of work to get through this.

"My door is always open. Water is about people. I savor that human connection, and it makes my work so enjoyable. We really have a good group of operators who take on a lot of responsibility – the treatment process, pumping operation and all public works calls. We also conduct 15 to 20 plant tours a year for grade school to graduate students, professional associations and individuals."

Picking a winner

Swanson's performance at Moline and his service to the industry have earned recognition. He won Surface Water Operator of the Year in 2000 from the Illinois Potable Water Supply Operators Association. In 2013, he received the Water Professional of the Year Award and a Youth Outreach Award from the Illinois Section of AWWA.

His involvement with ISAWWA includes serving on the board and various committees and writing articles for the online newsletter. Youth outreach is near and dear to his heart: "This is one area that needs to grow more. We have been silent, and unless we engage the public and our youth, how will we meet the industry's future challenges?

"I am retirement age now, and 60 percent of operators and managers will be retiring soon. This will present a huge opportunity for young people looking for a truly amazing career path that is mentally rewarding and physically challenging." Swanson is helping ISAWWA develop a young professionals program. He also sponsors University of Illinois students for ISAWWA memberships: "By joining, students can network with water industry professionals as they get ready to transition from school to real world."

Looking ahead

Swanson looks forward to continuing his work at the plant and in professional organizations. He's working on a project to add a UV disinfection system for filter effluent, since a study of the river water showed high *Cryptosporidium* levels. "The project is challenging on a technical and reg-

Moline Water team members include, from left, Dave Owens, water plant manager; Greg Swanson, utilities general manager, and Barry Kahl, operations and maintenance specialist.

"I believe plants must offer tours and interact with the public. Water is grossly under-appreciated and unvalued in our country. Part of the plant operator's job is to elevate the public's understanding and appreciation."

GREG SWANSON

ulatory level, so I want to see that through," he says. "It should be online by summer 2015."

Today, his greatest satisfaction is giving back: "We have a very aggressive outreach program, including a student art contest as part of our annual water quality report. Many plant teams feel they can't afford to offer tours or interact with the public because of security concerns and work demands. I believe plants must offer tours and interact with the public. Water is grossly under-appreciated and unvalued in our country. Part of the plant operator's job is to elevate the public's understanding and appreciation."

Although outreach requires time and energy, Swanson feels the effort is worth it. "Plant visitors walk away saying, 'Wow, this facility is incredible. I had no idea how much effort is involved with my drinking water. I'll never complain about my water bill again!' "

His advice to those seeking a career in water treatment: "Reach out to professional organizations and the water utilities in your area. Knock on doors. As Thoreau said, 'Go confidently in the direction of your dreams.'"

Swanson should know. His original goal as a 20-year-old turned into a lifelong passion: "I sit here and I look at the river and the city, and I know that what we do is touching people's lives. I never get bored and I'm always rewarded." wso

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Understanding Sodium Hypochlorite

This common drinking water disinfectant has a variety of advantages but requires care in transport, storage and use

BY JOHN ROWE, PH.D.

Chlorine is the most common disinfection method for drinking water in North America. It comes as chlorine gas, sodium hypochlorite or calcium hypochlorite.

A small community approached Okefenokee Technical College for information on sodium hypochlorite disinfection. The community had been using chlorine gas and ammonia as primary and secondary disinfectants.

Sodium hypochlorite (NaClO) is the active ingredient in commercial liquid bleach, which is commonly available in 6, 12 and 15 percent solutions. Sodium hypochlorite has a relatively short shelf life that depends on sunlight, temperature, vibration and the starting concentration. Increases in any of these shorten life.

Sodium hypochlorite should be stored in a cool room in an opaque container. The higher the concentration, the faster the chemical breaks down. However, the stronger the solution, the less room is needed to store it. As the chemical breaks down, its reaction in water slows.

The use of chlorine-based disinfectants in domestic drinking water has led to controversy because the process leads to formation of small quantities of harmful byproducts. In addition, transport and handling safety concerns around the use of chlorine gas have directed public opinion toward sodium hypochlorite.

In drinking water facilities, 12 percent sodium hypochlorite is a primary disinfectant. In the time that it takes to ship the chemical, it typically degrades to 11 percent. In the calculations of dosages or concentrations, 10 percent should be used as the starting point.

Unstable compound

Sodium hypochlorite is a clear, slightly yellowish solution with a characteristic odor. As a bleaching agent it is usually a 5 percent sodium hypochlorite with a pH of about 11. More concentrated solutions (10 to 15 percent) have a pH of about 13.

Sodium hypochlorite is unstable. Chlorine evaporates at a rate of 0.75 gram per day of active chlorine from solution. Sodium hypochlorite disintegrates when heated or if it contacts acids, sunlight, certain metals, and poisonous and corrosive gases, including chlorine gas. It is a strong oxidant that reacts with flammable compounds and reducing agents, and it is flammable. These characteristics must be kept in mind during transport, storage and use.

The presence of caustic soda in sodium hypochlorite means the pH of water increases when the chemical is added. When sodium hypochlorite dissolves in water, two substances are formed that play a role in oxidation and the disinfection processes. These are hypochlorous acid and the less active hypochlorite ion. The pH of the water determines how much hypochlorous acid is formed. When sodium hypochlorite is used, hydrochloric acid is used to lower the pH and increase the disinfection ability.

Two means of production

Sodium hypochlorite can be produced in two ways. One is by dissolving salt in softened water, resulting in a concentrated brine. This brine is then electrolyzed to form a sodium hypochlorite solution containing 150 grams of active chlorine per liter. During this reaction hydrogen gas is also formed. The chemical also can be produced by adding chlorine gas to caustic soda, producing sodium hypochlorite, water and salt.

The advantage of salt electrolysis system in formation of sodium hypochlorite is that no transport or storage of chemical is required. Another advantage of the on-site process is that chlorine lowers the pH, and no other acid is required to lower pH. The hydrogen gas produced is explosive, and as a result ventilation is required. This process is slow, and a buffer of extra hypochlorous acid needs to be used. The maintenance and purchase of the electrolysis system is much more expensive than sodium hypochlorite.

When sodium hypochlorite is used, acetic or sulfuric acid is added to the water. An excessive dose can produce poisonous gases. If the dosage is too low, the pH becomes too high, and it can irritate the eyes.

The required concentration of sodium hypochlorite depends on the concentrations of pollutants, primarily organic pollutants. If the water is filtered before disinfection, less sodium hypochlorite is needed.

Sodium hypochlorite is a strong oxidizer. Oxidation reactions are corrosive, and solutions burn skin. In addition, chlorination of drinking water with sodium hypochlorite can oxidize organic contaminants, producing trihalomethanes, which are considered carcinogenic and are subject to regulation.

Right after the sodium hypochlorite is added to water, chlorine levels decline because the chlorine is reacting with organic matter and microbes. After those reactions are complete, chlorine will slowly escape into the air as a gas. For this reason, free and total chlorine levels slowly degrade over time in a container. The pH of hypochlorite solutions should be raised to over 11 in order to extend the shelf life before it is used.

Considering shelf life

In drinking water facilities, 12 percent sodium hypochlorite is a primary disinfectant. In the time that it takes to ship the chemical, it typically degrades to 11 percent. In the calculations of dosages or concentrations, 10 percent should be used as the starting point. The good thing is that the decline is predictable if environmental factors are controlled. Even at 1 percent, the solution can disinfect water.

Chlorine removes electrons from the outer shell of the atoms of living organisms, destabilizing the structure until the organism is dead. When sodium hypochlorite is added to water, it forms an OCl- (hypochlorite) ion that is called free chlorine. This ion should not be confused with chlorine gas. Free chlorine is what most municipal water treatment facilities use for disinfection.

If large amounts of water are stored, it may be useful to change from free chlorine to combined chlorine. Free available residual chlorine can be converted to monochloramine. The conversion is completed by adding an ammonia solution to the chlorinated water at a ratio of 4:1, free chlorine to ammonia.

Monochloramine has a much longer shelf life and has no known negative health effects. It is a much weaker disinfectant and usually it is not used for primary disinfection. It is, however, perfect for secondary disinfection (the prevention of recontamination of drinking water in the distribution system).

It is always best to use the highest-grade chemicals when adding them to drinking water. ANSI/NSF 60 is the standard for drinking water chemicals.

ABOUT THE AUTHOR

John Rowe, Ph.D., is a professor at Okefenokee Technical College in Waycross, Ga. wso

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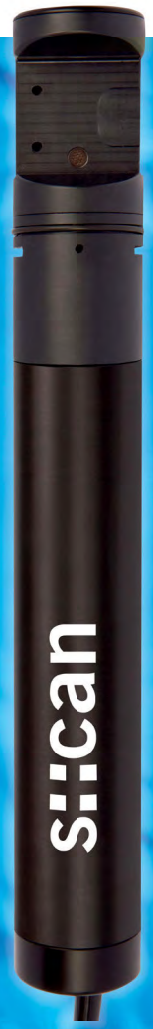

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PHOTOS COURTESY OF S::CAN MEASURING SYSTEMS LLC

1) The probes contain different numbers of LED light sources, depending on what the user wants to measure.

2) The i::scan probe can be combined in a nano::station with pH, chlorine and conductivity sensors in a compact footprint.

Monitoring Goes Miniature

The i::scan spectrophotometer brings drinking water monitoring down to a small scale and a lower cost. The compact unit can measure multiple parameters.

BY TED J. RULSEH

Monitoring water quality costs money, and monitoring multiple parameters with inline devices can be beyond the budget of a smaller utility.

Addressing that and other monitoring issues, s::can offers a miniature spectrophotometer that can measure turbidity, TOC, color, UV254 and other parameters, all in one cylindrical probe that measures 12 inches long and 1 inch in diameter.

It uses an array of narrow-band LED light sources and charge-coupled device (CCD) receptors. Proprietary algorithms translate optical spectral data into accurate measurements. It can be used in water-quality control stations, smart water grids, coagulation control systems and other drinking water applications, and for various purposes in wastewater treatment and industrial processes. The probe easily communicates with SCADA and other control systems.

Michiel Lensink, business development director with s::can, talked about the i::scan technology and its applications in an interview with *Water System Operator.*

WSO: What was the rationale for developing this technology?

Lensink: s::can was the first company to use spectrometers for online measurement, and we have sold thousands of those systems. Our original spectrometer is a complete spectrum system, and we saw many applications that didn't need that level of sensitivity. We were looking for a very low-cost solution that would open new possibilities.

WSO: What makes this technology especially useful for water utilities?

Lensink: In particular, drinking water utilities in smaller communities found it difficult to measure more than just turbidity and sometimes UV 254. To measure finished water quality, you need a TOC measurement, and the products available for doing that were expensive and quite complicated, often requiring large cabinets. i::scan makes it possible to analyze cost-effectively for TOC and a number of other parameters with one sensor.

In addition, we can combine the i::scan probe in what we call a nano::station with pH, chlorine and conductivity sensors in a very compact footprint, less than one-tenth the size of a traditional station and at a fraction of the cost.

WSO: In basic terms how does this probe work?

Lensink: It uses LED light sources and two CCD measuring devices, one 180 degrees from the light source and one at 90 degrees. It measures the scattering of the light for turbidity, and it measures light absorption in the water. A number of proprietary algorithms use the measured absorption to calculate all the different parameters.

The LEDs last a very long time and consume very little energy — on the order of one watt. That means the probes can be easily powered by solar panels and used in small unmanned monitoring stations.

WSO: Can this technology be used in the distribution system as well as in the treatment plant?

Lensink: Yes. To cite one example, a regional water company in the Netherlands serving about one million people plans to install about 30 of these probes to monitor the quality of water as it travels through the distribution piping. Another application is for event detection in the distribution system. The probes can be installed at remote monitoring stations and programmed to detect adverse events and send alarms.

WSO: What is required to use this device in a monitoring system?

Lensink: The device is self-contained. As a light-source-based device, it requires no reagents or other consumables. It plugs into a small data acquisition terminal, which connects to the SCADA system. We offer a very simple terminal that collects the data and sends it through, and a more advanced terminal that can be used for event detection.

WSO: How durable is this probe?

Lensink: The housing is made from PEEK [polyetheretherketone], an

"Our original spectrometer is a complete spectrum system, and we saw many applications that didn't need that level of sensitivity. We were looking for a very low-cost solution that would open new possibilities."

MICHIEL LENSINK

advanced polymer that withstands high temperatures and all chemicals. It has sapphire windows, which are also extremely durable.

WSO: How might this technology be deployed in a treatment plant setting?

Lensink: The possibilities are quite broad. Some utilities may want to measure at certain points in the process. It is used often at the water intake to measure the quality of water coming into the system.

It can also be used to control the use of coagulants. Often, treatment plants analyze a grab sample of water and then set the coagulant feed control based only on the flow of water. But the water quality — the TOC level, for instance — varies over time. So if you can measure TOC online before coagulant dosing, you can automatically adjust the coagulant dose to the TOC value of the incoming water. That saves money because you don't overdose coagulant, and you also ensure quality because you don't underdose. WSO

COOL IN CRISES

In dealing with system issues and facing down major storms, Robert Longo shows quiet confidence while building an award-winning career in Bristol, Conn.

STORY: **JACK POWELL**
PHOTOGRAPHY: **JOHN MARINELLI**

When Ernest Hemingway defined courage as "grace under pressure," he might have been talking about Robert "Rob" Longo, superintendent of the Bristol (Conn.) Water Department, who has stood up to Mother Nature's wrath to keep clean water flowing to his city's 62,000 residents.

Tropical storms, freak blizzards, torrential rain and tornados have marked Longo's four-year tenure as superintendent. In that time, he and his team have averted catastrophe and worked side by side with the mayor, water commissioners and state Department of Public Health (DPH) to identify problems and fix them with minimum disruption.

In 2013, Longo's cool head and confident leadership earned him the Certified Operator Public Health Drinking Water Merit Award from the DPH. The award recognizes an operator for exceptional work practices and contributions to the health and safety of drinking water. It was the first time the award has been presented since 2008 — a highlight for Longo, a Connecticut native who has spent 20 years in water business.

The right moves

After graduating from Eastern Connecticut State University with a bachelor's degree in environmental sciences, Longo worked for Valley Water Systems, a private utility, starting as a water meter reader and construction operator, becoming a true jack-of-all-trades, and learning the business. He also earned certifications as a Class 2 Water Treatment Operator, Class 3 Distribution System Operator, Cross-Connection Inspector and Backflow Tester.

"I worked my way up through the utility to construction manager and then went to work for the parent company as vice president of contract operations," Longo says. "Coming to Bristol in 2006 was a good career move, gaining expertise and working my way up the ladder. Besides, I was doing a lot of traveling in contract operations, all over New England. Having a family, I wanted to do less of that and get more involved in the water industry, managing large projects."

Robert J. Longo, Bristol, Conn.

POSITION: | **Water Department Superintendent**
EXPERIENCE: | **20 years in water industry**
EDUCATION: | **Bachelor's degree, environmental science, Eastern Connecticut State University**
CERTIFICATIONS: | **Class 2 Water Treatment Operator, Class 3 Distribution System Operator, Cross-Connection Inspector, Backflow Tester**
GOALS: | **Remain with City of Bristol and continue to make system improvements**
WEBSITE: | **www.bristolwaterdept.org**

Before taking his current position, Longo served three years as assistant superintendent of the department's distribution system. Today, he supervises the entire Water Department, comprising 36 employees, and oversees water treatment, distribution, management of 5,000 acres of watershed property and office administration.

He's responsible for Bristol's 12 mgd surface water treatment plant, which draws from six reservoirs and uses a conventional coagulation, flocculation and sedimentation process. The 21-year-old facility has under-

"I was doing a lot of traveling in contract operations, all over New England. Having a family, I wanted to do less of that and get more involved in the water industry, managing large projects."
ROB LONGO

Rob Longo records system pressures at the department's Witches Rock Pump Station.

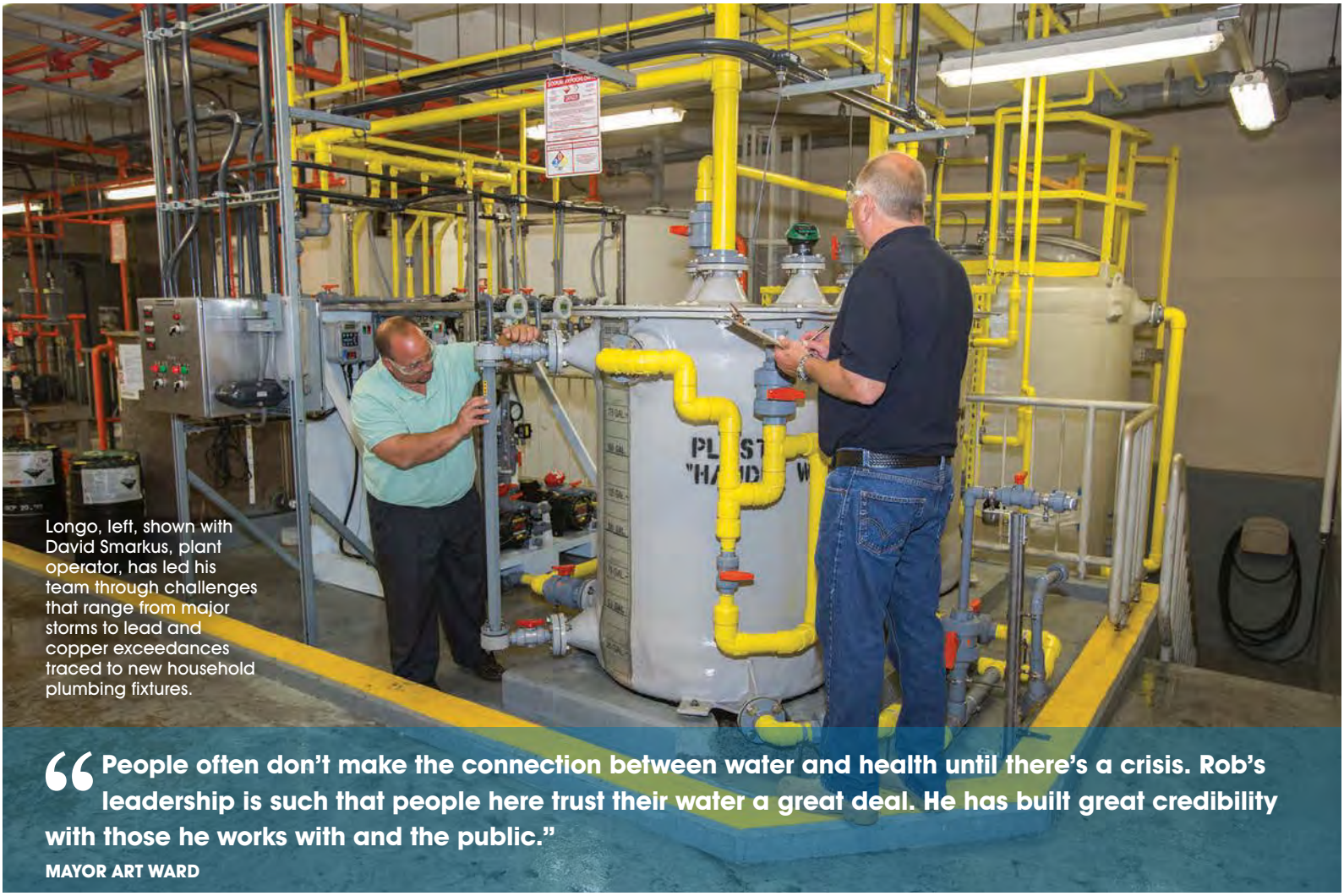
QUALITY LEADERS OPERATOR

gone minimal upgrades, except for a new Wonderware SCADA system (Invensys) five years ago and a switch last year from chlorine gas to sodium hypochlorite disinfection. As a medium-sized system with 18,000 service connections (ESPN as its most famous customer), the department has had its share of challenges, some typical and others nearly disastrous.

Crises abound

"In 2008 we had a lead and copper exceedance issue," says Longo. "We determined it was coming from new household plumbing as the result of a spike in kitchen and bathroom remodeling in 2006 and 2007. We went in and did repeat samples in all of the locations and determined that the lead wasn't coming from the water main or water service or even the internal plumbing, but from the recently installed fixtures. We tested other faucets in each house and found no lead present in the samples. Since those fixtures were replaced, we haven't had any similar incidents and have stayed within state and federal guidelines."

Storms are a different story — like Tropical Storm Irene, which crashed through the Northeast in August 2011. The result: a washout that left a gaping hole 80 feet wide, 100 feet deep and 400 feet long on Farrell Avenue, leaving of one of Bristol's main water transmission lines exposed and in danger of collapsing. The 1950s cast-iron pipe hung across the expanse, its valves so old it couldn't be shut down.



Longo, left, shown with David Smarkus, plant operator, has led his team through challenges that range from major storms to lead and copper exceedances traced to new household plumbing fixtures.

"People often don't make the connection between water and health until there's a crisis. Rob's leadership is such that people here trust their water a great deal. He has built great credibility with those he works with and the public."

MAYOR ART WARD

Bristol Water Department team members include, front row, from left, Kendell Rivera, Rob Longo, Lance Chase, Kirk Ducharme and Paul Keegan; back row, Steve Jabs, Donald Handrinos, David Smarkus, Frank Owsianko, Paul Moore, Chris McCarthy and Chris Murphy.

"If that line had let go, it would have washed all of the water out of our plant, something like 2.5 million gallons, down into the center of Bristol," says Mayor Art Ward, who called his two terms "a stormy administration" and praised Longo for his unflappability. "Someone must have been watching over us because everything held sturdy. We were on pins and needles, to say the least. Rob handled everything calmly and efficiently, like he always does, making sure things got done the right way."

While grateful for the praise, Longo is quick to credit his employees and contractors for helping to avert disaster, citing their dedication and willingness to work around the clock to keep the area safe and the water flowing: "It was a total team effort. Our crews worked straight through, about 80 hours. They installed two insertion valves to shut the line down and put in a bypass line to supply a minimum amount of water. They made all the difference."

Scary storm

A similar commitment paid off big when Winter Storm Alfred slammed Bristol on Halloween 2011, knocking out power to all major facilities in the city for six to 10 days. During that time, a tree fell on a bypass line that Longo's crews had installed on Farrell Avenue as a temporary water supply, and ruptured it. That raised two challenges: maintaining water levels within the distribution system without the feed and determining the best way to reconstruct the road around it.

Longo and his team worked with some of the 45 engineers from the Department of Public Health responsible for maintaining water quality to come up with a reconstruction plan. All the while, they continuously operated pressure-regulating valves, wells and surface water facilities to maintain adequate water levels. In July 2012, they got the road and water main back in service. Later that year, Super Storm Sandy came through and caused power outages at Bristol's water plant, requiring backup generator power for 10 days.

Longo describes overcoming such obstacles as a team effort involving the Water Department, the DPH, the city, other utilities and associations such as the Connecticut Section of AWWA. Yet Lori Mathieu, DPH

drinking water section chief, cites Longo's penchant for coordination as a big factor.

"I've worked with Rob as long as he's been water superintendent," says Mathieu, a 25-year DPH veteran. "He has reached out to us and fostered a strong relationship, and he has worked really hard to make sure drinking water requirements are addressed properly. He's very proactive when it comes to resolving issues or making system improvements. For us, that's a tremendous help."

Public health link

Forging such a partnership means recognizing the vital link between water and public health, according to Mathieu. Water facilities often are considered just another utility, like cable, phone or electricity, but water is the only one that people consume and that can affect health directly. Ensuring delivery of a quality product is a significant job in which a lead operator or superintendent plays a major role that often goes unrecognized.

Connecticut has more than 2,200 certified water operators and more than 2,500 public water systems, of which Bristol is one of the largest. The city's homes, businesses and industries rely on high-quality water. When problems occur, they raise major concerns.

"People often don't make the connection between water and health until there's a crisis; otherwise they take it for granted," says Ward. "When issues come up, such as a water main break or *E. coli* outbreak, then water gets attention and everyone wants to know who's responsible for ensuring it's safe 24/7.

"Rob's leadership is such that people here trust their water a great deal. He's very good at keeping everyone informed, providing public notices about hydrant flushing or saying when there might be a disruption. He has built great credibility with those he works with and the public."

Self-effacing Longo thanks the DPH and Ward for their cooperation. DPH personnel support Water Department improvement initiatives and have conducted training sessions for DPH staff at Bristol Water Department facilities. Likewise, Ward has been a strong advocate, working closely with Longo and his staff to ensure the safety of the water system and authorizing a $7 million operating budget to maintain strong performance and excellent customer service.

Communication is key

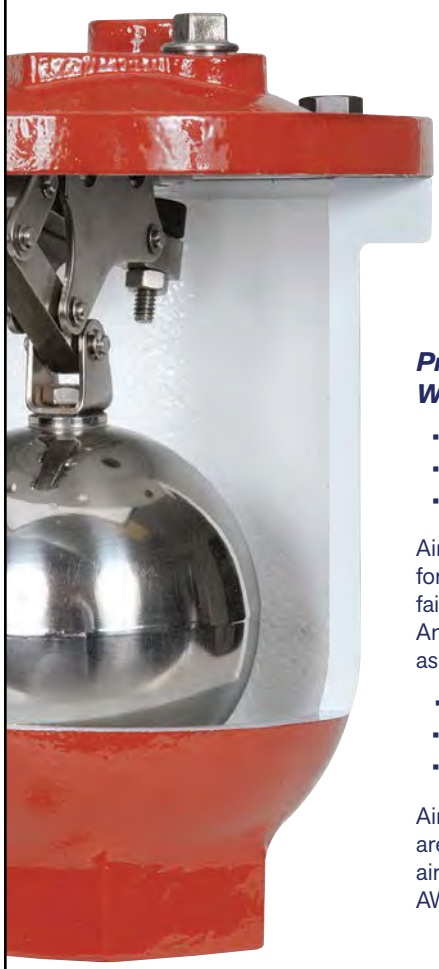
Supporters such as Mathieu and Ward are testament to Longo's inclusive management style, which features open communications with regulators, city officials, staff members and customers. For example, he regularly takes the five-member Board of Water Commissioners to water main breaks or to observe system repairs, believing it's good for staff morale to see commissioners in the field. When the washout occurred during Tropical Storm Irene, the mayor, water commissioners and DPH staff were with Longo and his crews in the dark assessing the situation.

Internally, Longo makes sure his office personnel get to observe water meter changes or service connections firsthand so they understand how the department interacts with the public. And, when new employees are hired, Longo personally gives them a tour of all the facilities and explains what they do. That makes newcomers feel part of the team.

On a typical day, Longo arrives at 6:30 a.m., meets with Michael Lynch, assistant superintendent of construction, and Joseph Pagliaruli, assistant superintendent of metering and cross connections, and then with Glenn Guerriero, chief treatment plant operator. After that, he reviews plans for the day and meets with Joyce DeFelippi, office manager. Later, he meets with regulators and city officials. At times, he gets together with city attorneys and, if he's lucky, gets outside to inspect facilities.

Progress brings opportunities

Longo is pleased with the progress he has made over the past four



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A PLAQUE WAS NOT ENOUGH

When the Connecticut Department of Public Health (DPH) chose Rob Longo to receive the Certified Operator Public Health Drinking Water Merit Award, representatives thought they would go to his office in Bristol, hand him a plaque and leave.

Mayor Art Ward had other ideas. To present the award, for leadership in responding to emergencies, system rehabilitation and improvements, and resolving elevated lead levels at customer taps, Ward wanted more public recognition for Longo, Water Department superintendent.

The result was a May 2013 ceremony at the Bristol Water Treatment Plant, attended by family, friends, colleagues and city and state officials.

"When you look at all the water facilities in the state and have your superintendent singled out by the Department of Public Health for his dedication and hard work, it needs to be recognized by the entire community," Ward says.

"We tried to make the ceremony convenient for the water commissioners so they could attend, as well as city employees and department members, to congratulate Rob on winning this prestigious award."

Ward brought along state representatives, state senators and other dignitaries. As Longo's mother, father, wife and two children looked on, State Representatives Whit Betts and Frank Nicastro presented him with an official citation on behalf of the Connecticut General Assembly and applauded him for protecting public health by assuring the quality and adequacy of the public water system.

"Robert Longo is a hard-working man, who truly has the safety and well-being of the public at heart," said Betts. "He has performed exceptionally well in his role as superintendent."

Nicastro added, "I applaud Robert Longo for his years of service and dedication to Bristol's high water-quality standards."

As usual, Longo took it all in stride, seeing the award as a team victory: "I said, 'Why me? I'm doing my job and my staff is doing their job.' It may be my name on the plaque, but it truly is our department, with the mayor's support, that has done the work and got us where we are today."

years. One of his team's projects is scanning and digitizing maps, several dating back to the 1800s, and putting them on tablet computers used by field personnel. That was a 2 1/2-year effort. Another involved setting up an in-house geographic information system while working with the city to get a full-fledged version.

It's all in a day's work for Longo, who lives in Newington with his wife Romana, 10-year-old son RJ and 6-year-old daughter Isabella. On an industry level, Longo is a member of the Board of Directors for the AWWA Connecticut Section (CTAWWA) and cochair of its education committee. He's also involved with the Atlantic States Rural Water and Wastewater Association. In his spare time, he's a fly fisherman and youth football coach.

Despite the challenges, Longo has no intention of leaving Bristol and remains committed to the city and its residents: "Being a municipality, people sometimes think we work for the city, but we're a little different. We're a utility and our customers come first and foremost. When there's no water for the customers, we can't leave a job site and say we'll come back tomorrow. We do what it takes to serve the public." wso

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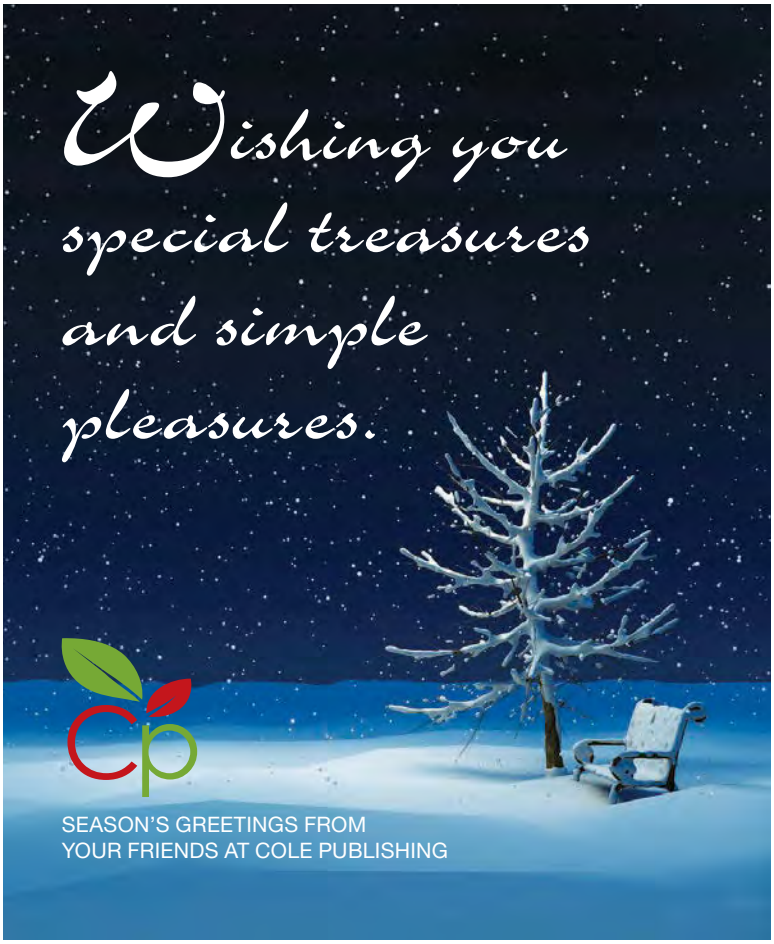

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630-898-6900 • Fax: 630-898-1647
phaizman@amwell-inc.com
www.amwell-inc.com

Bionetix International
Ste-Anne-de-Bellevue, QC
Canada
514-457-2914 • Fax: 514-457-3589
info@bionetix.ca
www.bionetix.ca

Fibergrate Composite Structures Inc.
Dallas, TX
800-527-4043 • 972-250-1633 • Fax: 972-250-1530
info@fibergrate.com
www.fibergrate.com

Hawk Measurement America
Middleton, MA
888-429-5538 • 978-304-3000 • Fax: 978-304-1462
info@hawkmeasure.com
www.hawkmeasure.com

Infilco Degremont Inc.
Richmond, VA
800-446-1151 • 804-756-7600 • Fax: 804-756-7643
info-infilco@degremont.com
www.degremont-technologies.com
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Coagulants/Flocculants

BASF Corporation - Water Solutions Division
Florham Park, NJ
800-322-3885 • Fax: 800-903-0038
gary.day@basf.com
www.watersolutions.basf.com

Bionetix International
Ste-Anne-de-Bellevue, QC
Canada
514-457-2914 • Fax: 514-457-3589
info@bionetix.ca
www.bionetix.ca

Hawkins, Inc.
Roseville, MN
800-328-5460 • 612-331-6910 • Fax: 612-331-5304
customer.service@hawkinsinc.com
www.hawkinsinc.com

Kemira
Lawrence, KS
800-879-6353 • 785-842-7424 • Fax: 785-842-2629
us.info@kemira.com
www.kemira.com

Coatings/Linings

American Fiberglass Tank Repair
Plymouth, NH
877-427-0090 • Fax: 603-947-9500
info@americanfiberglasstank.com
www.americanfiberglasstank.com
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Cortec Corporation
St. Paul, MN
800-426-7832 • 651-429-1100 • Fax: 651-429-1122
productinfo@cortecvci.com
www.cortecvci.com

Metrohm USA, Inc.
Riverview, FL
866-638-7646 • 813-316-4700 • Fax: 813-316-4900
info@metrohmusa.com
www.metrohmusa.com

Communications - Wireless

Data Flow Systems
Melbourne, FL
321-259-5009 • Fax: 321-259-4006
tomh@dataflowsys.com
www.dataflowsys.com

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Cambridge, MA
888-694-3230 • Fax: 888-469-5402
sales@s-can.us
www.s-can.us
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Weidmuller
Richmond, VA
800-849-9343 • Fax: 804-379-2593
info@weidmuller.com
www.weidmuller.com

Compressors

FPZ, Inc.
Saukville, WI
262-268-0180 • Fax: 262-268-0415
usa@fpz.com
www.fpz.com

Sulzer Pumps / ABS USA
Meriden, CT
800-525-7790 • 203-238-2700 • Fax: 203-238-0738
info.abs.usa@sulzer.com
www.sulzer.com

Consulting/Engineering/ Design Services

Adedge Water Technologies, LLC
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866-823-3343 • 678-835-0052 • Fax: 678-835-0057
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Burkert Fluid Control Systems
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HEMCO Corporation
Independence, MO
800-779-4362 • 816-796-2900 • Fax: 816-796-3333
info@hemcocorp.com
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PRD Tech, Inc.
Cincinnati, OH
513-673-3583 • Fax: 513-984-5710
prdbiofilter@aol.com
www.prdtechinc.com

Tank Connection Affiliate Group
Parsons, KS
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sales@tankconnection.com
www.tankconnection.com
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www.flygtus.com
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Revere Control Systems
Birmingham, AL
800-536-2525 • 205-824-0004 • Fax: 205-824-0439
revere@reverecontrol.com
www.reverecontrol.com

Controllers

Burkert Fluid Control Systems
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800-325-1405 • 704-504-4440
marketing-usa@burkert.com
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Flygt - a Xylem Brand
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704-409-9700 • Fax: 704-295-9080
www.flygtus.com
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Gorman-Rupp Company
Mansfield, OH
419-755-1011 • Fax: 419-755-1251
grsales@gormanrupp.com
www.GRpumps.com

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800-227-4224 • 970-669-3050 • Fax: 970-669-2932
kkeefe@hach.com
www.hach.com
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Harwil Corporation
Oxnard, CA
800-562-2447 • 805-988-6800 • Fax: 805-988-6804
sales@harwil.com
www.harwil.com

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800-693-4295 • 215-441-0800 • Fax: 215-441-8620
info@miltonroy.com
www.miltonroy-americas.com

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800-536-2525 • 205-824-0004 • Fax: 205-824-0439
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Sanitaire - a Xylem Brand
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414-365-2200
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800-927-5292 • 847-887-7000 • Fax: 847-887-7310
marcom@yaskawa.com
www.yaskawa.com
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Fibergrate Composite Structures Inc.
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800-527-4043 • 972-250-1633 • Fax: 972-250-1530
info@fibergrate.com
www.fibergrate.com

Fluid Metering, Inc.
Syosset, NY
800-223-3388 • 516-922-6050 • Fax: 516-624-8261
pumps@fmipump.com
www.fmipump.com

Covers/Domes

EJ
East Jordan, MI
800-626-4653 • 231-536-2261 • Fax: 231-536-4458
us.sales@ejco.com
www.ejco.com

GTI
Geomembrane Technologies Inc.

Geomembrane Technologies Inc. (GTI)
Fredericton, NB
Canada
506-452-7304
covers@gticovers.com
www.gticovers.com

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sales@tankconnection.com
www.tankconnection.com
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info@pollardwater.com
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Data Acquisition Systems

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321-259-5009 • Fax: 321-259-4006
tomh@dataflowsys.com
www.dataflowsys.com

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sales@s-can.us
www.s-can.us
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Data Loggers/ Management

Hach Company
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800-227-4224 • 970-669-3050 • Fax: 970-669-2932
kkeefe@hach.com
www.hach.com
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Keller America Inc.
Newport News, VA
877-253-5537 • 757-596-6680 • Fax: 757-596-6659
sales@kelleramerica.com
www.kelleramerica.com
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888-694-3230 • Fax: 888-469-5402
sales@s-can.us
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Scantek, Inc.
Columbia, MD
800-224-3813 • 410-290-7726 • Fax: 410-290-9167
info@scantekinc.com
www.scantekinc.com

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BASF Corporation - Water Solutions Division
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800-322-3885 • Fax: 800-903-0038
gary.day@basf.com
www.watersolutions.basf.com

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info@americanfiberglasstank.com
www.americanfiberglasstank.com
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888-357-3181 • 260-357-3181 • Fax: 260-357-3738
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800-798-4029 • 781-444-2929 • Fax: 781-444-9229
info@inusacorp.com
www.inusacorp.com

Pollardwater.com

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Detection Equipment

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info@eaglemicrosystems.com
www.eaglemicrosystems.com

Harwil Corporation
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800-562-2447 • 805-988-6800 • Fax: 805-988-6804
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www.harwil.com

Scantek, Inc.
Columbia, MD
800-224-3813 • 410-290-7726 • Fax: 410-290-9167
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www.scantekinc.com

Dewatering

Carylon Corporation
Chicago, IL
800-621-4342 • 312-666-7700 • Fax: 312-666-5810
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www.caryloncorp.com

Gorman-Rupp Company
Mansfield, OH
419-755-1011 • Fax: 419-755-1251
grsales@gormanrupp.com
www.GRpumps.com

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www.alfalaval.us/wastewater

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Chanhassen, MN
612-435-7300 • Fax: 612-435-7301
america@boerger.com
www.boerger.com

Gorman-Rupp Company
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grsales@gormanrupp.com
www.GRpumps.com

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Richmond, VA
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Sulzer Pumps / ABS USA
Meriden, CT
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info.abs.usa@sulzer.com
www.sulzer.com

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jackschwalbach@charter.net
www.separmaticsystems.com
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866-253-2528 • Fax: 804-236-1858
customerservice.usa@alfalaval.com
www.alfalaval.us/wastewater

Mazzei Injector Company, LLC
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661-363-6500 • Fax: 661-363-7500
info@mazzei.net
www.mazzei.net

Pollardwater.com

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800-437-1146 • 516-746-0842 • Fax: 516-746-0852
info@pollardwater.com
www.pollardwater.com
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PROCO PRODUCTS, INC.

Proco Products, Inc.
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800-344-3246 • 209-943-6088 • Fax: 209-943-0242
sales@procoproducts.com
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Sanitaire - a Xylem Brand
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414-365-2200
www.sanitaire.com/us
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Disinfection Equipment/Systems

Eagle Microsystems
Pottstown, PA
800-780-8636 • 610-323-2250 • Fax: 610-323-0114
info@eaglemicrosystems.com
www.eaglemicrosystems.com

Hach Company
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800-227-4224 • 970-669-3050 • Fax: 970-669-2932
kkeefe@hach.com
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HAWKINS

Hawkins, Inc.
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800-328-5460 • 612-331-6910 • Fax: 612-331-5304
customer.service@hawkinsinc.com
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IN USA, Inc.
Norwood, MA
800-798-4029 • 781-444-2929 • Fax: 781-444-9229
info@inusacorp.com
www.inusacorp.com

Infilco Degremont Inc.
Richmond, VA
800-446-1151 • 804-756-7600 • Fax: 804-756-7643
info-infilco@degremont.com
www.degremont-technologies.com
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Mazzei Injector Company, LLC
Bakersfield, CA
661-363-6500 • Fax: 661-363-7500
info@mazzei.net
www.mazzei.net

Pollardwater.com
New Hyde Park, NY
800-437-1146 • 516-746-0842 • Fax: 516-746-0852
info@pollardwater.com
www.pollardwater.com
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ProMinent Fluid Controls, Inc.
Pittsburgh, PA
412-787-2484 • Fax: 412-787-0704
sales@prominent.us
www.prominent.us

Scienco/FAST - A div. of Bio-Microbics, Inc.
Sunset Hills, MO
866-652-4539 • 314-756-9300 • Fax: 314-756-9306
solutions@sciencofast.com
www.sciencofast.com

UV Pure Technologies, Inc.
Toronto, ON
Canada
888-407-9997 • 416-208-9884 • Fax: 416-208-5808
info@uvpure.com
www.uvpure.com

WEDECO - a Xylem Brand
Charlotte, NC
704-409-9700 • Fax: 704-295-9080
www.wedeco.com/us
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Distillation/Fluoridation Equipment

Eagle Microsystems
Pottstown, PA
800-780-8636 • 610-323-2250 • Fax: 610-323-0114
info@eaglemicrosystems.com
www.eaglemicrosystems.com

Doors/Hatches

EJ
East Jordan, MI
800-626-4653 • 231-536-2261 • Fax: 231-536-4458
us.sales@ejco.com
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Flygt - a Xylem Brand
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704-409-9700 • Fax: 704-295-9080
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revere@reverecontrol.com
www.reverecontrol.com

YASKAWA

Yaskawa America, Inc.
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marcom@yaskawa.com
www.yaskawa.com
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Education/Training

Hach Company
Loveland, CO
800-227-4224 • 970-669-3050 • Fax: 970-669-2932
kkeefe@hach.com
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Thermal Edge Inc.™
TEMPERATURE CONTROL SOLUTIONS FOR ELECTRICAL ENCLOSURES

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800-849-9343 • Fax: 804-379-2593
info@weidmuller.com
www.weidmuller.com

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info@hemcocorp.com
www.hemcocorp.com

METTLER TOLEDO
Columbus, OH
800-638-8537 • 614-438-4511
labinsidesales@mt.com
www.mt.com

Thermal Edge, Inc.
Irving, TX
888-580-0202 • 972-580-0200 • Fax: 972-580-0277
thermalinfo@thermal-edge.com
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Weidmüller

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info@anua-us.com
www.anua-us.com
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Carbonair Environmental Systems, Inc.
Roseville, MN
800-526-4999 • 651-202-2950 • Fax: 651-202-2985
sales@carbonair.com
www.carbonair.com
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CEI - Carbon Enterprises Inc.
Circleville, OH
800-344-5770 • Fax: 888-204-9656
info@ceicompanies.com
www.ceifiltration.com

Hayward Flow Control
Clemmons, NC
888-429-4635 • 336-712-9900 • Fax: 888-778-8410
hflow@haywardnet.com
www.haywardflowcontrol.com

Jacobi Carbons, Inc.
Columbus, OH
215-546-3900 • Fax: 215-546-9921
infous@jacobi.net
www.jacobi.net

Filters

Carbonair Environmental Systems, Inc.
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800-526-4999 • 651-202-2950 • Fax: 651-202-2985
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www.carbonair.com
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HEMCO Corporation
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Separmatic LLC
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414-466-5200 • Fax: 414-466-5258
jackschwalbach@charter.net
www.separmaticsystems.com
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Alfa Laval
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866-253-2528 • Fax: 804-236-1858
customerservice.usa@alfalaval.com
www.alfalaval.us/wastewater

CalgonCarbon

Calgon Carbon Corporation
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800-422-7266 • 412-787-6700 • Fax: 412-787-6676
info@calgoncarbon-us.com
www.calgoncarbon.com

Carbonair Environmental Systems, Inc.
Roseville, MN
800-526-4999 • 651-202-2950 • Fax: 651-202-2985
sales@carbonair.com
www.carbonair.com
Ad on page 35

CEI - Carbon Enterprises Inc.
Circleville, OH
800-344-5770 • Fax: 888-204-9656
info@ceicompanies.com
www.ceifiltration.com

Hayward Flow Control
Clemmons, NC
888-429-4635 • 336-712-9900 • Fax: 888-778-8410
hflow@haywardnet.com
www.haywardflowcontrol.com

Infilco Degremont Inc.
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info-infilco@degremont.com
www.degremont-technologies.com
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Jacobi Carbons, Inc.
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215-546-3900 • Fax: 215-546-9921
infous@jacobi.net
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Scienco/FAST -
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866-652-4539 • 314-756-9300 • Fax: 314-756-9306
solutions@sciencofast.com
www.sciencofast.com

Separmatic LLC
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414-466-5200 • Fax: 414-466-5258
jackschwalbach@charter.net
www.separmaticsystems.com
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Flocculators

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Aurora, IL
630-898-6900 • Fax: 630-898-1647
phaizman@amwell-inc.com
www.amwell-inc.com

Flow Control/Monitoring

Blue-White Industries
Huntington Beach, CA
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sales@blue-white.com
www.blue-white.com
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Burkert Fluid Control Systems
Charlotte, NC
800-325-1405 • 704-504-4440
marketing-usa@burkert.com
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Carylon Corporation
Chicago, IL
800-621-4342 • 312-666-7700 • Fax: 312-666-5810
info@caryloncorp.com
www.caryloncorp.com

Endress+Hauser

Endress+Hauser
Greenwood, IN
888-363-7377 • 317-535-7138 • Fax: 317-535-8498
info@us.endress.com
www.us.endress.com

FCI - Fluid Components International
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800-854-1993 • 760-744-6950 • Fax: 760-736-6250
eflow@fluidcomponents.com
www.FluidComponents.com

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800-562-2447 • 805-988-6800 • Fax: 805-988-6804
sales@harwil.com
www.harwil.com

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info@krohne.com
http://us.krohne.com

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800-693-4295 • 215-441-0800 • Fax: 215-441-8620
info@miltonroy.com
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Revere Control Systems
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Flowmeters

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sales@blue-white.com
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800-325-1405 • 704-504-4440
marketing-usa@burkert.com
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Greenwood, IN
888-363-7377 • 317-535-7138 • Fax: 317-535-8498
info@us.endress.com
www.us.endress.com

FCI - Fluid Components International
San Marcos, CA
800-854-1993 • 760-744-6950 • Fax: 760-736-6250
eflow@fluidcomponents.com
www.FluidComponents.com

KROHNE, Inc.
Peabody, MA
800-356-9464 • 978-535-6060 • Fax: 978-535-1720
info@krohne.com
http://us.krohne.com

Pollardwater.com

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Gates/Weirs/Flumes/Booms/Baffles

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info@mazzei.net
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PRD Tech, Inc.
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513-673-3583 • Fax: 513-984-5710
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Proco Products, Inc.
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800-344-3246 • 209-943-6088 • Fax: 209-943-0242
sales@procoproducts.com
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Solvay Chemicals, Inc.
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ProMinent Fluid Controls, Inc.
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molly.bragg@flowrox.com
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www.asaanalytics.com/wso_landing.htm

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marketing-usa@burkert.com
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www.s-can.us
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Service Company

American Fiberglass Tank Repair
Plymouth, NH
877-427-0090 • Fax: 603-947-9500
info@americanfiberglasstank.com
www.americanfiberglasstank.com
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Carylon Corporation
Chicago, IL
800-621-4342 • 312-666-7700 • Fax: 312-666-5810
info@caryloncorp.com
www.caryloncorp.com

CEI - Carbon Enterprises Inc.
Circleville, OH
800-344-5770 • Fax: 888-204-9656
info@ceicompanies.com
www.ceifiltration.com

HACH

Hach Company
Loveland, CO
800-227-4224 • 970-669-3050 • Fax: 970-669-2932
kkeefe@hach.com
www.hach.com
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Sewer/Drain Cleaning

Carylon Corporation
Chicago, IL
800-621-4342 • 312-666-7700 • Fax: 312-666-5810
info@caryloncorp.com
www.caryloncorp.com

Sludge - Hauling/Disposal

Boerger, LLC
Chanhassen, MN
612-435-7300 • Fax: 612-435-7301
america@boerger.com
www.boerger.com

Carylon Corporation
Chicago, IL
800-621-4342 • 312-666-7700 • Fax: 312-666-5810
info@caryloncorp.com
www.caryloncorp.com

Software - Operations/Maintenance

Data Flow Systems
Melbourne, FL
321-259-5009 • Fax: 321-259-4006
tomh@dataflowsys.com
www.dataflowsys.com

Software - Process Control/Regulatory

Hach Company
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800-227-4224 • 970-669-3050 • Fax: 970-669-2932
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METTLER TOLEDO
Columbus, OH
800-638-8537 • 614-438-4511
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www.mt.com

Static Control

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800-638-8537 • 614-438-4511
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Tanks - Chemical Storage

American Fiberglass Tank Repair
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Assmann Corporation of America
Garrett, IN
888-357-3181 • 260-357-3181 • Fax: 260-357-3738
info@assmann-usa.com
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HAWKINS

Hawkins, Inc.
Roseville, MN
800-328-5460 • 612-331-6910 • Fax: 612-331-5304
customer.service@hawkinsinc.com
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Milton Roy, LLC
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sales@tankconnection.com
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USA Tank
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stevec@usatanksales.com
www.usatanksales.com

Tanks - Cleaning/Inspection/Repair

Alfa Laval
Richmond, VA
866-253-2528 • Fax: 804-236-1858
customerservice.usa@alfalaval.com
www.alfalaval.us/wastewater

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USA Tank
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www.usatanksales.com

Tanks - Coatings/Linings

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Cortec Corporation
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800-426-7832 • 651-429-1100 • Fax: 651-429-1122
productinfo@cortecvci.com
www.cortecvci.com

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Tanks - Fiberglass

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Tanks - Steel

Scienco/FAST -
A div. of Bio-Microbics, Inc.
Sunset Hills, MO
866-652-4539 • 314-756-9300 • Fax: 314-756-9306
solutions@sciencofast.com
www.sciencofast.com

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Parsons, KS
620-423-3010 • Fax: 620-423-3999
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USA Tank
Goodman, MO
866-700-2500 • Fax: 417-845-5592
stevec@usatanksales.com
www.usatanksales.com

Tanks - Storage

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866-700-2500 • Fax: 417-845-5592
stevec@usatanksales.com
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Telemetry

Data Flow Systems
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www.dataflowsys.com

Revere Control Systems
Birmingham, AL
800-536-2525 • 205-824-0004 • Fax: 205-824-0439
revere@reverecontrol.com
www.reverecontrol.com

Weidmuller
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800-849-9343 • Fax: 804-379-2593
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Endress+Hauser
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KROHNE, Inc.
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info@krohne.com
http://us.krohne.com

Spire Metering Technology LLC
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888-738-0188 • 978-263-7100 • Fax: 978-418-9170
john.shen@spiremt.com
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customerservice.usa@alfalaval.com
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Calgon Carbon Corporation
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info@calgoncarbon-us.com
www.calgoncarbon.com

ProMinent Fluid Controls, Inc.
Pittsburgh, PA
412-787-2484 • Fax: 412-787-0704
sales@prominent.us
www.prominent.us

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sales@s-can.us
www.s-can.us
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Sentry UV, Inc.
Norcross, GA
866-226-0820 • 706-379-2670
royu@sentryuv.com
www.sentryuv.com

UV Pure Technologies, Inc.
Toronto, ON
Canada
888-407-9997 • 416-208-9884 • Fax: 416-208-5808
info@uvpure.com
www.uvpure.com

WEDECO - a Xylem Brand
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Valves - Actuators/Controls

Flomatic Valves
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flomatic@flomatic.com
www.flomatic.com

Hayward Flow Control
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888-429-4635 • 336-712-9900 • Fax: 888-778-8410
hflow@haywardnet.com
www.haywardflowcontrol.com

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877-436-7977 • 630-844-4000 • Fax: 630-844-4160
marketinginfo@henrypratt.com
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Val-Matic Valve & Mfg. Corp.
Elmhurst, IL
630-941-7600 • Fax: 630-941-8042
valves@valmatic.com
www.valmatic.com

Valves - Air Relief

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800-833-2040 • 518-761-9797 • Fax: 518-761-9798
flomatic@flomatic.com
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hflow@haywardnet.com
www.haywardflowcontrol.com

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Valves - Backflow Prevention/ Check/Float

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flomatic@flomatic.com
www.flomatic.com

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molly.bragg@flowrox.com
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800-344-3246 • 209-943-6088 • Fax: 209-943-0242
sales@procoproducts.com
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888-764-7858 • 604-594-5404 • Fax: 604-594-8845
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www.singervalve.com
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valves@valmatic.com
www.valmatic.com

Valves - Ball/Butterfly

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800-833-2040 • 518-761-9797 • Fax: 518-761-9798
flomatic@flomatic.com
www.flomatic.com

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hflow@haywardnet.com
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valves@valmatic.com
www.valmatic.com

Valves - Pinch

Flowrox Inc.
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410-636-2250 • Fax: 410-636-9062
molly.bragg@flowrox.com
www.flowrox.com

Valves - Pressure Regulating/ Solenoid

AMWELL, A Div. of McNish Corp.
Aurora, IL
630-898-6900 • Fax: 630-898-1647
phaizman@amwell-inc.com
www.amwell-inc.com

Burkert Fluid Control Systems
Charlotte, NC
800-325-1405 • 704-504-4440
marketing-usa@burkert.com
www.burkert-usa.com

Flomatic Valves
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800-833-2040 • 518-761-9797 • Fax: 518-761-9798
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Valves - Telescoping/Gate

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info@mazzei.net
www.mazzei.net

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prdbiofilter@aol.com
www.prdtechinc.com

Scienco/FAST - A div. of Bio-Microbics, Inc.
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866-652-4539 • 314-756-9300 • Fax: 314-756-9306
solutions@sciencofast.com
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414-466-5200 • Fax: 414-466-5258
jackschwalbach@charter.net
www.separmaticsystems.com
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Canada
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info@uvpure.com
www.uvpure.com

Water Towers

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stevec@usatanksales.com
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Water Treatment

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Buford, GA
866-823-3343 • 678-835-0052 • Fax: 678-835-0057
sales@adedgetechnologies.com
www.adedgetechnologies.com

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Florham Park, NJ
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gary.day@basf.com
www.watersolutions.basf.com

Bionetix International
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Canada
514-457-2914 • Fax: 514-457-3589
info@bionetix.ca
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info@mazzei.net
www.mazzei.net

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info@metrohmusa.com
www.metrohmusa.com

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www.miltonroy-americas.com

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christine.lampe@nidec-motor.com
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Canada
888-407-9997 • 416-208-9884 • Fax: 416-208-5808
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Well Systems & Equipment

CEI - Carbon Enterprises Inc.
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www.ceifiltration.com

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flomatic@flomatic.com
www.flomatic.com

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St. Louis, MO
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I approach each day as a gift, a new beginning so to speak; with the knowledge that no matter what happens to me, the sun will rise again tomorrow. This work has great variety and plenty of challenges. It offers me the opportunity to be a real environmentalist. I'm serving on the front line of environmental protection."

Phil Webster
An Original Environmentalist
MANAGER, WATER POLLUTION CONTROL DEPARTMENT
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PRODUCT NEWS

1 | Danfoss temperature sensor

The **MBT 5560** temperature sensor with built-in transmitter from **Danfoss Industrial Automation** is designed for use in harsh industrial environments. The sensor is available with a 33 mm (1.29 inches) extension to measure temperatures up to 200 degrees C (392 F) without damage to electronics. Features include acid-resistant stainless steel enclosure, 4-20 mA or Ratiometric output 50, 100, 150, 200 and 250 mm insertion lengths. **410/931-8250; www.danfoss.us/ia.**

2 | Blue-White injection-molded PVDF diaphragm

Single-layer, injection-molded PVDF (polyvinylidene difluoride) **diaphragms** from **Blue-White Industries** are designed for Chem-Pro Series C2 and C3 metering pumps. The single-piece diaphragms won't delaminate, reducing field maintenance and downtime due to failure. Made of PVDF, chemical compatibility issues of wetted parts also are reduced. Available in three sizes, the diaphragms retrofit into ProSeries Chem-Pro pumps for in-field upgrades. **714/893-8529; www.blue-white.com.**

3 | Neptune diaphragm metering pumps

Series 7000 mechanically actuated diaphragm metering pumps from **Neptune Chemical Pump Co.** are made for water and wastewater applications. The mechanical design eliminates the use of contour plates on the liquid side of the diaphragm, while the straight-through valve and head allows for improved flow. The series is self-priming and has a maximum capacity of 300 gph at 150 psi. **215/699-8700; www.neptune1.com.**

4 | Magnatrol bronze solenoid valves

Type A and **AR** bronze solenoid valves from **Magnatrol Valve Corp.** are designed for water and wastewater. Available for pipe sizes from 1/2 to 3 inches, the valves feature cast bronze, globe pattern valve bodies with NPT ends and packless construction with continuous duty coils for all voltages. The valves require no differential pressure to open and can be serviced while in the pipeline. **973/427-4341; www.magnatrol.com.**

5 | Endress+Hauser two-wire magmeter

The **Proline Promag 200** two-wire electromagnetic flowmeter from **Endress+Hauser** offers the same measuring performance as four-wire magmeters. The Promag H200 is available in line sizes of 1/12 to 1 inch, while the Promag 200 is available in line sizes from 1/2 to 8 inches for measuring the flow rates of conductive fluids. No seals or external enclosures are required for installation in hazardous areas. **888/363-7377; www.us.endress.com.**

6 | ETS UV disinfection system

Closed vessel **UV disinfection systems** from **Engineered Treatment Systems** feature high-powered amalgam lamps, automatic wiping mechanisms, air release valves and hatches to gain access to the interior of the chamber. The system reduces UV exposure, has no open water surfaces and can be installed horizontally or vertically. Wiper rings can be replaced without removing the wiping carriage from the chamber. **877/885-4628; www.ets-uv.com.**

7 | Singer Valve automated pilot control

The **420-DC** or **420-AC** automated pilot control from **Singer Valve** features over-volt protection, 4-20 mA feedback, O-ring seal, explo-

PRODUCT SPOTLIGHT

BY ED WODALSKI

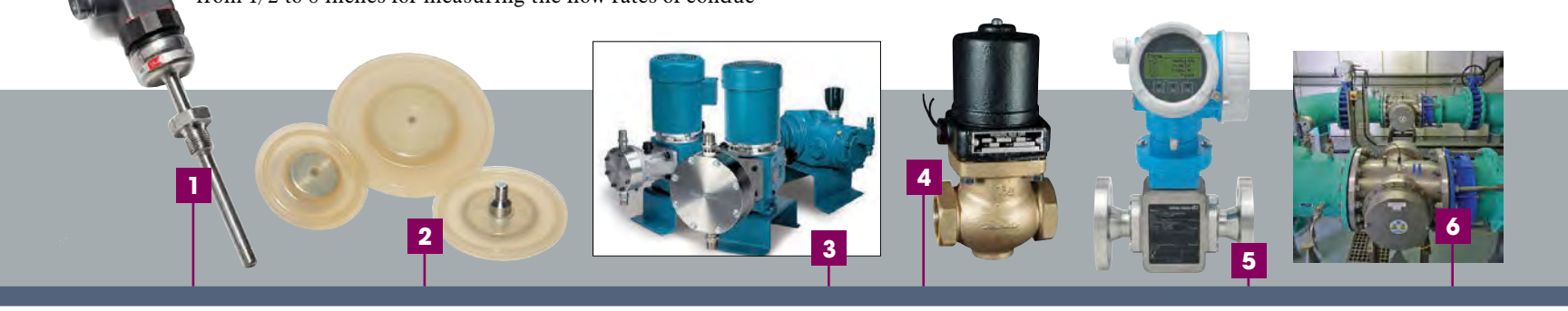
Water mixing system requires no maintenance or outside power

The **Tideflex Mixing System (TMS)** for potable water storage tanks from **Tideflex Technologies, a division of Red Valve Company,** is a combination of Tideflex check valve technology and a multiport piping manifold. The system, which can be installed in new or existing water storage tanks of all shapes and sizes, separates the inlet and outlet and achieves complete mixing, thereby eliminating short-circuiting and water quality problems, including loss of residual, bacterial growth, nitrification and DBP (disinfection byproduct) spikes.

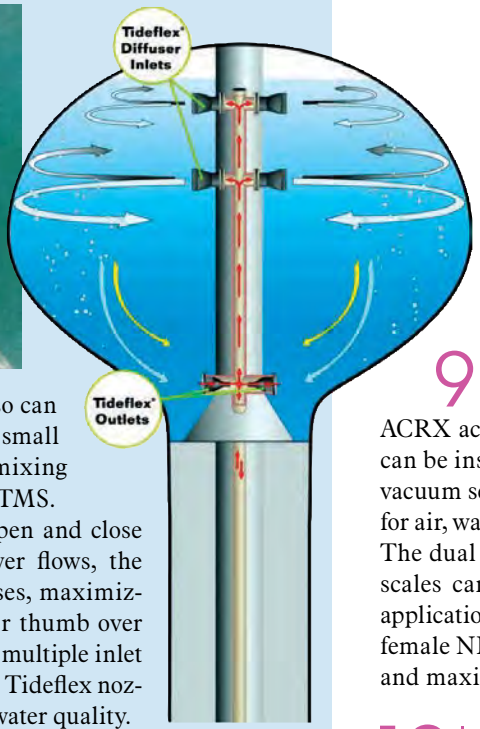
"Storage tanks need to have volume turnover [fluctuation of water level] in order to minimize water age," says Mike Duer, P.E., chief engineer at Tideflex. "There is already an energy source to mix the tank when it fills, but the problem is tanks with a single fixed-diameter inlet pipe often do not mix, so the tank short-circuits, stratifies and water quality degrades."

Short-circuiting occurs when a tank is not mixed — the water that was just put into the tank is the first water drawn from the tank, which leaves dead zones that are pockets of continually aging water.

Tideflex's passive, no-maintenance mixing system requires no outside energy source. During the fill cycle, pressure from the distribution system closes the outlet, forcing water from the supply line through the multiple variable orifice Tideflex jet-action inlet nozzles. During the draw cycle, distribution pressure drops below the tank head, closing the inlet nozzles and opening the Waterflex outlet valves, allowing water to be drawn into the manifold pipe and out the



Tideflex Mixing System (TMS) from Tideflex Technologies



distribution system. The passive TMS also can be turned into an active TMS using a small recirculation pump, but rarely is active mixing needed with a properly designed passive TMS.

The Tideflex nozzles progressively open and close as flow increases and decreases. At lower flows, the effective diameter of the Tideflex decreases, maximizing jet velocity — similar to placing your thumb over the end of a garden hose. The efficiency of multiple inlet ports and the optimized jet velocity of the Tideflex nozzles produce rapid mixing and improved water quality.

The TMS is extensively CFD (computational fluid dynamics) modeled, scale modeled and has been field validated to improve water quality in tanks from 10,000 to 150 million gallons. The TMS is custom-designed for every tank and a mixing analysis and water age analysis are included with each design so the utility knows how much turnover is required to achieve complete mixing.

"Long story short, the TMS achieves complete mixing, improves water quality and does not require maintenance," Duer says. **412/279-0044; www.redvalve.com.**

sion-proof housing and modular design. Valves require less than 2 amps of power and are controlled by the 4-20 mA signal from the water distribution SCADA system. The pilot control offers programmable span and speed control via USB cable and software. **888/764-7858; www.singervalve.com.**

8 | CW Industries rotary encoder

The 16-position rotary encoder from **CW Industries** has a four-channel hex output and is customized to fit into an existing panel opening down to 12 mm (0.47 inches). Designs feature enclosed construction to prevent EMI (electromagnetic interference) and are sealed to protect against the environment. **215/355-7080; www.cwind.com.**

9 | AALBORG multi-turn valve

The **ACRX V** multi-turn valve from **AALBORG,** part of the ACRX acrylic flowmeter line, eliminates the need for external valves. It can be installed at the inlet (bottom) of the meter or at the outlet (top) for vacuum service. Features include one interchangeable direct reading scale for air, water, argon, oxygen, carbon dioxide, nitrogen, helium or hydrogen. The dual score displays flow rates in metric and English units. Optional scales can be developed for diverse flow conditions to facilitate OEM applications. All models have a 316 stainless steel float and guide, 1/2-inch female NPT connections, maximum temperature of 130 degrees F (54 C) and maximum pressure of 100 psi. **845/770-3000; www.aalborg.com.**

10 | Badger Meter smart valve positioners

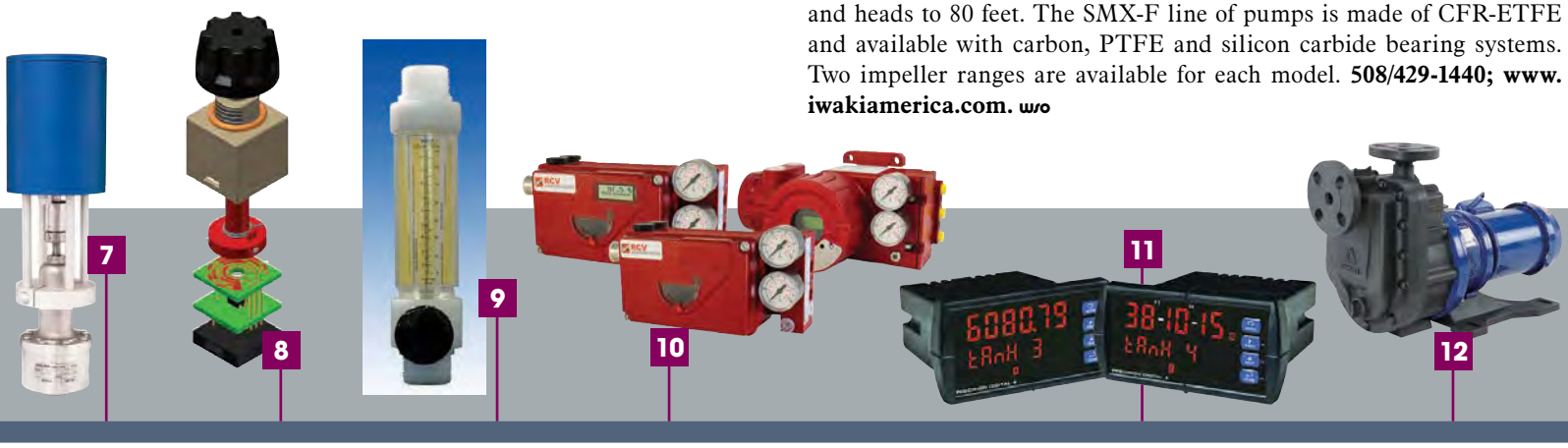
The **Research Control SRD** series of smart valve positioners from **Badger Meter** deliver actionable diagnostic information about valve performance. The SRD 960 (explosion proof) and SRD 991 (intrinsically safe) digital valve positioners are designed for use in the water and wastewater industries. The SRI 900 base model provides analog valve control. The SRD/SRI positioners are compatible with Research Control valves and most other pneumatically actuated valves. **800/876-3837; www.badgermeter.com.**

11 | Precision Digital Modbus scanners

The **Snooper** line of Modbus scanners from **Precision Digital Corp.** include the ProVu PD6080 series of 1/8 DIN digital panel meters and the ProtEX-MAX PD8-6080 series of explosion-proof scanners. The scanners can be set up as Modbus RTU masters, slaves or snoopers, monitoring multiple Modbus devices for up to 16 process variables, including level, interface level, density and temperature. The ProVu PD6080 series Super Snoopers are NEMA 4X DIN panel indicators. The PD6080 and PD6081 include dual analog inputs and an RS-485 serial communications module for the integration of existing 4-20 mA transmitters and Modbus devices on the same display. **800/343-1001; www.predig.com.**

12 | Iwaki nonmetallic, self-priming pump

The fluoroplastic **SMX-F** magnetically driven, nonmetallic, self-priming pump from **Iwaki America** is designed for flows to 90 gpm and heads to 80 feet. The SMX-F line of pumps is made of CFR-ETFE and available with carbon, PTFE and silicon carbide bearing systems. Two impeller ranges are available for each model. **508/429-1440; www.iwakiamerica.com.** *w/o*



Conserving in a Land of Plenty

There's no shortage of water around Medford, Ore., but the prospect of a costly water plant expansion now motivates customers to conserve

BY PETE LITTERSKI

In a corner of Oregon where water supplies are bountiful, the Medford Water Commission faced a challenge in promoting conservation. With a mountain spring as the primary source of up to 26 mgd and the Rogue River as a secondary source, the commission maintained ample supplies and very low rates.

Several years ago, Laura Hodnett, public information/conservation director, gave a presentation, "Lessons Learned: Selling Water Conservation Without a Crisis," at the 2010 North Texas Water Conservation Symposium. What finally got the public's attention was not a water shortage but the potential expense of expanding the Robert A. Duff Water Treatment Plant.

Substantial cost

A 2009 report prepared by CH2M HILL helped add weight to the commission's conservation message. Citing an expanding population base, the consultants projected that within 20 years the utility would face expanding the treatment plant at an estimated price of $79 million. The plant has a capacity of 45 mgd, and the commission has rights to take up to 65 mgd from the Rogue River.

Water from Buffalo Springs, which needs only disinfection, serves the commission's needs for almost nine months per year, but summer irrigation makes it necessary to add river water to the mix. In recent years, that need has been arriving earlier.

"So now we really do have a mission of deferring the cost of building another treatment plant," Hodnett says. Rather than borrow to build the added treatment capacity, the commission placed a surcharge on water bills to build a fund to use to finance the new facility. "How aggressive we need to be with our surcharge is determined by how much we can delay the need for more water," Hodnett says.

The city of Medford owns the water commission, but it is a separate entity established in the 1920s. It serves Medford, six cities and three independent water districts — a total of 90,000 direct service customers.

Although Oregon is known for heavily forested river valleys draining toward the Pacific Coast, the Medford area is semiarid, receiving about 20 inches of rainfall annually. Hodnett joined the commission 12 years ago as a conservation specialist. She teams with conservation specialist Dave Searcy, who brings a wealth of experience in irrigation systems and excellent people skills.

Connecting with customers

Hodnett learned through other water conservation specialists that free sprinkler/irrigation audits are effective in building public interest in conservation. She calls her initiative the Sprinkler Survey Program because "audit" can evoke negative reactions. "The program has conservation benefits, but it also gives us a chance to connect with our community," she says.

Searcy uses survey visits as opportunities to discuss water usage and conservation tactics with customers. He also advises them on how to best operate their systems and tells them the best watering times. While many utilities forbid employees to touch homeowners' sprinkler systems, he is allowed to make adjustments and demonstrate the controls.

"Often, we have widows who call us after their husbands die and they have no idea how their systems operate," he says. In such cases, Searcy often downloads the controller manual from the Web and goes over it with the owner. He also leaves tips on how to operate the equipment.

"Those simple things are really huge for the customer and good PR for the commission," Searcy says. On one call, Searcy discovered a leak and recommended that the woman call an irrigation contractor right away. "She thought she had a spring on her property and we determined that she had a leak on the mainline. Now she can call someone to get it fixed." On another call, the team helped the owners save more than 100,000 gallons per month, on a system irrigating less than a third of an acre.

> **"How aggressive we need to be with our surcharge is determined by how much we can delay the need for more water."**
> LAURA HODNETT

Using outside ideas

Hodnett has never been afraid to learn from other operations or to use proven vendor programs. Betsy Martin, the commission's administrative coordinator, is often on the lookout for other utilities' programs.

The commission's Web tool allows customers to track their water usage for the past 13 months and compare it to average usage in the neighborhood and across the entire system. That idea was borrowed, with permission, from the Community Water Company in Green Valley, Ariz., and the Water CASA of the University of Arizona Water Resources Research Center.

Hodnett also contracted in 2012 with GardenSoft of Thousand Oaks, Calif., to develop a WaterWise online site showing Medford area gardens that demonstrate principles of appropriate horticulture to reduce water use.

Hodnett sees broad interest in gardening and horticulture in the Medford area, and she hopes the WaterWise site (www.medfordwatersmartgardening.com) can serve as one more tool in the box to help spread the word about the need to conserve water.

Hodnett and Searcy use both the Web and the phone lines for one more service. Customers can call 541/774-2460 or go to www.medfordwater.org for up-to-date information on recent rainfall and the need for lawn irrigation.

Conservation in verse

And if all of that isn't enough, Hodnett uses one more tactic: She offers water-saving tips as short poems on monthly bills. She wrote her first poem in 2000, and they remain popular. Here is an example:

With warmer temps and clear blue skies
Our gardens lure us and our spirits rise
But don't be tempted to start sprinklers yet
Ample spring showers are still a good bet. WO

INDUSTRY NEWS

Pennsylvania American Water acquires water, wastewater systems

Pennsylvania American Water, a subsidiary of American Water, purchased the assets of three water and wastewater facilities for approximately $6.9 million. The acquisitions include the Clean Treatment Sewage Co. in Delaware Township, Pike County, that serves 1,000 residents in the Marcel Lakes Estates development and a private water system serving 300 residents of the Pocono Mountain Lake Forest Estates, also in Delaware Township. In addition, Pennsylvania American Water purchased the assets of the Franklin Township Municipal Sewer Authority in Adams County. The wastewater system serves approximately 800 residents and two dozen commercial and municipal customers.

Siemens marks 100th anniversary of first chlorine gas meter

Siemens Water Technologies celebrated the 100th anniversary of the chlorine gas metering unit for water disinfection this year. The first commercially produced gas chlorinator was installed in a public drinking water system in 1913 by Wallace & Tiernan, now a Siemens Water Technologies company.

FCS names leak detection distributor

Fluid Conservation Systems named Utility Services Association its distributor for leak detection products in Alaska, Washington, Idaho, Oregon and Montana.

American Water Works president retires

David Baker, senior vice president of American Water Works Company's Northeast Division and president of New Jersey American Water, will retire effective February 2014, remaining with the company for several months to ensure a smooth transition. He will be replaced by William Varley, president of New York American Water.

Brown and Caldwell names executive vice president

Richard D'Amato

Brown and Caldwell named Richard D'Amato executive vice president and private sector enterprise leader. He will be based at the company's Denver, Colo., office.

Itron named top water meter supplier

Itron was ranked No. 1 across multiple categories, according to a global water meter market analysis report. The IMS Research report, an annual assessment of global water meter sales, notes that Itron has the leading global position for total water meter and communication module shipments. Itron also ranks as a top supplier across a number of smart water metering categories in Latin America, EMEA and North America.

Hobas Pipe adds field support representatives

Hobas Pipe USA added Michael Jensen and David Tisdale as field support representatives. They will be based in Houston.

Primary Flow Signal names distributor

Primary Flow Signal and its sister company, Turbines, named MASER SDN BHD, Kuala Lumpur, Malaysia, the company's authorized distributor in Malaysia and the Far East, including Vietnam and Thailand. wso

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PEOPLE/AWARDS

The **City of Elgin, Ill.,** will rename its water treatment plant after Leo Nelson, former city manager who led the charge for the plant's construction in the 1970s.

The Columbus, Ohio, public utilities complex has been named in honor of **Dana "Buck" Rinehart,** who served as mayor from 1984-92 and has been an attorney in private practice in Columbus since then. The complex includes water, sewer and electricity offices and a water treatment plant. It is undergoing a $200 million renovation.

The *Los Angeles Business Journal* named **Scott Ota,** chief financial officer for the Water Replenishment District of Southern California, as its Government/Public Sector CFO of The Year.

The **Huntsville (Ala.) Utilities South Parkway** treatment plant was honored by the Alabama Water & Pollution Control Association as the best-operated water treatment plant in the 40 to 50 mgd category – for the third consecutive year.

The **Brown County (Texas) Water Improvement District No. 1** microfiltration water treatment plant and its operator, **John Allen,** received awards from the South Central Membrane Association. The plant received the Outstanding Membrane Plant Award, and Allen was named Operator of the Year.

Truckee Meadows (Nev.) Water Authority received the Directors Award of Recognition from the Partnership for Safe Water. The authority's Chalk Bluff Water Treatment Plant ranks among the highest performing plants in the country, serving 330,000 residents in the Reno-Sparks area.

A campaign to inform the public and promote the benefits of the **Western Area Water Supply Project** in northwestern North Dakota won a 2013 National Marketing Communications Award. The water project's marketing campaign took second place in the Promotional Campaign division at the 2013 Society for Marketing Professional Services conference.

WSO *welcomes your contribution to this listing. To recognize members of your team, please send notices of new hires, promotions, service milestones, certificatio ns or achievements to editor@wsomag.com.*

EDUCATION

AWWA

The AWWA is offering these courses:
- Dec. 12 – Regulatory Update Webinar
- Jan. 29 – Water Rates Done the Right Way Webinar

Visit www.awwa.org.

Arkansas

The Arkansas Rural Water Association is offering these courses:
- Dec. 17 – Basic Math, Lonoke
- Dec. 18 – ADH Compliance, Lonoke
- Dec. 19 – Applied Math, Lonoke

Visit www.arkansasruralwater.org.

Florida

The Florida Section of AWWA is offering these courses:
- Dec. 31 – Florida AWWA eLearning, online
- Jan. 31 – Florida AWWA eLearning, online

Visit www.fsawwa.org.

Illinois

The Illinois Section of AWWA is offering a two-day High-Tech Operator Course 3: Data Management workshop Jan. 29-30 in Lombard Village Hall Community Room. Visit www.isawwa.org.

Oklahoma

The Oklahoma Environmental Training Center is offering these courses:
- Dec. 13 – Oklahoma DEQ Operator Open Exam, Stillwater
- Dec. 16-19 – C Water Laboratory, Stillwater
- Dec. 17-19 – D Water & Wastewater Operator, Tulsa

Visit www.accuratelabs.com.

Wisconsin

The Department of Natural Resources is offering a Distribution Certification on Jan. 28-29 at Moraine Park Technical College in Fond du Lac. Visit dnr.wi.gov.

The University of Wisconsin – Milwaukee Continuing Education Program is offering a Sustainable Water-Centric Communities course Dec. 9-11 in Milwaukee. Visit www4.uwm.edu.

The Wisconsin Rural Water Association is offering these courses:
- Dec. 17 – Permit-Required Confined-Space Entry Training, West Salem
- Dec. 18 – Regulations and Technology Updates, Holmen
- Dec. 19 – Regulations and Technology Updates, Chippewa Falls

Visit www.wrwa.org. wso

EVENTS

Dec. 12

County Water Supply Operators Association Meeting, Champaign, Ill. Visit www.isawwa.org.

Dec. 19

Kane County Water Association Meeting, Batavia, Ill. Visit www.isawwa.org.

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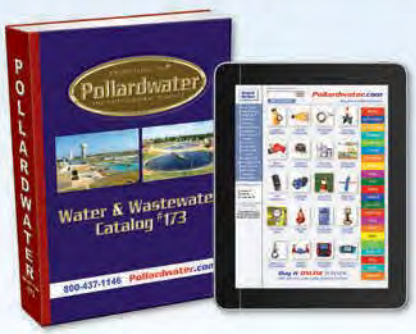

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