

TREATMENT PLANT OPERATOR

tpo™

DEDICATED TO WASTEWATER & WATER TREATMENT PROFESSIONALS

tpomag.com
SEPTEMBER 2024

TECH TALK:
Layered security for
plant perimeters | 56

Succeeding With a Smile

STEVE MOSBRUCKER'S CHEERFUL ATTITUDE
SUPPORTS A SERIOUS APPROACH TO TREATMENT

32

HOW WE DO IT:
ZeeLung membrane
aerated biofilm
reactor | 42

LET'S BE CLEAR:
Making the
most of trade
shows | 10

Steve Mosbrucker
General Manager
Corvallis, Mont.



Blue-White®

VISIT US AT



BOOTH 3753

MD3 | Precise Chemical Delivery and No Vapor Lock, No Loss of Prime

- Exclusive Dual Diaphragm Hyper Drive Technology for smooth, near continuous chemical feed - like a peristaltic pump but with no tube to change.
- Large, 5" intuitive touchscreen display for easy viewing.
- Advanced communication protocols include 4-20mA, pulse inputs, & more, plus remote start/stop.
- Equipped with Blue-White's exclusive DiaFlex® diaphragms, designed to last the life of the pump.



Fluid Metering Solutions Made Simple.
Learn more about the MD3 at www.blue-white.com



Cleaner Water for a Brighter Future®, Raptor®, and FalconRake® are registered trademarks owned by Lakeside Equipment Corporation. All other trademarks are property of their respective owners. © 2024 Lakeside Equipment Corporation.



weftec
the water quality event™

Visit us at
BOOTH #1829
October 7-9, 2024
New Orleans, LA

NO LOWER BEARINGS, SPROCKETS, BUSHINGS OR GUIDES. NO PROBLEMS!

Capture more debris with no fouling or jamming. Lakeside's **Raptor® FalconRake® Bar Screen** features a trouble-free stainless steel chain link design and multiple rake heads to achieve continuous, highly efficient solids removal with low headloss. The energy saving drive system operates at variable speeds to ensure superior cleaning, and is easily accessible above the water surface. And, as with everything Lakeside manufactures, our heavy-duty design and all stainless steel construction is made to last even in the most severe conditions. Protect your downstream equipment with the **Raptor FalconRake Bar Screen**, Lakeside's proven, durable and cost-effective screen technology for rapid debris removal in municipal and industrial applications.

For more information on how you can achieve Lakeside quality and performance, contact one of our experts at **630.837.5640**, email us at sales@lakeside-equipment.com or visit our website www.lakeside-equipment.com



Cleaner Water for a Brighter Future®



Raptor® Screening Products

- Fine Screen
- Micro Strainer
- Rotating Drum Screen
- Septage Acceptance Plant
- Septage Complete Plant
- Complete Plant
- Multi-Rake Bar Screen
- FalconRake® Bar Screen
- Rotary Strainer Screen
- Wash Press



For Treatment Plant Air/Gas Flows, We're the One.

FCI Flow Meters You Can Count On

In municipal wastewater and water treatment plants, FCI thermal flow meters are the leading solution specified by system operators and their engineering team for aeration, digester, ozone and disinfection gas systems applications. They measure flow rate in line sizes from 1/4" to 99", with unmatched installed accuracy, outputs and I/O compatible with your current, and future DCS, PLC, or SCADA system, 100:1 turn-down capable in both low and high flow rate applications, extensive safety pedigrees and require no routine maintenance to deliver the most dependable and long-life gas flow meter solution across the plant.

- Multi-function—mass flow and temperature
- Analog outputs and digital bus I/O communications
- Non-fouling, non-clogging, no moving parts
- Gas specific and installation conditions matched calibrations
- Rugged, NEMA 4X/IP66/IP67 rated, multi-port enclosures
- Best-in-class displays and user HMI
- Global agency approvals for Div.1/Div.2 [Zone 1/Zone 2] applications
- Flow conditioners to solve lack of straight-run

Call or visit FCI online today to discover more about how to solve your treatment plant's air/gas flow meter applications.

**FCI FLUID COMPONENTS
INTERNATIONAL LLC**
A PST BRAND

Visit FluidComponents.com

1-800-854-1993 ■ 1-760-744-6950



© Copyright 2024 Fluid Components International, LLC. All rights reserved.

advertiser index September 2024

AERZEN	KROHNE Inc.	62
Aerzen	LAKESIDE	
American Water Works Association	Lakeside Equipment Corporation	3
AQUA-AEROBIC SYSTEMS, INC.	Lovibond	
Aqua-Aerobic Systems, Inc.	Lovibond	11
Asahi/America, Inc.	Lutz-JESCO America Corp. back cover	
Badger Meter	OZ Lifting Products LLC	55
BDP	Park Process	69
BDP Industries, Inc.	Parkson Corporation	29
Blue-White	Pentair	15
Blue-White Industries	Pulsar Measurement	31
CAS DataLoggers	Pulsed Hydraulics, Inc.	69
Charter Machine Company	SAF-T-FLO	
Core & Main	Saf-T-Flo Chemical Injection	67
De Nora Water Technologies	SAVECO	
DeZURIK, APCO, Hilton, Willamette, Red Valve, TideFlex and RKL Controls	SAVECO North America, Inc.	39
ELODE USA, Inc.	SealRyt Corporation	48
Emerald Coast Manufacturing ...	SEEPEX.	
Environmental Operating Solutions, Inc. (EOSi)	SEEPEX Inc.	59
FCI - Fluid Components International	S&L	
Federal Screen Products, Inc. ...	Smith & Loveless Inc.	
Fournier Industries	Smith & Loveless, Inc.	43
FPZ, Inc.	SNF Polydyne Inc.	21
scientific	SULZER	
HF scientific, a Watts Brand	Sulzer Pumps Solutions Inc.	35
Howden, A Chart Industries Company	Trojan Technologies	9
In-Situ	United Rentals	
Inovair Geared Centrifugal Blowers	United Rentals, Inc.	7
JDV	Vaughan	
JDV Equipment Corporation	Vaughan Company, Inc.	53
KELLER	VEGA Americas, Inc.	37
Keller America Inc.	VEOLIA	
Komline-Sanderson	Veolia Water Technologies & Solutions	41
Komline-Sanderson	xylem	
	Xylem	27
	YSI, a Xylem brand	55
	CLASSIFIEDS	68

Share your opinions about TPO articles through our Letters to the Editor.

Send a note to editor@tpomag.com

Check out **ONLINE EXCLUSIVES** at:

FREE subscription
also available

tpomag.com



Thickening | Dewatering | Composting



Dual Rotary Drum Thickener



DSP SCREW PRESS

Designed & Manufactured in the USA

Belt Presses

Screw Presses

Gravity Belt Thickeners

Rotary Drum Thickeners

Biodrying

Composting

Process Optimization

On-Site Service & Mobile Demos



3DP BELT PRESS



Booth #1743

www.bdpindustries.com
(518)-695-6851
info@bdpindustries.com

contents **September 2024**

- 10 **LET'S BE CLEAR: SO YOU'RE GOING TO A TRADE SHOW**
To make the most of the event, plan your days carefully, and share what you've learned with your team members when you get back home.
By **Ted J. Rulseh, Editor**
- 12 **HEARTS AND MINDS: ENGAGING FUTURE ENGINEERS**
A utility and a university collaborate on a Cornerstone program to introduce students to the basics of wastewater infrastructure.
By **Sandra Buettner**
- 22 **IN MY WORDS: TOWARD A CIRCULAR WATER ECONOMY**
A Minnesota nonprofit looks to bolster cooperation across sectors and organizations to conserve water and foster more sustainable communities.
By **Ted J. Rulseh**
- 30 **TECHNOLOGY DEEP DIVE: THE SHAPE OF PROGRESS**
Progressive cavity pumps with a conical rotor-stator geometry are designed for low energy consumption and long life in pumping sludges and biosolids.
By **Ted J. Rulseh**
- 38 INSTRUMENTATION DIRECTORY**
- 42 **HOW WE DO IT: A BREATH OF OXYGEN**
ZeeLung treatment technology helps Yorkville-Bristol Sanitary District upgrade capacity and meet a new effluent phosphorus limit.
By **Ted J. Rulseh**
- 46 **SUSTAINABLE OPERATIONS: ACCENT ON THE POSITIVE**
A Water Conservation Award program in a Nevada desert city recognizes actions such as replacing turf grass with alternatives that need less irrigation.
By **Steve Lund**
- 50 **PRODUCT PREVIEW: NEW TECHNOLOGY SLATED FOR NEW ORLEANS 2024**
By **Craig Mandli**
- 56 **TECH TALK: SECURITY IN LAYERS**
Physical barriers, diverse technologies and information sharing are all keys to protecting treatment plants against intruders.
By **Jerry Morris**
- 58 **PRODUCT FOCUS: DIGITAL TECHNOLOGY, CYBERSECURITY**
By **Craig Mandli**

top performers



16 WATER/WASTEWATER UTILITIES DIRECTOR: MANAGER EXTRAORDINAIRE
Roy Hesemann made an early career turn into the water sector. He has won prestigious awards on both the drinking water and wastewater sides.
By **Orest Protch**

24 WATER PLANT: A CURRICULUM OF QUALITY
The University of Central Florida water treatment plant delivers a high-quality, reliable supply with long-term vision and a can-do attitude.
By **Suzan Chin-Taylor and Stormy Shafer**

32 WASTEWATER OPERATOR: SUCCEEDING WITH A SMILE
Steve Mosbrucker's cheerful attitude lies at the heart of his serious approach to improving treatment in two rural Montana communities.
By **Jim Force**


cover story

ON THE COVER: Steve Mosbrucker's light-hearted approach doesn't diminish his accomplishments as general manager of the Corvallis (Montana) Wastewater Treatment Plant. For his work, he received the 2023 Wastewater Operator of the Year award from the Montana Rural Water Association. (Photography by Dave Bell)

- 64 **PRODUCT NEWS**
Spotlights:
Water - System provides a safe, clean disinfection option
Wastewater - Aeration systems optimize mixing in wastewater
By **Craig Mandli**
- 67 **CASE STUDIES: DIGITAL TECHNOLOGY, CYBERSECURITY**
By **Craig Mandli**
- 68 **INDUSTRY NEWS**
- 70 **WORTH NOTING**
People/Awards; Events

coming next month: October 2024 FOCUS: **Clarifiers, Digesters, Water Towers, Structures and Components**

» Let's Be Clear: A chance to blow your horn » TOP PERFORMERS – Wastewater Operator: Jody Zabolio P.E., Lewisville, Texas | Wastewater Plant: Newmarket (New Hampshire) WWTF | Water Operator: Sophia Oberton, Town of Delmar, Maryland » How We Do It: An innovation in grit removal » In My Words: Technology for protecting data security » Sustainable Operations: Renewable natural gas in Roanoke, Virginia » Hearts and Minds: Water efficiency grants in the Twin Cities » Technology Deep Dive: A treatment that destroys PFAS



A SINGLE SOURCE FOR YOUR FLUID SOLUTIONS

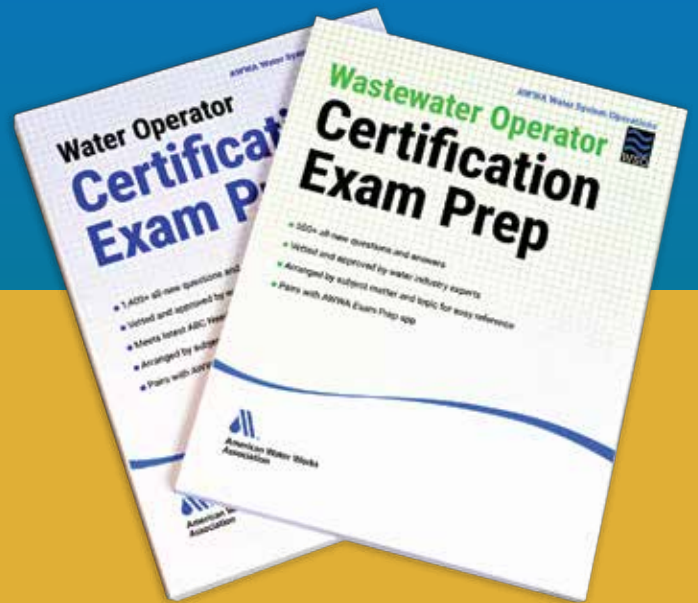
As the largest provider of pump, tank and filtration equipment as well as turn-key fluid solutions in North America, United Rentals can help you if you need one piece of equipment or a custom-engineered solution.

If there's a planned fluid management need or a sudden emergency, the United Rentals Fluid Solutions group can assist you with a high level of safety compliance and quality assurance. We have pumps, tanks, filtration systems and experts ready to help you get the job done.

Call 800.UR.RENTS or visit [UnitedRentals.com/Fluid](https://www.UnitedRentals.com/Fluid)



TAP INTO YOUR FUTURE



Ready to advance your career and technical expertise?

For more than 40 years, operators across North America have trusted AWWA's Water System Operations (WSO) materials to provide training on fundamental practices and principles for treatment and distribution.

With WSO, you'll find a suite of tools from guidebooks to videos designed by industry experts to help you ace your certification exams and excel in your field.

Dive into essential topics like operator math, safety, and regulations. Whether you're studying for grade 1 or 4, WSO is here to support your journey.



Discover AWWA WSO Resources:
awwa.org/TP024



TAP INTO YOUR FUTURE



Making Water Treatment Processes More Efficient and Effective, Together

Demonstrated leaders in water treatment, with 900 associates, 25 locations and 16 countries

High-quality, high-performance solutions that solve complex water challenges

World-class filtration, purification, and UV expertise

New innovations to address water concerns of our changing world

TROJAN  **UV**



EXPLORE OUR RESOURCES

Pall Water is now...
 **ariaFILTRA™**



LEARN MORE



Charter Machine Company

ELODE
Evaporative Belt Dryer

ROYAL SCREW PRESS
High-Efficiency, Low Power

**70 PLI
15 ROLL
SENTRY PRESS**
Every Little Bit Counts

DEWATERING TRAILERS
Self-Sufficiency on Wheels

See us
in New Orleans,
Booth 4409

732-494-5350 www.chartermachine.com

Your Complete Source for Dewatering Equipment

let's be clear

So You're Going to a Trade Show

TO MAKE THE MOST OF THE EVENT, PLAN YOUR DAYS CAREFULLY, AND SHARE WHAT YOU'VE LEARNED WITH YOUR TEAM MEMBERS WHEN YOU GET BACK HOME

By Ted J. Rulseh, Editor



You're arranged to attend a national water industry trade show or a conference put on by your state or regional trade association.

It's a big investment of your time and of your city's or utility's money, so you want to get the most out of it: The most CEUs, the deepest knowledge of the latest technologies, the best tips and ideas that can help your plant run better.

So, before packing the suitcase and heading out, you need to make a plan. Ideally, go with a colleague. For one thing, two heads are better than one. For another, a companion will help you feel more comfortable in a new environment. And finally, there's a lot to see and do at a show or conference — much more than one person can take in. So be ready.

BEFORE YOU LEAVE

Plan your days carefully. In the time before the show, visit its website. Review it in detail. Go over the exhibitor list and make a note of those you definitely want to visit, especially those that have new offerings you've been curious about.

Check out the technical program, especially the breakout sessions. Know ahead of time which ones you want to attend. Split up the key topics with your traveling partner. Don't forget the special events — award lunches, post-show special gatherings, product or technology demonstrations.

WHILE YOU'RE THERE

Arrive on the evening before the show and get a good night's sleep — you'll be walking lots of miles. Before bedtime, check out a map of the show floor (if it's available). Circle the exhibits you want to see and plan a route that lets you use your time efficiently. Maybe you and your colleague can agree to each cover half of the floor.

Don't expect the people staffing the exhibits to spend unlimited time with you — they have potentially hundreds of people to talk with in a couple of days. Be prepared with your most pertinent questions. Take note of the answers. Get the contact information of the people you meet so that you'll know who to follow up with later.

Make sure to attend your chosen technical sessions. Technology can help you take parts of each one back with you. If the presenter and the show rules permit, run a digital recorder during each session. If you see an especially interesting slide on the screen, take a picture with your phone.

Through the day, don't be shy. Talk to the person next you while you wait for your turn at an exhibit. At lunch, don't go it alone. If having a sandwich among tables in the show hall, pick one where other people are sitting. Introduce yourself and start a conversation. You never know who you might meet or what you might learn.

Back in your hotel room, before going out to dinner, make notes on the highlights of your day — the things you'll want to be certain to remember



DEDICATED TO WASTEWATER & WATER TREATMENT PROFESSIONALS

Published monthly by COLE Publishing, Inc.
P.O. Box 220, Three Lakes, WI 54562

In U.S. or Canada call toll free 800-257-7222
Mon.-Fri., 7:30 a.m.-5 p.m. CST

Website: www.tpomag.com / Email: info@tpomag.com / Fax: 715-350-8456

SUBSCRIPTION INFORMATION: A one year (12 issues) subscription to TPO™ in the United States and Canada is FREE to qualified subscribers. A qualified subscriber is any individual or company in the United States or Canada that partakes in the consulting, design, installation, manufacture, management or operation of wastewater and water treatment facilities. To subscribe, visit tpomag.com or call 800-257-7222.

Nonqualified subscriptions are available at a cost of \$60 per year in the United States and Canada/Mexico and \$150 per year to all other foreign countries. To subscribe, visit tpomag.com or send company name, mailing address, phone number and check or money order (U.S. funds payable to COLE Publishing Inc.) to the address above. MasterCard, VISA and Discover are also accepted. Include credit card information with your order.

ADDRESS CHANGES: Submit to TPO, P.O. Box 220, Three Lakes, WI 54562; call 800-257-7222; or email holly.gensler@colepublishing.com. Include both old and new addresses.

Our subscriber list is occasionally made available to carefully selected companies whose products or services may be of interest to you. Your privacy is important to us. If you prefer not to be a part of these lists, please contact Holly at holly.gensler@colepublishing.com.

ADVERTISING RATES: Call Kim Bruss at 715-891-0404 or email kim.bruss@colepublishing.com, or call Phil Hahn at 715-493-9913 or email phil.hahn@colepublishing.com. Publisher reserves the right to reject advertising which in its opinion is misleading, unfair or incompatible with the character of the publication.

EDITORIAL CORRESPONDENCE: Address to Editor, TPO, P.O. Box 220, Three Lakes, WI 54562 or email editor@tpomag.com.

DIGITAL REPRINTS AND BACK ISSUES: Visit www.tpomag.com for digital reprint options and pricing. To order back issues, call Holly at 800-257-7222 or email holly.gensler@colepublishing.com.

CONTROLLED CIRCULATION: 60,500 per month

© 2024 COLE PUBLISHING INC.

No part may be reproduced without permission of publisher.



Turbidity Analysis



Process Turbidity Simplified.

The PTV Series Turbidimeters simplify every aspect of process turbidity workflow from installation, daily measurement and control, to routine procedures.

See how the PTV can simplify your workflow at **WEFtec 2024 in New Orleans Booth 4034**



lovibond.com

sales@lovibond.us

941.756.6410

Show the decision-makers that their investment in your trip added value, and they'll be more likely to approve attendance for you and your team members at other shows and conferences.

when you get back home. Then go out and enjoy some of the sights and the local cuisine: a trade show doesn't have to be all work and no play. Ideally, go out with a couple of newfound friends.

BACK AT HOME

A big mistake trade show attendees make on returning to the plant is to jump right back into the routine, getting immersed in the daily dramas. That's a sure way to forget what you've learned, or to fail to act on it.

An excellent practice is to arrange a lunch-and-learn session for your supervisor and team members a few days after your return so you can present what you've discovered. Colleagues will appreciate your sharing the knowledge and insights you gained. They might well volunteer to help you put some learnings into action. And as you get ready for your presentation, you'll automatically review and so better retain the information you gathered.

In reporting on your trip, don't forget your governing body — the utility board or the city council. Ask your supervisor to arrange for a 10-minute presentation at the next meeting. Share with them what you've learned and how your facility will be more effective and more efficient as a result.

Show the decision-makers that their investment in your trip added value, and they'll be more likely to approve attendance for you and your team members at other shows and conferences.

Industry events are great for you and your team, great for your facility, great for your community. Make the most of them. **tpo**



Leading The Industry
Committed To The Design &
Manufacturing Of Superior
Quality Waste Water & Water
Treatment Equipment

JDV LEVEL LODOR™
Design for Even Distribution
&
Odor Control



Over 50 years of experience • Over 10,000 successful process equipment installations

WWW.JDVEQUIPMENT.COM

973-366-6556



The Cornerstone project gives students hands-on experience in building water infrastructure prototypes.

Engaging Future Engineers

A UTILITY AND A UNIVERSITY COLLABORATE ON A CORNERSTONE PROGRAM TO INTRODUCE STUDENTS TO THE BASICS OF WASTEWATER INFRASTRUCTURE

By **Sandra Buettner**

There was no hesitation when the University of Louisville approached Louisville Metropolitan Sewer District for help with a wastewater program for freshman engineering students.

MSD has a long-standing relationship with the university because a number of staff went to school there and maintain connections, says Daymond Talley, deputy chief of operations for treatment facilities.

“I received an email from the university’s engineering department asking us to join a partnership and build a prototype model of our three stages of wastewater treatment that they could integrate into their course,” Talley says. The model would be used as part of the university’s Cornerstone Program in which freshman engineering students are required to create their own models with materials made available to them.

MSD delivers 120 mgd of drinking water to 1 million residents and cleans over 155 mgd of wastewater at its Morris Forman and West County treatment plants.

“They get hands-on experience in building their water infrastructure prototype project, and they really enjoy that.”

BRIAN ROBINSON

learn the most important aspects of a particular subject area. The university was looking for new partners to help students design and build prototypes from different industries. Talley and colleagues suggested a course centered around the district’s clean-water infrastructure.

Stephanie Laughlin, infrastructure planning manager, says the Cornerstone course partnership enables the utility to reach a focused audience of future engineers who will learn what the district has to offer. That would help with the district’s workforce development.

SOMETHING DIFFERENT

Brian Robinson, associate professor of engineering fundamentals for the university, approached Talley asking for ideas on a project freshmen could work on that would be different from the standard bridges and windmill projects used previously.

Cornerstone courses are designed to make sure engineering students

The utility set up a prototype for the model in 2021, and the first course was launched in summer 2022. “Through this curriculum, students design, build and optimize a program model using environmental engineering principles,” Laughlin says. “So far, 480 freshmen have gone through the Cornerstone Program.”

STUDENT FEEDBACK

Utility team members regularly visit the freshmen while they are wrapping up and presenting their projects, asking about their take-aways from the course. As sophomores, the students are required to go through a co-op program and work with one of their project partners. Three students have interned at district facilities under the co-op program.

Award-Winning Video

Public education is essential to the mission of the Louisville Metropolitan Sewer District.

To inform students and the public, the utility created an engaging four-minute video with animation, working with the BCH advertising and public relations firm and internal videographer Miles Jackson.

The video explains wastewater treatment, stormwater drainage and flood protection. It also describes separate and combined sewers — Louisville has a combined sewer system that created the risk of overflows during heavy rains.

To mitigate overflows, the district built collection infrastructure that includes underground storage basins and a four-mile-long waterway protection tunnel where up to 55 million gallons of wastewater can be stored during overflows until it can be treated.

The video won a 2023 National Environmental Achievement Award in the Public Information and Education from the National Association of Clean Water Agencies.

(Continued on page 14)

Meet BlueEdge Custom solutions delivering the future of water management

Drive visibility, manage assets and gain clarity with confidence
Discover your edge at badgermeter.com/WEFTEC-2024 or
visit booth 929 during WEFTEC 2024



FPZ's regenerative blowers and metering pumps

FPZ Regenerative blowers

Single-stage
regenerative blowers

Double-stage
regenerative blowers

Flow and pressure range:

Max flow rate: 1,600 cfm

Max working pressure: 10 psig

Max vacuum: 14" Hg



Saukville, WI
Ph. 262-268-0180
usa@fpz.com
www.fpzusa.com

Visit us at
WEFTEC
Booth 7559

NEW
Discover our new
range of metering
pumps

FPZ Metering pumps

SR series

Spring return pumps

Max flow rate: 385 GPH

Max working pressure: 3,626 psig

PDP series

Non-loss motion pumps

Max flow rate: 1,065 GPH

Max working pressure: 7,251 psig

SDP series

Solenoid pumps

Max flow rate: 5.28 GPH

Max working pressure: 290 psig



(Continued from page 12)



The Cornerstone partnership helps the Louisville Metropolitan Sewer District reach an audience of future engineers and so help with workforce development.

The Cornerstone project has been very helpful to the freshmen, according to Robinson. Their model includes a collection tank, an overflow tank, and a treatment center tank.

"They get hands-on experience in building their water infrastructure prototype project and they really enjoy that," Robinson says. "They also get exposure and awareness of an industry they were not familiar with."

The university has been through three classes of the Cornerstone water infrastructure program. After one more class, the program will be cycled into a rotation with three other industries: robotics, windmills and bridges.

"The partnership has been great," Robinson says. "And the university has been with us all the way by first building the prototype for students to emulate. They continue to talk to the students during and after the course to find out the takeaways they enjoyed." **tpo**

EOSi MicroC.com

Complete Solutions for Biological Nutrient Removal

Compliance secured affordably, consistently and sustainably. Demo with our process experts only at **WEFTEC Booth #1313**

MicroC[®] Premium Non-Hazardous Carbon Sources

Nitrack[®] Advanced Process Control



PRECISION DRIVES PERFORMANCE

When reviving the heart of your commercial, industrial, or municipal pump equipment, there's no room to gamble with untrusted suppliers. Insist on Pentair® genuine OEM parts tailored for your pump, ensuring peace of mind with precise, high-performing replacement parts.

We have thousands of genuine OEM parts ready to ship quickly, helping minimize downtime and restore your pump to full strength.

Because when restoring the most critical equipment, every part counts.



Connect with a helpful, robust network providing genuine care for your pump at pentair.com/pumpcare.



Manager Extraordinaire

ROY HESEMANN MADE AN EARLY CAREER TURN INTO THE WATER SECTOR. HE HAS WON PRESTIGIOUS AWARDS ON BOTH THE DRINKING WATER AND WASTEWATER SIDES.

STORY: **Orest Proitch** | PHOTOGRAPHY: **Jerome Sherman**



Roy Hesemann, Cedar Rapids utilities director, oversees two water treatment plants with a combined 60 mgd capacity (effluent recycle pump from Pentair Fairbanks Nijhuis).

Even with nearly 40 years of experience under his belt, Roy Hesemann says with some levity: “Don’t ever think you’ll be doing what you think you’ll be doing.”

Over his office desk he displays words from the philosopher Voltaire: “Each player must accept the cards life deals him or her; but once they are in hand, he or she alone must decide how to play the cards in order to win the game.”

That philosophy has seen him through life and career issues and helps him motivate his team. “You may walk into the office in the morning and think that you have your day planned out,” says Hesemann, utilities director in Cedar Rapids, Iowa.

“And then the phone rings and all of a sudden your day is 100% different. So you work through it and make sure at the end of the day everything is better than it was at the start.”

FACING TOUGH TIMES

He has seen his share of calamities. He had been with the city for nearly a decade when a flood in 2008 tried to wash the Cedar Rapids Water Pollution Control Facility into the Gulf of Mexico. The Cedar River had flooded the city twice before, but the 2008 flood crested at more than 11 feet higher than the previous record and 19 feet above flood level.

“ Always be prepared, have the right plans, and do a little bit of flying by the seat of your pants because you never know what is going to come next.”

ROY HESEMANN

Hesemann went to work for Cedar Rapids 24 years ago and worked his way up the ranks to his current role as utilities director.



Hesemann was asked to go to the plant to oversee its reconstruction and to be the new plant manager. From 2009-14 he worked diligently with the Federal Emergency Management Agency to get the plant fully operational again.

Then in August 2020, the city was hit with a violent derecho storm that brought 140 mph continuous straight-line winds for 45 minutes, damaging almost every house and tree. The derecho took out all communication, fallen trees made travel in the streets almost impossible and the entire power grid received unprecedented damage. But the water and wastewater treatment plants remained operational on emergency generators throughout the recovery.

INDUSTRY SERVICE

Hesemann observes, “Always be prepared, have the right plans and do a little bit of flying by the seat of your pants because you never know what is going to come next.”

Hesemann is past chair of the AWWA Iowa Section and a former chair of the Region 1 AWWA Annual training program in Manchester, Iowa. He is active in several watershed organizations in Iowa and nationally and is an adjunct instructor at Des Moines Area Community College.

In addition, he has taken the FEMA National Incident Management System Training Program, as well as training in counterterrorism and security for the water industry, emergency response to threats of intentional contamination, and advanced incident command systems.

His excellence has not gone unrecognized: He received a 2023 William D. Hatfield Award from the Iowa Water Environment Association and a 2021 George Warren Fuller Award for distinguished service from the Iowa Section AWWA.

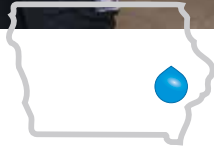
ROOTS IN AGRICULTURE

Hesemann credits his parents for instilling a strong work ethic. He grew up on a small farm in east-central Missouri that has been in family hands for over 150 years. Besides working the farm, his dad worked in a steel mill so the kids could go to college — three of the four did so.

Hesemann spent summers, winters and spring breaks looking



Roy Hesemann, utilities director, and Lauren O'Neil, plant manager



Roy Hesemann, Cedar Rapids (Iowa) Utilities

POSITION:
Utilities Director

RESPONSIBILITIES:
Oversee capital improvement, a dam, wells, engineering management

EXPERIENCE:
39 years in the industry

EDUCATION:
Bachelor's degree, agricultural engineering, University of Missouri-Columbia

CERTIFICATIONS:
Water Treatment, Water Distribution, Wastewater Treatment,

all Grade 4 (highest); certified well driller, certified pump installer

AFFILIATIONS:
AWWA Iowa Section (past chair), Iowa WEA, NACWA

AWARDS:
George Warren Fuller Award, Iowa Section AWWA; William D. Hatfield Award, Iowa WEA

GOALS:
Working toward making Cedar Rapids tops in its class in the country

after as many as 250 cattle on the 250-acre grain farm. He jokes with a touch of nostalgia that while his friends were on the beaches having a great time, he was “shoveling manure out of the barn.”

Hesemann started building his management skills during high school in FFA and as student council president. Between his freshman and sophomore years, a teacher took him and a couple of other students on a tour of the John Deere tractor factory in Waterloo, Iowa.



The water treatment plant draws from 51 wells. Chlorine is monitored by De Nora CAPTROL controller stations.



Biosolids dewatered on an Ashbrook belt filter press (Alfa Laval) are incinerated or land-applied.

There he saw tractors being built and painted on the assembly floor and was like a kid in Santa's toy workshop. Thus inspired, he attended the University of Missouri-Columbia and earned a bachelor's degree in agricultural engineering. But at graduation in the mid-1980s, the farm economy crashed and no one was buying farm tractors and equipment. So he changed his plans and worked for an international well-drilling company for the first 14 years of his career.

His advice to others: “Stay grounded in what you are doing. Look to the future. Always keep your end goal in mind. Don't ever be afraid of change. Don't be afraid to step up and take on challenges. Let life take you wherever it is willing to take you.”

BIG RESPONSIBILITIES

Hesemann went to work for Cedar Rapids (population 138,000) 24 years ago and worked his way up through positions including project engineer, water plant manager and water pollution control plant manager before taking on his current role as utilities director.

He is responsible for the city's two water treatment plants with a combined 60 mgd capacity. About 70% of that output goes to eight large processing industries that produce everything from ethanol to food for human consumption. The water pollution control plant treats an average of 40 mgd (maximum capacity 86 mgd) with a high organic loading from those same large industries; it handles the equivalent of the domestic treatment load from a population of 1.8 million.

Cedar Rapids has been recognized by the AWWA Iowa Section for the best-tasting water in the state four times in the past 13 years. The water pollution control plant has earned multiple Silver and Gold Peak Performance Awards from the National Association of Clean Water Agencies for permit compliance.

TREATING THE WATER

The water treatment plant draws from 51 wells with 80 mgd total capacity. They include 45 vertical wells and six horizontal collector wells in the sand and gravel deposits (alluvial aquifer) along the Cedar River.

At the treatment plants, the water first undergoes aeration by cascading down a series of trays, adding oxygen and removing undesirable gases such as radon. Slaked lime is then added to soften the water. The lime residuals are removed and applied to farmland. Carbon dioxide is added to lower the pH, and chlorine is dosed for disinfection.

The water then passes through a sand and gravel filter bed. Fluoride is added, and phosphate is introduced to chemically stabilize the water and lessen the risk of lead leaching from water service lines and home fixtures. This is followed by UV disinfection. The finished water is pumped directly into storage tanks and subsequently into the distribution system.

“Look to the future. Always keep your end goal in mind. Don't ever be afraid of change.”

ROY HESEMANN

The water pollution control plant uses a secondary treatment process that includes trickling filters, aeration basins and ammonia removal. Effluent disinfected with chlorine is discharged to the Cedar River, and dewatered biosolids are incinerated or land-applied.

KEEPING IT RUNNING

Hesemann leads the robust team that keeps all the facilities and sys-



THE ONLY HIGH EFFICIENCY BLOWERS* MADE IN AMERICA

inovair[®] Geared Centrifugal Blowers



BUILD AMERICA, BUY AMERICA

Designed and manufactured in Kansas City, with hundreds of installations and a proven track record, Inovair is Build America, Buy America (BABA) compliant. To learn more, visit [inovair.com](https://www.inovair.com).

* Based on November 2023 EPA RFI: <https://www.regulations.gov/document/EPA-HQ-OW-2023-0396-0001/comment>

LOWEST TOTAL COST OF OWNERSHIP

- Proven High Efficiency, PTC 13 Tested
- 99.9% Uptime with Unlimited Start-Stop
- Ease of Maintenance, Owner Serviceable
- No building required, reduced infrastructure
- Energy Savings up to 45%

Models From 25-600 HP

sales@inovair.com | 1-855-INOVAIR

η = Efficiency™

A NEW VISION

Roy Hesemann, utilities director in Cedar Rapids, credits Jeff Pomeranz, city manager, for bringing welcome change when he came on board 13 years ago.

In particular, Hesemann says Pomeranz brought organizational health concepts as defined by Patrick Lencioni, a managerial consultant. The city has been developing those concepts for the past 12 years.

The approach sets the stage for everyone to work cooperatively, to have healthy discussions, healthy relationships with others and to work effectively through challenges. Hesemann sees that as having made Cedar Rapids a cohesive community from the city manager's office on down, ensuring that everyone makes good decisions and follows good processes.

Adoption of Lencioni's approaches and tailoring them to fit the Cedar Rapids mold continues to help avoid common situations where departments function as independent silos, where people don't communicate, and members of one department don't know what is happening in the other departments. That kind of work atmosphere, Hesemann says, is not conducive to taking care of community residents or even city employees' career satisfaction.

Under Pomeranz, he observes, "We all figured out how to break down silos and work together. Departments such as utilities, parks and public works started to make sure that everyone was on board with the management concepts."

The team approach helped everyone collaborate to upgrade old infrastructure, renovate the treatment plants and assess needs according to priority.

tems operating smoothly. He credits his success to the people at all levels of the utilities department and in particular to his direct reports.

Kevin Kirchner, utilities business manager, oversees the customer service group, which includes meter readers, meter servicing, billing and collections, the customer service call center, backflow prevention and general business requirements.

Dave Wallace, utilities engineering manager, directs the water and wastewater plant capital improvement program, construction oversight, and water distribution including main break repair and valve and hydrant maintenance.

Lauren O'Neil is wastewater treatment plant manager and also oversees operations at 11 lift stations. Christine Knapp is water plant manager. Justin Schroeder, utilities environmental manager, oversees

the city's certified water and wastewater lab, air and wastewater discharge permitting and reporting, industrial pretreatment, wastewater collection monitoring and a regional watershed conservation partnership.

In working with established team members and new hires, Hesemann's approach is straightforward: "Always make sure they are putting their best foot forward, making sure that they are learning. Life is a journey of learning, and the more they learn, the more adaptive and flexible they will be in their future. Having those skills helps them make their own way in life.

"If you have blinders on and say, 'This is the only thing I am going to do,' then your marketability is very small. But if you learn a lot of trades and are

“When working with staff it should really be like a family affair, rather than a generic work environment.”

ROY HESEMANN



An aerial view of the Cedar Rapids Water Pollution Control Facility.



The team at Cedar Rapids includes, from left, Macy Borngraeber, water quality chemist; Drew Campbell, lab manager; Quinn Johnson-McCormick, process operator; Ron Hesemann, utilities director; Travis Heins, operations specialist; Jason Booth, process operator; and Lauren O'Neil, plant manager.

good at many things, that will take you a long distance in being able to support yourself and your family."

Hesemann believes in a family approach to leading a team. "When working with staff it should really be like a family affair, rather than a generic work environment," he says. "Make sure you are being kind, fair and consistent and be sure everyone is being family oriented and working toward that end."

PERSONAL SIDE

Hesemann has been married for 18 years and says his wife, Karen, has "always been extremely supportive," paying attention when he tells about things that have happened during the day. "It's nice to have a listening ear at home," he says. "She always encourages me to do things I want to do. She's always here for me. Taking care of the dogs whenever I am gone is a good thing, too." **tpo**

featured products from:

Alfa Laval, Inc.
713-934-3160
www.alfalaval.us

De Nora Water Technologies
215-997-4000
www.denora.com
(See ad on page 66)

Pentair Fairbanks Nijhuis
888-416-9510
www.pentair.com/fairbanks-nijhuis
(See ad on page 15)

SNF

POLYDYNE INC.



PERFORMANCE POLYMERS for Municipal Treatment Applications

To learn more, visit us at Booth #4028 at WEFTEC!



Contact us at go.snf.com/tpo2024



Toward a Circular Water Economy

A MINNESOTA NONPROFIT LOOKS TO BOLSTER COOPERATION ACROSS SECTORS AND ORGANIZATIONS TO CONSERVE WATER AND FOSTER MORE SUSTAINABLE COMMUNITIES

By Ted J. Rulseh

Traditional water management takes a one-way approach. Treat drinking water and send it to distribution. Receive and clean wastewater and discharge it to a stream. Collect rainwater and pipe it out of town.

More current thinking envisions a circular water economy, where water is used and reused in the most efficient manner possible and is kept within the watershed from which it was drawn. One proponent of the circular water economy is Freshwater, a nonprofit organization based in St. Paul, Minnesota.

As demand for clean water grows regionally and globally, Freshwater works on ways to support water reuse and recharge by collaborating with technical experts, government agencies and local communities and utilities.

Executive director Michelle Stockness has 20 years of experience solving complex water quality and supply problems. Before joining Freshwater, she was a vice president at an engineering consulting firm. There she guided public- and private-sector clients through regulatory and environmental issues around drinking water, wastewater and stormwater.

As a civil engineer, Stockness understands water systems, leads a variety of cross-sector initiatives and was a board vice president of the AWWA. She talked about the circular water economy in an interview with *Treatment Plant Operator*.

tpo: In your previous roles, what did you observe about water management approaches?

Stockness: In my work as a consulting engineer, one thing I realized was that people didn't talk across the different groups that work in water. Sometimes I was relaying information across departments inside cities or businesses: "Did you know this department is doing something you should know about?" I saw a need for more coordination across different silos.

tpo: How would you describe Freshwater's role and scope?

Stockness: We work in Minnesota and the Great Lakes Region. Our mission is to inspire and empower people to value and conserve water. Our work revolves around water research, policy and education. The key to that is working across the public and private sectors and with state government agencies and communities. We look for gaps: What is being done well? And what maybe is not being done that we can help with? The circular water economy is one area where we can help because it requires a lot of cross-sector work.

tpo: How would you characterize the circular water economy concept from the perspective of people working in wastewater and drinking water treatment operations?

Stockness: It's about valuing water in every form. We used to focus on getting water off the landscape, treating it and sending it away. The concepts of "away" and "waste" — we're trying not to focus on that and to look at all water as a part of an interconnected system. So, for example, how can we use a discharge from a wastewater treatment plant as an input to something else in the watershed? It includes the beneficial use of byproducts and biosolids. It's looking at our inputs and our outputs and how we can keep that resource in the watershed.



Michelle Stockness

tpo: What would you say is a key to establishing a circular water economy?

Stockness: We traditionally do things based on cost and shorter-term thinking. Instead, we need to focus on longer-term thinking about what is best for our region, our watershed and what it takes to maintain safe, clean water for future generations. I often hear the private sector talk about the circular economy in terms of business risk and water risk and ways to mitigate the impacts of climate change. Water and wastewater utilities can think about that, as well as keeping water in the watershed and making changes in operations and partnerships to benefit circularity.

tpo: Practically speaking, what are some of your organization's areas of focus?

Stockness: In Minnesota we use a lot of groundwater, so we focus on sustainable aquifer use or recharge. We also emphasize awareness and connections across groups, especially utilities, businesses, state agencies and economic development groups. They all should be talking about water use, especially if they are redeveloping or siting a new business. We see businesses come to Minnesota because of the water resources we have. We want to site them in places where they don't cause adverse effects to existing water systems or groundwater. For instance, can we site them near a wastewater plant so they could use reclaimed water for their operations?

tpo: How does the circular water economy concept differ from the concept of One Water?

Stockness: They are different, but linked. We need One Water for circularity. In One Water we think of stormwater, wastewater, drinking water, industrial water and how they're all related. The circular economy would

“I would love to see water utilities perceived as anchors of their communities. They should be seen as a community benefit.”

MICHELLE STOCKNESS

link those together. So maybe a wastewater plant discharge can be a drinking water input, or stormwater can be an input to something else. It's essential for high-functioning circular water economies to look on a watershed basis at all water sources and uses.

tpo: Why is it important for society at large to think in terms of a circular water economy?

Stockness: In the past it was considered efficient for all of us to work in silos: We were a wastewater utility, a drinking water utility, a city government, a business. We all did our own thing. But the world is increasingly

connected, and maybe we don't have the abundance of resources that we thought. The circular water economy helps us provide high-quality water to future generations and manage some climate change impacts, whether it's too much or too little water in a given place. Managing on a watershed basis can foster more resilient communities.

tpo: For water treatment professionals, what are some opportunities for more efficient and sustainable water management?

Stockness: For treatment plants, it's partly about having water-efficient operations. That includes reclaiming backwash and wash water, and being energy-efficient. It's also about thinking beyond the fence line. Where is the water source from? Who else uses water in the watershed? How could we partner up to better match sources and uses? And it's about forming partnerships with the private sector, economic development agencies and people looking to use water — getting to know who those parties are and opening lines of communication. For siting or redevelopment of large water users, those conversations need to start early in the process, because once you get to final design, it's too late.

tpo: What can be done to improve coordination among various parties on water issues?

Stockness: One easy way to do that is with mapping. Who uses water? Where is there too much water? Where is there too little water? How can we connect the sources in the watershed? It's about knowing who else is working in your watershed at the utility level and having a close relationship so you can work together, partner more effectively and avoid duplicating efforts.

tpo: What are some of your organization's success stories?

Stockness: In 2021 we did a study on banking groundwater with the University of Minnesota. We're doing another study with the university on groundwater recharge feasibility. We're looking to work with economic development groups so that if we hear about a business, we make sure the city utilities know about it and can look at partnerships for water efficiency. This summer we are developing a new State of Minnesota Circular Water Economy White Paper, looking across all sectors, highlighting what is going great and what else we can do to keep the circular economy front of mind. Minnesota is the Land of 10,000 Lakes. Water is in our consciousness in everything we do. We need to be responsible water users and leaders.

tpo: What is your vision for a future world of a circular water economy?

Stockness: I would love to see water utilities perceived as anchors of their communities, and being good partners with businesses, state agencies and water users. They should be seen as a community benefit, keeping water in the watershed and helping manage supply and scarcity issues a better.

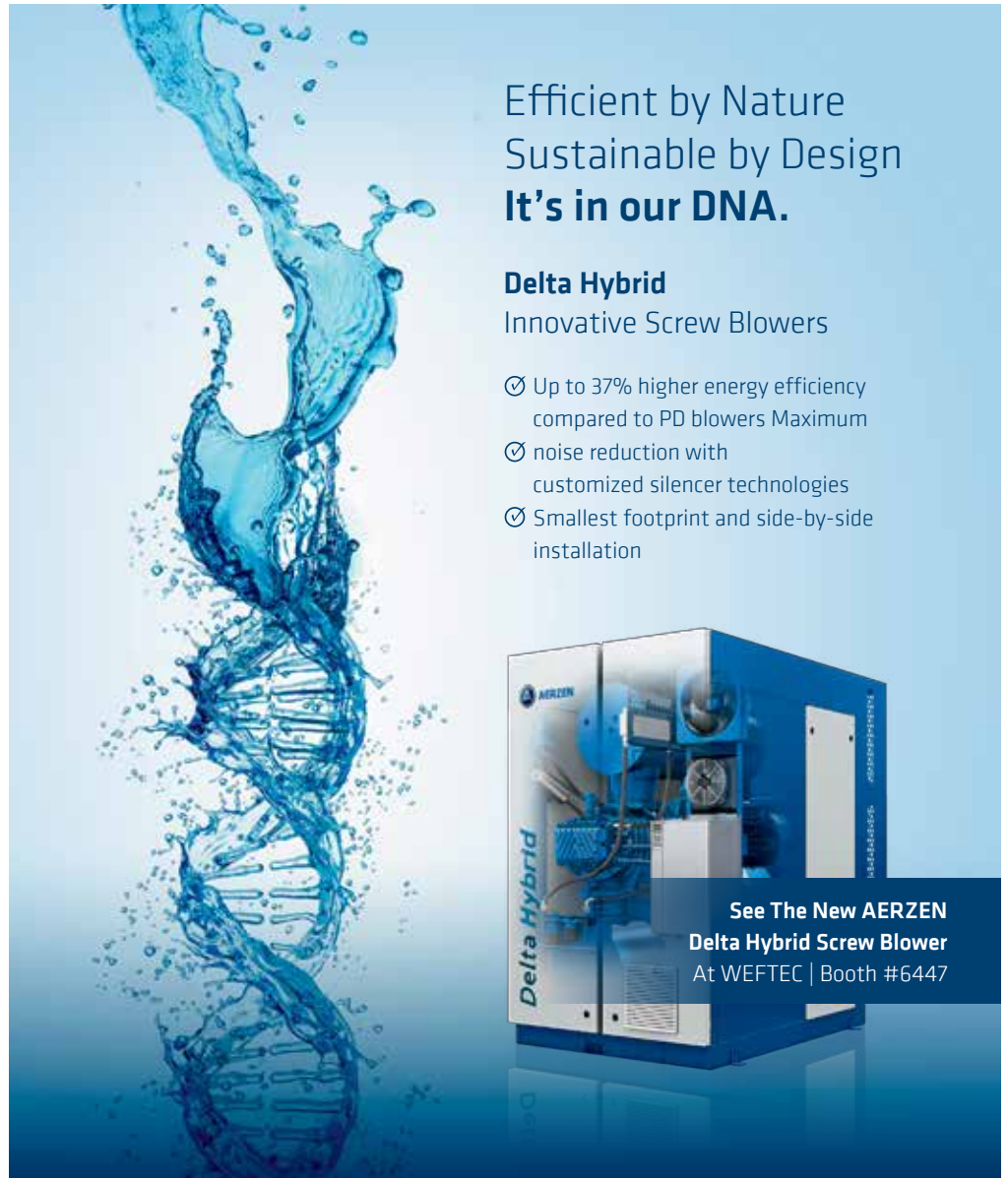
tpo: Stormwater in particular is typically collected and simply sent downstream. Do you see opportunities to do something better with that water?

Stockness: There are some very beneficial uses for stormwater, such as for irrigation or cooling water. In Minnesota, our soil and water conservation dis-

tricts and watershed districts are interested in how we can do that. It requires a change from the way systems were designed in the past. It takes a more work, but there's a huge opportunity.

tpo: Where can utility leaders and operations professionals get started toward fostering a circular water economy?

Stockness: Water circularity is not merely an academic concept. It is important for operators, and a good place to start is by communicating with other departments in the community — stormwater, wastewater, drinking water, economic development. See what they have plans for and see if you can link sources and uses, especially paying attention to new developments and redevelopments. And see if you can create more water efficiencies and conservation measures in those new projects. **tpo**



Efficient by Nature
Sustainable by Design
It's in our DNA.

Delta Hybrid
Innovative Screw Blowers

- ✓ Up to 37% higher energy efficiency compared to PD blowers Maximum
- ✓ noise reduction with customized silencer technologies
- ✓ Smallest footprint and side-by-side installation

See The New AERZEN
Delta Hybrid Screw Blower
At WEFTEC | Booth #6447



LET'S TALK
about efficiency and sustainability
www.aerzen.com/deltahybrid



AERZEN
EXPECT PERFORMANCE

A Curriculum of Quality



Dale Lance, left, utilities manager at the University of Central Florida Water Treatment Plant, and Riley Baird, utilities specialist, discuss the best way to replace a seal on a high-flow up pump during a daily maintenance checkup.

THE UNIVERSITY OF CENTRAL FLORIDA WATER TREATMENT PLANT TEAM DELIVERS A HIGH-QUALITY, RELIABLE SUPPLY WITH LONG-TERM VISION AND A CAN-DO ATTITUDE

STORY: **Suzan Chin-Taylor and Stormy Shafer** | PHOTOGRAPHY: **Chris Tilley**

No local municipal water services or infrastructure existed when the University of Central Florida was constructed in the 1960s as a source of technical and scientific talent for NASA and the aerospace industry at what was then Cape Kennedy.

Consequently, the university in Orlando had to build its own water treatment plant and distribution network as well as locate a groundwater source for drinking water.

The plant, which the Utilities & Engineering Services department operates, now supplies water to some 40,000 staff and students on the 1,415-acre main campus, which has 212 buildings including student housing and instructional, fire protection, research, office and athletic facilities. The plant also serves off-campus areas such as a Siemens headquarters, the Celeste Hotel and Central Florida Research Park.

Production averages 800,000 gpd. The wells are within the main campus; a connection to Orange County utilities provides redundancy for emergencies. A 200,000-gallon elevated tower and a 100,000-gallon in-ground tank provide water storage.

The university's water system is held to the same testing standards required of all municipal water systems under the Florida Department of Environmental Protection, which presented the university with a 2022 Drinking Water Plant Operations Excellence Award.

PLANT PROCESSES

The department's responsibilities cover water from the wellfield to the service lines of all facilities. Team members take monthly bacteriological samples from the four wells and distribution system to ensure that they are biologically clean and secure.

Flow from the wells is monitored by Badger M2000 Series meters. After that, an NSF/ANSI-certified Ultramag electromagnetic totalizer meter (McCrometer) adds up flow from four potable water meters to accurately dose the water with chlorine.

From there, flows are moved with four US Motors BF30 well pumps (Nidec Motor Corporation) up through a standpipe into a CROM fiberglass tray-type cascade

aerator to remove hydrogen sulfide. UCF added a Halogen chlorine analyzer within the ground storage tank to better monitor prechlorination. Chlorine is added with using two 2001V Series peristaltic pumps (Flomotion) into the 100,000-gallon CROM ground storage tank for disinfection contact time.

From there, four Aurora high-service pumps (Pentair) capable of 550 gpm send water to the elevated tower. The water plant floats off of the elevated tower once a day, depleting it to decreasing the water age. It floats from 63 to 53 psi, allowing the tower to turn over. The plant is controlled by a PLC with SCADA capabilities.

CHANGING TIMES

G. Robert Dehler, lead water operator, admits some trepidation about running into issues before a new treatment system using granular activated carbon and ozone goes online. "What's driving the change [on] trihalomethanes and haloacetic acids?" he says. "If regulators lower the maximum contaminant level, which they're going to do eventually, we will need to take appropriate measures to maintain compliance.

"GAC and ozone will take care of trihalomethanes. Ozone kills all the organics. If there's anything left, the granular activated carbon will strip it out when we chlorinate it, and the flow will go out into the distribution system. But there is one more new issue: PFAS.

"PFAS is driving everybody in Florida toward GAC and ozone. We have tested all of our wells, and we have no PFAS, but as regulations change, that new technology and plant design will take care of all those compliance issues."

GOVERNING PRINCIPLES

The university has a history of forward-thinking on managing utilities. Two basic and closely related tenets — sound resource management and conservation of water and energy — drive most management

“The first thing I did in my first year was evaluate how things were going. The first challenge was to get our THMs down.”

G. ROBERT DEHLER

The University of Central Florida's water storage tower on the campus was named an AWWA Landmark in 1967.

University of Central Florida Water Treatment Plant

energy.uef.edu

BUILT:
1963-1968

POPULATION SERVED:
Mainly 40,000 staff and students

SERVICE AREA:
Main campus plus some outlying areas

SOURCE WATER:
Groundwater

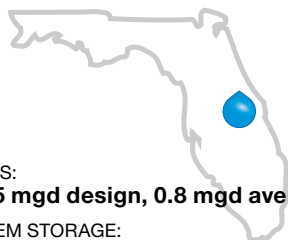
TREATMENT PROCESS:
Aeration and chlorination

FLOWS:
1.055 mgd design, 0.8 mgd average

SYSTEM STORAGE:
300,000 gallons

AWARDS:
2022 Drinking Water Plant Operations Excellence Award, Florida DEP

ANNUAL BUDGET:
\$3.5 million (operations)





University of Central Florida water plant crew members: from left, Riley Baird and G. Robert Dehler, utilities specialists; and Dale Lance, utilities manager.

decisions. A Campus Master Plan covers a decade at a time; the university is beginning to develop its 2025-2035 master plan.

The aim is not simply to maximize water efficiency within buildings, but also to reduce the burden on municipal water supply and wastewater systems. Water use has been reduced significantly by removing all irrigation from the potable water supply and instead drawing on reclaimed water. In addition, new facilities must use 40% less water than a baseline building.

Though the campus adheres to industry best practices to maintain and conserve its water resources, Utilities & Engineering department leaders felt pressure to do better and so explored sustainable alternatives.

After the transition to reclaimed water for irrigation, the department reclaimed water for the campus cooling towers to reduce total water usage and save on operating costs. To date, reclaimed water with the right treatment chemistry has served well while lasting longer before losing its effectiveness.

Based on that discovery, the department plans to transition to reclaimed water at its district energy plants, expecting to reduce consumption by up to 45% over the next five years. As for new construction, water conservation measures include low-flow lavatories and water closets and the use of reclaimed water for toilet flushing when appropriate.

FACING CHALLENGES

The campus water team in addition to Dehler includes operator Riley Baird and maintenance workers Dominic Pena, Troy Schnell and Marc Maheu. “Maintenance staff are just as important to the operation of the plant,” says Dehler. “They help with preventive maintenance and distribution. Water utilities have gone from being responsible only for the water plant to being responsible for the distribution system as well.”

The campus wellfields are located in the highest part of Orange County and produce reasonably good water by Central Florida standards. The university draws from the Upper Floridan Aquifer, which has areas of sand and

“When we have students on campus, our flow is 700,000 to a million gpd. Then everybody leaves and we’re down to 300,000-500,000 gpd.”

G. ROBERT DEHLER

gravel. “It’s in a great location,” says Dehler. “It’s on high ground, and that is why the elevated tower was originally placed in that location.

Water quality is always an issue, and it extends to other usages on the campus. “This water plant was built in the 1960s to take care of the campus area,” Dehler says. “As the campus grew bigger, it also grew taller. Now we have seven-story buildings for housing.

“With that elevation, the original water system could not handle fire protection. So, around 2001, we interconnected with the Orange County utility and put in a booster station. When they did that, they put a 16-inch loop throughout the campus.”

The 16-inch water main poses a risk of allowing water to stagnate in some areas, encouraging formation of THMs and HAAs. “When I came here five years ago, we were on the border of topping the limit for THMs,” says Dehler. “And once the water gets into the distribution system, it ages, which makes things worse.”

TAKING ACTION

Dehler recalls, “The first thing I did in my first year was evaluate how things were going. The first challenge was to get our THMs down.” At that time, chlorine was injected on top of the aerator, and the hydrogen sulfide in the water bound up with the chlorine.

A FLORIDA WATER LANDMARK

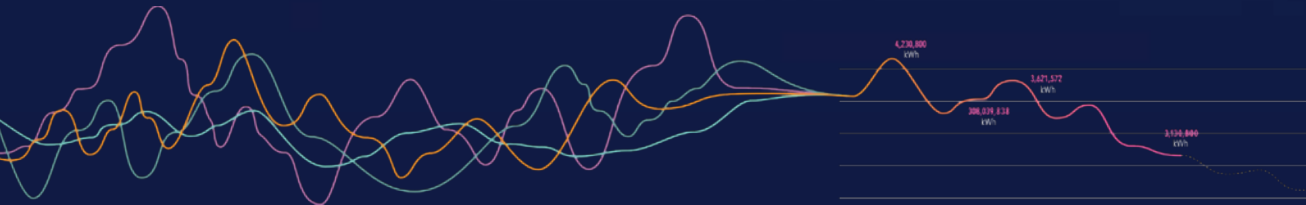
In 2021, the iconic University of Central Florida water tower was designated as a Florida Water Landmark by the AWWA.

The award recognizes and preserves a landmark property at least 50 years old that has had a direct and significant relationship with water supply, treatment, distribution or technological development. The tower, dedicated in 1967, isn’t unique in appearance, but it stands nearly 170 feet tall on the low, flat Florida peninsula and can be seen from miles away in Orlando.

“That tank is the highest mean sea level location in eastern Orange County,” says G. Robert Dehler, lead operator of the campus water treatment plant. “When you drive from the west coming down University Boulevard, you can see that tank for five or six miles.”

The tower holds 200,000 gallons and still functions to provide water storage and pressure for the campus water distribution system. The award is displayed at the base of the tower for the campus community to enjoy.

Let's see how a single smart water platform can simplify water management



Xylem Vue powered by GoAigua eliminates information and organizational silos, helping utility managers and operators unlock the true value of their data.

- Unify data, from any source, within a single, interoperable, vendor-agnostic software and analytics platform
- Increase awareness and control across the entire water cycle
- Optimize decision-making and increase operational efficiency
- Solve system challenges affordably and sustainably

See how Xylem Vue powered by GoAigua can help your utility.

Scan the QR code to learn more and request a free demo.



Dehler changed the point of injection to below the aerator so that it could remove the hydrogen sulfide as well as organic compounds and thus lower the THMs. He then directed the staff to clean the in-ground storage tank twice a year for more THM reduction. That now has happened for five years.

Dehler's third step was to create a hydraulic model of the distribution system to discover the water age from end to end: "We found out that our water age was somewhere around five days. Once you get past five days, the THMs start coming up, so we put automatic flushing devices at all the ends of our system."

Now, in areas of known low flow, the automatic flush moves water into the active stream. Dehler and team revised the flushing program to increase velocities in the core main, thus removing organics in the distribution system. They transitioned from standard hydrant flushing to unidirectional flushing. "By doing all those things we have maintained compliance for THMs and HAAs in our distribution system," Dehler reports.



The university water plant includes extensive automated monitoring and control. Riley Baird, utilities specialist, is shown in the pump room (Hach monitoring equipment).

KEEPING IT CONSISTENT

Another challenge is the nature of a university schedule: The campus for most of the year is full, but during summer, holiday and semester breaks the population dwindles to about 30%. The low-occupancy periods exacerbate the issue of water age.

"First, we have water flowing all over campus, and then all of a sudden demand changes," says Dehler. "When we have students on campus, our flow is 700,000 to a million gpd. Then everybody leaves and we're down to 300,000 to 500,000 gpd. At that point, we have to look at our water age and do a little bit more flushing and adjust when our elevated tank floats. We account for all that water we flush."

Modern controls and equipment including variable-speed pumps and motor-control systems were installed with a plant upgrade in 2018. In 2019 the plant faced elevated THMs. "One of the last things we addressed was the water levels in the elevated tower," says Dehler. "We added ladder logic to our PLC controls to give our high-service pumps a fixed pressure setting hour by hour.

"We started floating the tank at least once a day, allowing the tower water to turn over. This shortened the water age within the distribution system. As water demands change, so does the operation of the tower. The actions we've taken help keep water age as low as possible."



The SCADA screen at the University of Central Florida Drinking Water Plant.

A NEW PROCESS

Dehler believes the work in maintaining system compliance is what earned the plant its 2022 DEP award. He credits Dr. Steven Duranceau, P.E., director of the university's Environmental Sciences Engineering Institute, for helping the program get noticed.

"He teaches his students how to treat drinking water," Dehler says. "Because he's on campus, we were able to pilot study granular activated carbon and ozone treatment. We used his students and our water plant to pilot our next step in treatment. It was very beneficial, and we saved a lot of money.

"The Utilities & Engineering department is pursuing the potential of a new water facility due to regulatory water quality parameters changing and future growth. When I had an opportunity to come out of retirement and train young people to take over the water treatment work that I've been doing for 42 years, it was a blessing for me.

"I was blessed to have Riley Baird and Dominic Pena. Under my tutelage, Riley achieved certification as a Class C operator, and Dominic continues to work as a trainee operator with a main focus on maintenance. By time I leave they'll be able to carry on with a new water plant and a career that will take care of them for life." **tpo**

featured products from:

Badger Meter
877-243-1010
www.badgermeter.com/
flow-instrumentation
(See ad on page 13)

CROM
352-372-3436
www.cromcorp.com

Flomotion Systems, Inc.
800-909-3569
www.flomotionsystems.com

Hach
800-227-4224
www.hach.com

Halogen Valve Systems, Inc.
943-261-5030
www.halogenvalve.com

McCrometer
800-220-2279
www.mccrometer.com

Nidec Motor Corporation
888-637-7333
https://acim.nidec.com/motors/
usmotors

Pentair
www.pentair.com
(See ad on page 15)

Parkson and our brands have a solution for all your wastewater and water treatment needs.

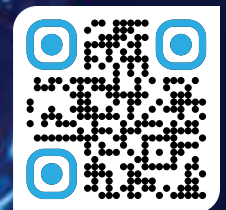
Our products can be found in thousands of facilities worldwide in areas such as:

- Headworks
- In-Channel Screening
- Grit and Grease
- Rotating, Pre-Membrane and Static Screen Options
- Aeration
- Biological
- Biosolids
- Clarification
- Filtration
- Pumps

Parkson has over half a century of experience bringing expertise in a wide range of water and wastewater treatments from standard processes to the most unique and complex.

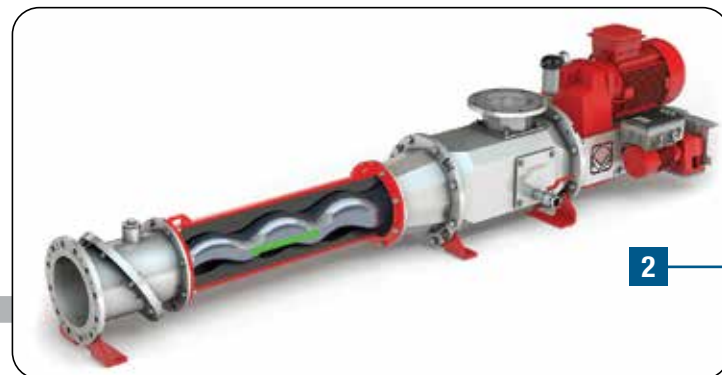
Contact us to discuss how our products and services can help with your needs.

**VISIT US AT
WEFTEC 2024
Booth #4001**





- 1) HiCone progressive cavity pumps have a conical rotor-stator geometry. Available in manual and automatic versions, they are designed to move biosolids and sludges in water and wastewater treatment plants.
- 2) A cutaway of a HiCone progressive cavity pump shows (green arrow) that the rotor can be retracted from the stator to reduce startup torque and advanced into the stator to restore the ideal compression fit and keep the pump operating at as-new capacity.



The Shape of Progress

PROGRESSIVE CAVITY PUMPS WITH A CONICAL ROTOR-STATOR GEOMETRY ARE DESIGNED FOR LOW ENERGY CONSUMPTION AND LONG LIFE IN PUMPING SLUDGES AND BIOSOLIDS

By Ted J. Rulseh

Pumps in treatment plants are easy to take for granted amid all the high-technology equipment involved in the processes.

Pumping of viscous materials like sludges and biosolids can be challenging: Key attributes include consistency, reliability energy efficiency and long service life.

Progressive cavity pumps are a common choice for pumping a wide range of treatment plant waste slurries. Vogelsang has offered its CC Series progressive cavity pumps since 2014. Now the company has introduced the HiCone progressive cavity pump series in capacities from 30 to 1,400 gpm.

These pumps employ a conical rotor-stator geometry in which a simple external adjustment can advance the rotor into the stator as the pump undergoes normal wear. This increases the contact surface and re-establishes an as-new new rotor-stator sealing line, restoring the original compression and output.

The pumps are available in manual and automatic versions, and an autonomous version is due for introduction in the near future. Aaron Renick, vice president of sales, talked about the technology in an interview with *Treatment Plant Operator*.

tpo: What are the typical applications for this progressive cavity pump series?

Renick: The pumps are used to move biosolids and all the kinds of sludges in water and wastewater treatment plants except for the very viscous cake that comes off a belt press or centrifuge. We have a successful history in the biogas and agriculture markets in Europe and Canada, and more recently in the United States.

tpo: Why did your company develop the HiCone product line?

Renick: We had been known primarily known for our rotary lobe pumps. We saw value in progressive cavity pumps, and we set out to address

“What makes our conical design unique is that users can retract the rotor out of the stator or adjust it forward into the stator. So they can adjust the compression fit between the rotor and stator.”

AARON RENICK

the weak points we perceived in those pumps. They took up a lot of real estate in a plant because of the need for space to disassemble them for repair. The longevity of wear parts was not optimal, and they used a lot of energy.

tpo: Did your company have previous experience with progressive cavity pumps?

Renick: We've offered the CC Series progressive cavity pump since 2014. It is easy to maintain because of our hollow rotor design and the users' ability to remove the rotor and stator while the pump is in place without disrupting any of the pipe work. So we looked for ways to mitigate the other issues I mentioned.

tpo: What is different about the HiCone series?

Renick: Progressive cavity pumps have a rotor inside a stator. The pump relies on the compression of an elastomer by insertion of the rotor. That's what prevents liquid from back-flowing through the pump. The design relies on the correct fit between the rotor and stator. What makes our conical design unique is that users can retract the rotor out of the stator or adjust it forward into the stator. So they can adjust the compression fit between the rotor and stator.



dBi Modbus (dBi-M6)

Level or Flow

What type of measurement are you looking for?

Pulsar Measurement provides award-winning flow and level monitoring instruments that are favored worldwide due to their reliability and ease of use.



DFM 6.1 Doppler Flow Meter



Visit pulsarmeasurement.com to see our complete line of flow and level instrumentation products.



tpo: What is the benefit of that capability?

Renick: In the traditional design, when the pump is new, once you insert the rotor into the stator, you have a fixed fit. It takes a lot of torque at startup to turn the rotor because there is 1/2 mm or more of compression between the sliding surfaces. But with the cone shape and the ability to incrementally retract the rotor, you no longer have that compression, and so less torque is required to turn the rotor at startup. So for example, a standard progressive cavity pump may require 30 hp at startup. But we can start a HiCone pump while the rotor is retracted and then over a 15- to 30-second interval gradually advance the rotor into the stator. So instead of 30 hp, only 20 or 15 hp may be required. That in turn reduces the required size of the motor, the variable-frequency drive, and the wiring to connect the motor to the drive.

tpo: How does this retraction and advancement of the rotor take place?

Renick: In the automatic version of the pump, we use a motor and gearbox to make the incremental adjustments. It's programmed so that when the pump stops, the rotor is automatically backed out of the stator, so that the lower starting energy is required.

tpo: What advantage does conical shape have over long-term operation?

Renick: As you operate the pump, you're typically moving material containing hard grit particles that erode the elastomer and eventually the steel on the rotor. Users can then advance the rotor farther into the stator and renew the fit so that the pump has the same compression as when it was new. So users keep the same pumping capacity and extend service life.

tpo: How is that rotor adjustment accomplished?

Renick: On the manual version, the user just has to remove a protec-

tive cover and advance or retract the rotor by turning one nut. It requires only a standard wrench out of a toolbox. There's a visual indication so that they know they haven't advanced the rotor too far or not far enough.

tpo: What additional capabilities will the autonomous version of these pumps have?

Renick: The autonomous version will allow users to take various inputs and outputs and to make adjustments to the pump when necessary. They'll know the temperature. They'll know if the pump gets into a dry-run condition. The pump will then eliminate the resulting friction by retracting the rotor out of the stator while it is in operation.

“On the manual version, the user just has to remove a protective cover and advance or retract the rotor by turning one nut.”

AARON RENICK

tpo: What other design features contribute to pump longevity?

Renick: We use a block ring mechanical seal. It's a cartridge seal that keeps fibrous material and grit away from the seal faces. It has a buffer chamber on the nonproduct side of the seal that is pressurized. The advantage is that it keeps material off the seal faces and keeps the mechanical seal lubricated, so that in case of a dry-run condition the seal is not damaged. In addition, the drive train is very robust. The universal joint is a cardan-style joint that is grease lubricated. It is extremely strong and should last the lifetime of the pump. tpo

SUBSCRIPTIONS ARE FREE. Visit tpomag.com or call 800-257-7222

Succeeding With a Smile

STEVE MOSBRUCKER'S CHEERFUL ATTITUDE LIES AT THE HEART OF HIS SERIOUS APPROACH TO IMPROVING TREATMENT IN TWO RURAL MONTANA COMMUNITIES

STORY: **Jim Force** | PHOTOGRAPHY: **Dave Bell**


Steve Mosbrucker is always chuckling.

He chuckles as he remembers starting out working at a wastewater treatment plant for \$250 a month. He chuckles as he describes the pontoon boat he and a buddy built to service the lagoon aerators. He chuckles describing his sewer district board's gradual recognition that managing the wastewater operation was important, and that there was lots to do.

But his lighthearted approach doesn't diminish his accomplishments as general manager of the Corvallis (Montana) Wastewater Treatment Plant.

He is responsible for the daily operation and maintenance of the Corvallis lagoon treatment system, the two lift stations in the village's sewer system, compliance, public outreach and relationships with the village sewer board. He also operates the lagoon system at the community of Victor, 15 miles away.

For his work, he was recognized as the 2023 Wastewater Operator of the Year from the Montana Rural Water Association. "I have watched Steve take corrective actions over the years," says Bill Bahr, who nominated him for the award, and recently retired from the MRWA. "He is truly dedicated to helping his two communities."



General manager Steve Mosbrucker is responsible for a Corvallis lagoon plant that serves about 1,350 people, plus commercial connections and the community school district.

Producing quality water is all in a day's work for Mosbrucker (Flowmeter from Pulsar Measurement).

UNUSUAL START

Mosbrucker got into the clean-water profession years ago and in an entirely different setting.

He remembers living in a trailer park with his two kids next to the Corvallis treatment facility and working at the local sawmill. "The board members came over one day and asked if I could tend the plant part time, for \$250 a month," he recalls.

He worked there for 30 days and then asked for \$450 a month: "I asked for more or I was out of there." Eventually the sawmill went out of business, and Mosbrucker took over the wastewater operation full time, with a second assignment since 2004 at the Victor plant. The two plants have similar lagoon systems.

The Montana Department of Environmental Quality helped him get started studying for his license exam in 1995, and he acknowledges the help and encouragement he got from Bahr and Montana Rural Water. "He's a good man," Mosbrucker says. "We've become friends. He's seen the plant from when we started to what we've done here with our achievements."

Over the years, Mosbrucker has demonstrated to his board the value of the plant and the need for investment. He earned his Class 1 Wastewater Treatment license in 1998 (he also holds water and water well licenses) and little by little worked with the board to make improvements, including a major expansion taking place this year.

"I just kept plugging away," he says. "The pay got built up to a decent level. I learned everything. And we added capacity and got the plant caught up a little bit. The award was kind of humbling. I never expected to get an award for just doing my job."

EARLY YEARS

Built in 1979, the plant handles 71,000 gpd. It consists of two aerated lagoons; a third lagoon added in 2001 is used for storage while the other



“The award was kind of humbling. I never expected to get an award for just doing my job.”

STEVE MOSBRUCKER

lagoons are shut down for cleaning. Chlorine tablets are used for disinfection. Treated effluent is returned to the groundwater through two constructed wetlands containing eight infiltration ponds.

The plant serves about 500 residential connections (1,350 people), plus 60 commercial connections and the Corvallis school district. Mosbrucker and the district's engineering partner, Morrison-Maierle, have documented areas in need of improvement, namely clogging of the aeration basins and other equipment with trash and rags, noise from the large blowers, odors, and issues with meeting disinfection requirements.

The improvement project, estimated at \$3.2 million, will address these issues. A majority of the funding will come through American Rescue Plan Act and Secure Rural Schools grants.

NEW PROCESSES

The plant will add headworks with screening to remove rags and trash ahead of the treatment process. The plan is to consolidate all blowers into a single blower building and to install quieter centrifugal blowers (Inovair). The chlorination system will be replaced with two new UV disinfection units (Trojan Technologies).

The two original lagoon aeration systems will be upgraded, too. New Ares aerators (Triplepoint Environmental), the same as the ones in lagoon No. 3, will replace the old units. Corvallis will also get a new shop and office area. In addition, one of the two lift stations in the collection system will be moved. "It's currently in the school parking lot," says Mosbrucker. "Traffic can get pretty heavy when school is in sessions."

While physical improvements are important to continued success, Mosbrucker's unselfish attitude and willingness to make things work are critical. The constructed wetlands have already undergone a facelift at his

Steve Mosbrucker Corvallis, Montana



TITLE:
General manager, wastewater treatment, Corvallis and Victor

RESPONSIBILITIES:
Manage plants, lead improvement plans, communicate with public and sewer board

EXPERIENCE:
28 years managing wastewater treatment plants

CERTIFICATION:
Class 1 Wastewater Treatment, Class 3 Water Treatment Operator, A2 Water Well

AWARDS:
2023 Operator of the Year, Montana Rural Water Association

GOALS:
See plant improvements to completion; retire leaving plant in good hands



One of Steve Mosbrucker's many jobs is adding chlorine tablets (Norweco and Jet) to the system. This part of the treatment plant was scheduled for an update last summer.

direction: "We've added a new fence and cleaned up the area. You'll see geese and fox. It's more appealing for the public to experience."

Erik Hoover, the county's emergency services manager and a member of the Covallis sewer board, says Mosbrucker has a personal stake in the system and wants to see it succeed.

“Some folks get in a jam but don't call for help. Not Steve. If there's a problem, he'll call.”

BILL BAHR

lift station back up and running. He wants to see the system working and succeed, his service has demonstrated that.”

Bahr recalls another example that demonstrates why Mosbrucker is the kind of guy anyone would want on their team. "Steve was directing the clean sludge out of a lagoon that had been causing odors," Bahr recalls. "He ordered

MEETING A CHALLENGE

An emergency about a year ago bears that out. "Steve and his family were camping about three and a half hours from here," Hoover says. "We had a problem with a lift station in the middle of the night. It was winter. We called Steve and he tried to help us through the situation, but finally he came back from his campsite and helped us get the

TAKING THE BOAT

It's hardly the SS *Corvallis*, but the homemade pontoon boat Steve Mosbrucker and a buddy put together does what it was designed for: help in lifting and cleaning the new aerators in the aerated lagoons.

The former aerators were anchored to the bottom of the lagoons and were nearly impossible to clean and service. The new Ares aerators (Triplepoint Environmental) are lighter and are situated just above the lagoon bottom, so it's easier to move them or raise them for cleaning, maintenance or other service.

"We had an engineer on site and he sketched out a plan for a simple pontoon boat we could use on the lagoons," Mosbrucker says. "I had a buddy from high school help me, and we used 18-inch PVC pipe for flotation. Then we used plywood and a bunch of steel caps for the rest of the boat and installed a lift station crane on it so we can lift the aerators."

To move around the lagoon, Mosbrucker secured a cheap trolling motor and mounted it in the boat: "It goes 4-5 miles an hour. That's fast enough for us."



Mosbrucker holds wastewater treatment, water treatment and water well licenses and has worked steadily to improve the Corvallis treatment process.

a worker to put out his cigarette or leave the site. Steve is big on safety and process ethics. I don't know how many would have said that. Or would get down in there and do the work."

Bahr also credits Mosbrucker for knowing when to ask for help: "Some folks get in a jam but don't call for help. Not Steve. He's always on the up and up. If there's a problem, he'll call. He was a paper boy here as a kid. He's always looking out for that little town. It's the kind of work he wants to do."

TWO-MAN TEAM

Mosbrucker works on an on-call basis, which he says is 365 days a year, 24 hours a day. When he finds time to relax, he loves to hunt and fish. His favorite place is the Gate to the Mountains along the Missouri River route Lewis and Clark traversed as they explored the West: "It's where my father used to take me. It's a place very close to my heart." He and his wife have two children and six grandchildren, and the family often joins him on his mountain trips."

Nick Berger has been Mosbrucker's assistant for 12 years, taking time from his regular job to fill in at the plant as needed. He enjoys the work and



Need BABA-Compliant Pumps & Sulzer Reliability? Brad's Got Your Back.

Meet Brad, one of the technicians building Sulzer's BABA-compliant pumps at its newly expanded production facility in Easley, South Carolina. He's part of a team dedicated to providing US-made pumps of the highest quality and with significantly reduced lead times to support vital water infrastructure in America.

When pump reliability and quality matter as much as delivery without the wait, trust Sulzer.

Learn more about Sulzer's BABA-compliant equipment sulzer.com/baba

Visit us at
WEFTEC,
Booth #6139



Innovative VALVE SOLUTIONS



DeZURIK APCO HILTON WILLAMETTE Red Valve Tideflex RKL RKL Controls

Visit us to learn more about valve solutions that provide superior performance and maximum value.



DeZURIK.com



“Steve is energetic.
He tries new things.
He thinks ahead.”

NICK BERGER



Mosbrucker adjusts the aeration manifold for a lagoon with six Triplepoint aerators.

featured products from:

Inovair Geared Centrifugal Blowers
913-469-7244
inovair.com
(See ad on page 19)

Jet Inc.
800-321-6960
www.jetincorp.com

Norweco, Inc.
800-667-9326
www.norweco.com

Pulsar Measurement
888-473-9546
www.pulsarmeasurement.com
(See ad on page 31)

Triplepoint Environmental
800-654-9307
www.lagoons.com

Trojan Technologies
888-220-6118
www.trojantechnologies.com
(See ad on page 9)

the relationship. “Steve is energetic. He tries new things. He thinks ahead. He gives me the freedom to do my job,” says Berger.

He most appreciates Mosbrucker’s know-how. “He’s incredibly knowledgeable. We had a dicey situation at a lift station once, but with Steve, we

were able to make a quick fix. He knows the ins and outs. He even knows which lateral goes to what source.”

And does he chuckle when facing these challenges? Berger puts it this way: “He’s always in a good mood.” tpo

RADAR IS THE BETTER ULTRASONIC



\$795

VEGAPULS C 11

**80 GHz level sensor with
fixed cable connection (IP68)**

- Accuracy and reliability
meet affordability
- Easy Bluetooth setup via the
VEGA Tools app for smart devices
- Optional remote display available



All advantages of the radar technology:

www.vega.com/vegapuls

WEFTEC
Find us at
Booth 3561

2024 Instrumentation directory

Alarms & Controls
 Analyzers/Sensors
 Controllers
 Data Loggers/Management
 Detection Equipment
 Flow Control Meters/Monitoring
 Gauges
 Instrumentation - Analytical
 Instrumentation - Level Control
 Instrumentation - Process Control



Badger Meter
 4545 W Brown Deer Rd., Milwaukee, WI 53223
 877-243-1010
 infocentral@badgermeter.com www.badgermeter.com
 New Orleans Booth 929



Blue-White Industries
 5300 Business Dr., Huntington Beach, CA 92649
 714-893-8529
 sales@blue-white.com www.blue-white.com
 New Orleans Booth 3753



Bristol Instruments
 90 Canal St., 4th Floor, Boston, MA 02114
 877-866-8500 617-449-7390
 techsales@bristolinstruments.com www.bristolinstruments.com



CAS DataLoggers
 8437 Mayfield Rd., Unit 104, Chesterland, OH 44026
 800-956-4437 440-729-2570 Fax: 440-729-2586
 sales@dataloggerinc.com www.dataloggerinc.com
 New Orleans Booth 6947



Electroswitch
 180 King Ave., Weymouth, MA 02188
 781-335-5200 Fax: 781-335-4253
 info@electroswitch.com www.electroswitch.com



FCI - Fluid Components International
 1755 La Costa Meadows Dr., San Marcos, CA 92078
 800-854-1993 760-744-6950 Fax: 760-736-6250
 eflow@fluidcomponents.com www.fluidcomponents.com



Force Flow
 2430 Stanwell Dr., Concord, CA 94520
 925-686-6700 Fax: 925-686-6713
 info@forceflow.com www.forceflowscales.com
 New Orleans Booth 3918



Halogen Valve Systems, Inc.
 1342 Bell Ave., Tustin, CA 92780
 925-686-6700 Fax: 925-686-6713
 info@halogenvulve.com www.halogenvulve.com
 New Orleans Booth 3916



HF scientific, a Watts Brand
 16260 Airport Park Dr., Ste. 140, Fort Myers, FL 33913
 888-203-7248 239-337-2116
 hfsinfo@wattswater.com www.hfscientific.com



HORIBA
 20 Knightsbridge Rd., Piscataway, NJ 08854
 866-562-4698 732-494-8660
 info.sci@horiba.com www.horiba.com/scientific
 New Orleans Booth 1633



In-Situ Inc.
 221 E Lincoln Ave., Ft. Collins, CO 80524
 800-446-7488 970-498-1500
 sales@in-situ.com www.in-situ.com
 New Orleans Booth 2553

Alarms & Controls	Analyzers/Sensors	Controllers	Data Loggers/Management	Detection Equipment	Flow Control Meters/Monitoring	Gauges	Instrumentation - Analytical	Instrumentation - Level Control	Instrumentation - Process Control
			✓	✓	✓				✓
	✓	✓			✓		✓		
	✓		✓		✓	✓	✓	✓	
✓			✓	✓					✓
✓	✓				✓		✓	✓	✓
✓		✓						✓	✓
✓									✓
	✓						✓		✓
	✓						✓		
	✓	✓	✓				✓		

Instrumentation - Testing	Laboratory Equipment/Supplies	Laboratory Services/ Testing	Meters	Monitoring Equipment	SCADA Systems	Software	OTHER
			✓	✓			Ultrasonic Flowmeters
				✓			
			✓	✓			
				✓	✓		
			✓	✓	✓		
			✓	✓			
				✓			Chemical Tank Scales
							Chlorine Emergency Shutoff Systems
✓	✓			✓			
✓	✓						
				✓			

(continued)



FSM FRSIII Alpha-Beta Perforated Plate Screen

Increase capture

Increase capacity

Increase performance

All without increasing with channel dimensions



www.savecowaterna.com · 815-636-8306

See us
in New Orleans,
Booth 2217

2024 Instrumentation directory

Alarms & Controls
 Analyzers/Sensors
 Controllers
 Data Loggers/Management
 Detection Equipment
 Flow Control Meters/Monitoring
 Gauges
 Instrumentation - Analytical
 Instrumentation - Level Control
 Instrumentation - Process Control

KELLER
 See ad on page 45

Keller America Inc.
 351 Bell King Rd., Newport News, VA 23606
 877-253-5537 757-596-6680 Fax: 757-596-6659
 sales@kelleramerica.com www.kelleramerica.com
 New Orleans Booth 935

KROHNE
 ▶ measure the facts
 See ad on page 62

KROHNE Inc.
 55 Cherry Hill Dr., Beverly, MA 01915
 800-356-9464
 info@krohne.com http://us.krohne.com
 New Orleans Booth 6323

KURITA

Kurita America, Inc.
 6600 94th Ave. N, Brooklyn Park, MN 55445
 866-663-7633
 KAI_Orders@kurita-water.com www.kuritaamerica.com
 New Orleans Booth 3437

LOVIBOND
 See ad on page 11

Lovibond
 6456 Parkland Dr., Sarasota, FL 34243
 800-922-5242 941-756-6410 Fax: 941-727-9654
 sales@lovibond.us www.lovibond.com
 New Orleans Booth 4034

Lutz JESCO
 See ad on back cover

Lutz-JESCO America Corp.
 55 Bermar Park., Rochester, NY 14624
 800-554-2762 585-426-0990 Fax: 585-426-4025
 mail@jescoamerica.com www.lutzjescoamerica.com
 New Orleans Booth 3236

MYRON L COMPANY

Myron L® Company
 2450 Impala Dr., Carlsbad, CA 92010
 760-438-2021 Fax: 760-931-9189
 info@myronl.com www.myronl.com

pulsar
 See ad on page 31

Pulsar Measurement
 11451 Belcher Rd. S, Largo, FL 33773
 888-473-9546
 northamerica@pulsarmeasurement.com
 www.pulsarmeasurement.com
 New Orleans Booth 801

SEEPEX.
 An Ingersoll Rand Business
 See ad on page 59

SEEPEX Inc.
 511 Speedway Dr., Enon, OH 45323
 937-864-7150
 sales.us@seepex.com www.seepex.com
 New Orleans Booth 3929

VEGA
 See ad on page 37

VEGA Americas, Inc.
 3877 Mason Research Pkwy., Mason, OH 45036
 800-367-5383 513-272-0131 Fax: 513-272-0133
 americas@vega.com www.vega.com
 New Orleans Booth 3561

YSI
 a xylem brand
 See ad on page 55

YSI - a Xylem brand
 1725 Brannum Ln., Yellow Springs, OH 45387
 800-765-4974 937-767-7241
 info@ysi.com www.ysi.com
 New Orleans Booth 4429

Alarms & Controls	Analyzers/Sensors	Controllers	Data Loggers/Management	Detection Equipment	Flow Control Meters/Monitoring	Gauges	Instrumentation - Analytical	Instrumentation - Level Control	Instrumentation - Process Control
			✓			✓		✓	✓
				✓	✓		✓	✓	✓
		✓	✓	✓					
	✓						✓		✓
		✓		✓	✓		✓		✓
	✓	✓					✓		✓
	✓	✓	✓		✓		✓	✓	✓
✓		✓		✓	✓		✓	✓	✓
		✓					✓	✓	✓
✓	✓	✓	✓		✓		✓	✓	✓



Check out more manufacturers and dealers at:

Instrumentation - Testing	Laboratory Equipment/Supplies	Laboratory Services/ Testing	Meters	Monitoring Equipment	SCADA Systems	Software	OTHER
				✓			
		✓		✓		✓	
✓	✓	✓					Turbidity Analyzers
			✓				
✓	✓			✓			Standard Solutions
			✓	✓			
				✓			Pump Controls
✓				✓			

www.tpomag.com

ZeeLung* MABR

Simple, Sustainable
Wastewater Intensification
Technology for Activated
Sludge Plants



*Trademark of Veolia; may be registered in one or more countries. ©2024 Veolia. All rights reserved.

A Breath of Oxygen

ZEELUNG TREATMENT TECHNOLOGY HELPS YORKVILLE-BRISTOL SANITARY DISTRICT UPGRADE CAPACITY AND MEET A NEW EFFLUENT PHOSPHORUS LIMIT

By Ted J. Rulseh

A growing population and the arrival of new industry meant challenges for the Yorkville-Bristol Sanitary District wastewater treatment plant. The district, based in Yorkville, Illinois, serves a population of 22,000 and discharges to the Fox River. The treatment plant (3.62 mgd design, 2.0 mgd average) was using a single-stage nitrifying activated sludge process.

The new industrial flow — high BOD and low volume — meant the facility would likely exceed its rated organic capacity. At the same time, the district had to comply with a new total phosphorus effluent limit of 1 mg/L. The plant needed an upgrade to deal with both conditions.

To meet its dual objectives, the district in 2017 completed an \$8 million renovation that included a ZeeLung membrane aerated biofilm reactor from Veolia Water Technologies and Solutions, along with enhanced biological phosphorus removal.

SPACE LIMITATIONS

The upgrade had to be completed within a confined site, notes Cyrus McMains, P.E., the district's executive director. "We have a creek on the west side of the property, residences right across the fence to the east, and a river to the south," he says.

A plant expansion with conventional treatment upgrade would have required building a separate plant on the opposite side of the creek, a costly proposition. Instead, the district looked for a treatment retrofit that would minimize capital expenses and civil modifications, while accelerating the schedule by avoiding the time needed to permit and build a new plant.

Before the upgrade, the plant had 10 aeration tanks operating in series. Under that scheme chemical dosing would have been the only phosphorus removal option. "We preferred biological removal instead of adding extra chemicals," says Chris Frederick, plant superintendent.

"But we had a regulatory driver, as well. If we chose straight chemical phosphorus removal, we would have had to hit a lower total phosphorus limit of 0.5 mg/L by 2025. With biological removal we were able to push that limit off until 2030."

The key challenge was to expand secondary treatment capacity within the existing tanks while converting some aerobic tankage to anaerobic and anoxic for nutrient removal. That was the role of the ZeeLung technology.

ADDING OXYGEN

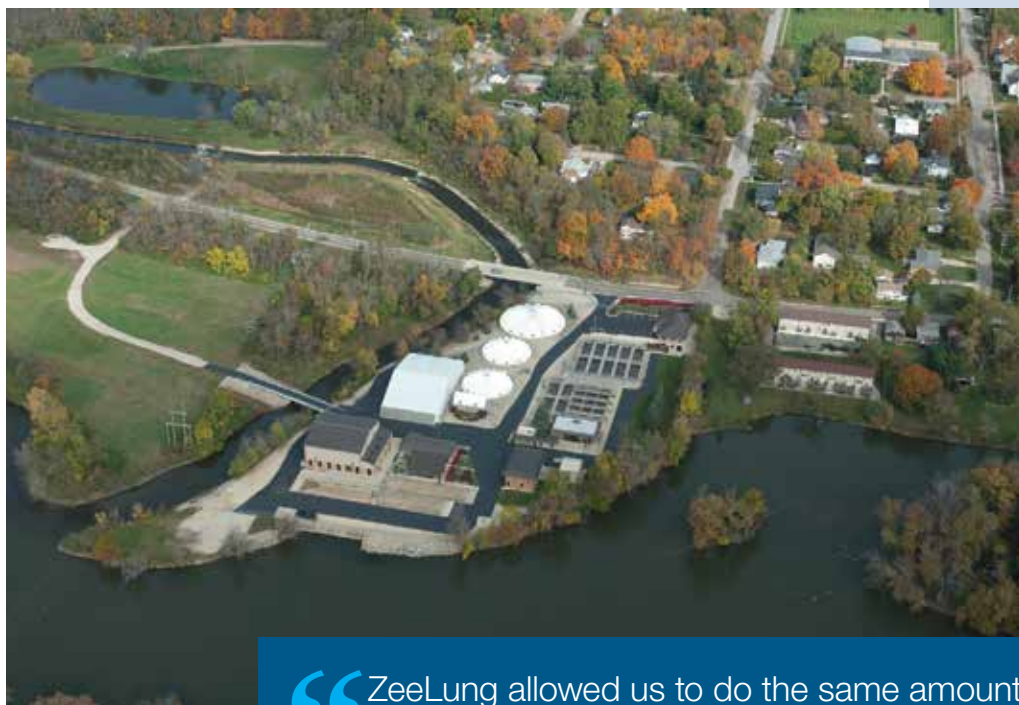
The ZeeLung MABR is designed to maximize the treatment capacity while reducing energy consumption. The process uses gas-transfer media to deliver oxygen to a biofilm attached to the media surface. Oxygen is delivered by diffusion through the media rather than with bubbles, reducing the

energy needed by up to four times compared to conventional aeration, according to the manufacturer.

Immersing the membrane cassettes into mixed liquor increases the inventory of biomass in the system, intensifying biological treatment and enabling greater organic load to be treated in existing tankage. The attached-growth biofilm is resilient to load variations and upset conditions.

In the upgrade at Yorkville-Bristol, the first aeration tank was modified to an anaerobic zone to promote the growth of phosphorus-accumulating

Aerial view of the Yorkville-Bristol Sanitary District wastewater treatment plant.



“ZeeLung allowed us to do the same amount of aerobic work in 80% of the tank volume.”

CHRIS FREDERICK

organisms. The second tank was converted to an anoxic zone populated with the ZeeLung membrane cassettes, which support a nitrifying biofilm that enables simultaneous nitrification and denitrification.

In the new process, influent first passes through a headworks with 6 mm bar screens (Parkson Corp.), followed by 1-by-10 mm rotary wedge wire drum screens (also Parkson). The screens function as primary clarifiers. After secondary treatment the flow proceeds to the final clarifiers and UV disinfection (WEDECO) before discharge to the river. *(Continued on page 44)*

DON'T JUST SETTLE



CAPTURE 75-MICRON GRIT

With single unit designs up to 50 MGD, only **PISTA® INVORSOR®** combines enhanced particle settling by inclined plates with hydraulic forced vortex action to achieve industry-leading ultra-fine grit removal efficiency: **95% removal down to 75-micron particles.** That's 95% removal across all flows—even at peak conditions—with no derating.

**PISTA
INVORSOR**



Smith & Loveless Inc.

See the **PISTA® INVORSOR®** at
Booth #4029

weftec
the water quality event™

WEDGE WIRE SCREENS FOR WASTEWATER TREATMENT

Specializing in a wide array of Sieve Bends,
Rotary Drum Screens and Flat & Round MBBR
(Moving Bed Biofilm Reactor) System Screens.

More than 25 years
of experience delivering
high quality custom
products and solutions
for water treatment
applications.

Contact us today



FEDERAL
SCREEN PRODUCTS INC.

905.677.4171
federalscreen.com
info@federalscreen.com



(Continued from page 42)

MAKING THE CHANGE

The ZeeLung MABR was deployed while keeping the plant in operation and in compliance. “I described it to my board of directors as performing open heart surgery on the plant,” says McMains. “The aeration system is the heart of the plant. We had to take some of it offline so that we could upgrade. We did say some prayers for no rain.”

Seven of the 10 aeration tanks remained in service during the upgrade. At times plant team members used portable pumps to move wastewater between tanks when gravity flow was interrupted.

“When we did the MABR upgrade, we cannibalized 20% of the aerobic fraction,” says Frederick. “ZeeLung brought back that cannibalized aerobic solids retention time and allowed us to do the same amount of aerobic work in 80% of the tank volume. At completion we had about a 45% biological improvement on the organic treatment side.”

The 18-month upgrade also included various modifications to the existing tanks, changes to the system of blowers and compressors for air delivery, a new building for the aeration equipment, electrical wiring upgrades and installation of ducting and conduits for future MABR capacity additions.

UP TO SPEED

Veolia provided startup training on the ZeeLung system for the plant team. “Everything was video recorded so it can be referenced,” McMains says. “We have that video in our library so that as new staff members come online they understand the background of the technology.”

The process is fully automated. Operators clean the dissolved oxygen, ORP, nitrate and ammonia probes weekly and calibrate them to handheld meters. The two Aerzen blowers that deliver process air receive annual maintenance, and the air compressors and valves are serviced regularly. “Everything is heat-traced to keep it from freezing in winter,” Frederick notes.

“I described it to my board of directors as performing open heart surgery on the plant.

The aeration system is the heart of the plant.”

CYRUS McMAINS

In the end, the plant upgrade capital cost was 75% lower than if new conventional capacity had been added on the opposite side of the creek. “We saved in operational expenses as well,” McMains adds. “To operate a parallel plant west of the creek to increase capacity and handle phosphorus removal, we would have had to add staff and quite a bit more maintenance.”

Meanwhile, energy costs have remained stable even though the plant’s organic treatment load has increased substantially, McMains observes.

UPPING THE ANTE

About 18 months ago the ZeeLung process was enhanced by addition of zeeDENSE hydrocyclone technology (also Veolia). The system uses gravimetric selection pressure to retain dense biomass and selectively waste less dense biomass, including filamentous bacteria.

Waste activated sludge or mixed liquor is processed through the zeeDENSE system. The dense biomass is returned to the bioreactor while the less dense biomass is wasted from the process. The result is improved settling of the mixed liquor, which enables up to 50% intensification of secondary clarification, according to Jeff Peeters, Veolia senior product manager.

“We like to say we keep the hard-working middle-aged bacteria and get rid of the too young or too old,” McMains says. “It takes up a very small footprint and a small amount of power, and it’s highly automated as well.” **tpo**

It's your magazine. Tell your story.

Send your ideas for future articles to editor@tpomag.com

50 YEARS



KELLER

WASTEWATER LEVEL TRANSMITTERS



See us
in New Orleans,
Booth 935



KELLER LEVELRAT

NON-FOULING WASTEWATER LEVEL TRANSMITTER

- UL/cUL approved for hazardous locations
- Guaranteed lightning protection
- Durable, non-stick sensing diaphragm
- Analog and digital output options
- Ships in 3 business days ARO
- 2 year warranty

kelleramerica.com



Members of the Sun City Anthem Community were recognized with a 2023 Water Conservation Award.

Accent on the Positive

A WATER CONSERVATION AWARD PROGRAM IN A NEVADA DESERT CITY RECOGNIZES ACTIONS SUCH AS REPLACING TURF GRASS WITH ALTERNATIVES THAT NEED LESS IRRIGATION

By Steve Lund

There's a softer side to water conservation in Henderson.

This desert city, the second largest in Nevada, has numerous restrictions on outdoor water use and a team of city employees to enforce them. It also celebrates customers' achievements in water conservation.

Since 2022, Henderson has presented an annual Water Conservation Award to a business or resident for a significant contribution to the cause. It recognizes achievements in water-efficient landscape design, renewable water policies and practices, environmental stewardship, community outreach, water loss reduction, employee education, water savings contributions, process optimization and other accomplishments.

BEYOND ENFORCEMENT

"Part of the reason we started an award was that sometimes when you hear water conservation, you only hear about enforcement," says Juliana Castiblanco, senior utilities business analyst for the city. "Don't use too much

water, using too much water is expensive, and so on. This way we can focus on what good is being done around water."

In 2022, the award's first year, the winner was the Anthem Country Club, which removed large amounts of decorative grass, replacing some with artificial turf and some with water-smart grass. Turf that was considered functional was not replaced.

Nonfunctional turf is a grassy area that is too small for people to use for picnics or casual games, such as tossing around a football. It could be the parkway between a sidewalk and the street. "It's turf that probably the only the person stepping on it is the one who maintains it," Castiblanco says. "That's what is considered nonfunctional turf here in Southern Nevada."

REMOVING THIRSTY TURF

A golf course has lots of functional turf, and the club was able to replace some of it with less thirsty varieties.

"You need some amount of turf at a golf course in order for their business to thrive," Castiblanco says. "For them, a solution was using artificial turf or changing their turf that is not meant to thrive in a desert to turf that is native to here, so that it uses less water when they're maintaining it." In total, the country club's turf replacements and conversions save almost 60 million gallons of water annually.

In 2023, the award went to the Sun City Anthem Community Association, which also saved a great amount of water by removing turf. The association removed 109,300 square feet of nonfunctional grass and installed 40 water-smart controllers. It documented more than 150 million gallons of water saved since it began conservation projects in 2018.

The smart controllers were for the community association's irrigation system. "They have more capabilities than just your older irrigation clocks that are at many facilities," Castiblanco says. "So they're able to control how often the grass or outdoor landscape is irrigated, right from their phones. On the random day that we do get rain, they can shut off the landscape watering." The controls are not required, but they acquired them anyway.

(Continued on page 48)



Eliminating or replacing "thirsty" turf was a big factor for the first two winners of Henderson's Water Conservation Award.

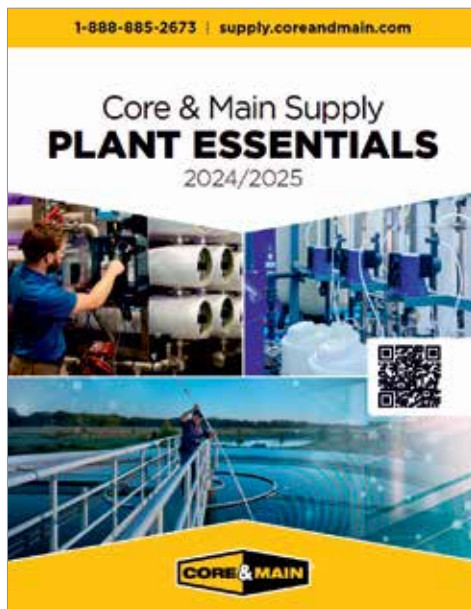


Get **The Best** Catalogs in the Business

Core & Main Supply has everything you need in the Plant, Lab and Field.

The Products You **Rely On** Every Day.

Dig into our free product catalogs and get instant access to everything you need for Water & Wastewater maintenance and operations in the Plant, Lab and Field. Request one or all three of our specialized and extensive catalogs contain essential products, tips, and resources for everyday processes, big projects and more!



TIPS FROM PIPER & LABBIE

Woof woof! We're the pups of Core & Main Supply!

Look for me throughout the catalogs for helpful tips about tools and processes in the plant & field!

Find me in the lab catalog offering helpful tips and tricks to optimize your testing processes!



**CORE & MAIN
SUPPLY**



CATALOGS



NATIONAL REACH. LOCAL EXPERTISE.

Scan to get your **FREE** product catalogs!

Need help ordering or have questions about our services? Get in touch with our team of experts.
1-888-885-2673 | support.supply@coreandmain.com | supply.coreandmain.com

*\$1500 applies to lower 48 states. \$4500 minimum required for free shipping to Alaska and Hawaii.

SCREW CONVEYOR SEALED FOR 12 YEARS AND STILL GOING!

CASE STUDY

PROBLEM: A sludge conveyor at a Florida wastewater treatment plant experienced frequent ball-bearing replacements, causing substantial downtime and maintenance costs. Sludge penetration into the pressurized ball-bearing cases accelerated wear, leading to failure within nine months of each rebuild.

SOLUTION: SealRyt introduced a PackRyt® Bearing coupled with a redesigned housing featuring a pressurized air flush system. The PackRyt BLR, with minimal clearances, effectively seals the 4" shaft, preventing movement and eliminating sludge entry. The patented design, devoid of internal moving parts, ensures longevity. Installed in September 2012, the PackRyt® has run continuously without replacement or adjustment, showcasing SealRyt's expertise in crafting reliable shaft solutions.

INCREASE RELIABILITY IN:

- Screw Conveyors
- Slurry Pumps
- Sump Pumps
- Agitators

AND MORE

**ASK OUR
ENGINEERS.**

PackRyt Bearing System
Patented Product



SEALRYT
CORPORATION

ROTATING SHAFT SEALING EXPERTS

SCAN to
learn more.



Call us to find out why reliability and maintenance managers are moving to our patented solutions!

SEALRYT.com

64 Servistar Industrial Way
Westfield, MA 01085
Phone: 413-564-5202
Fax: 413-564-5203

Our Patented Parts are
Designed and Manufactured
in Westfield, MA



(Continued from page 46)

“Part of the reason we started an award was that sometimes when you hear water conservation, you only hear about enforcement. This way we can focus on what good is being done around water.”

JULIANA CASTIBLANCO



The Acacia Demonstration Gardens in Henderson shows residents how they landscape their properties in ways that use less water.

GROWING INTEREST

Five department heads or other high-ranking officials in the city administration judge the contest. Candidates are judged on innovation and creativity and on the amount of water saved. Nominees quantify their savings and provide documentation if possible.

Self-nominations are accepted. In the first year, there was only one nominee. In the second year there were three, and city officials hope that the number continues to grow as people hear about it from their neighbors.

The city promotes the contest through social media and on the city's website. The winners are recognized at a city council meeting. They also receive a plaque for display. “We do a good job at advertising who wins and why they won,” Castiblanco says. “We hope the news spreads and neighbors or the company across the street hear about it.”

While turf grass conversions make a big impact, not all the nominations center on turf. One nominee was a man with a pressure-washing business who had devised a way to recycle the water he uses. But for impact it's hard to compete with turf grass replacement. Castiblanco estimates that every square foot of turf eliminated saves 55 gallons of water per year. **tpo**

Are you ingenious?

Have you solved a tough treatment plant problem with a creative solution?

Share your story with 60,000+ other professionals.

Send a note to editor@tpomag.com



RELENTLESSLY

ACCURATE & RELIABLE MUNICIPAL
CHLORINE MONITORING



CLX™
ONLINE CHLORINE ANALYZER

- All-in-one, cost-saving construction – No separate controller required
- Highly reliable colorimetric DPD-based measurement
- Removable sample cuvette for easy cleaning & maintenance
- Fewer moving parts – No motor & no stir bar
- Low volume reagent use – more cost-effective than the competition
- No drift – zeroes after every sample
- Updated chassis design featuring enhanced electronics and backward compatibility



watts.com/CLX

Try a Free, 30-Day Demo Today!



New Technology Slated for New Orleans 2024

By Craig Mandli

The 97th annual Technical Exhibition and Conference offers international water and wastewater professionals exposure to the newest products, along with water-quality education and training. This year's event, from Oct. 7 to 9 in

New Orleans, promises to show off some of the finest new products on the market for municipal water, industrial water and wastewater professionals. Below is a preview of some of the newest products highlighted at this year's show.

AERZEN Delta Hybrid Direct Drive Screw Blower

The AERZEN Delta Hybrid Direct Drive Screw Blower

offers an efficient newly designed stage with a 3+4 rotors profile, extended turndown ratio of up to 1:5, and a new drive concept for low-pressure applications. A reduced footprint accommodates side-by-side installation. See how easy it is to generate low-pressure compressed air with substantial cost savings. It offers up to 37% higher energy efficiency compared to previous blowers, along with maximum noise reduction with customized silencer technologies.

610-380-0244; www.aerzen.com; Booth 6447



Aqua-Aerobic Systems AquaPRS PFAS Removal System

The AquaPRS PFAS Removal System from Aqua-Aerobic Systems utilizes sorbent suspension to adsorb PFAS and a separator to extract clean water from the suspension. The turbulent adsorbent slurry prevents biofouling and controls solids and mineral buildup. Additionally, the adsorbent material is specially engineered to adsorb much more PFAS than can be adsorbed by the same amount of other adsorbents or ion-exchange resins, resulting in significantly fewer life cycle costs. The process is completely automated, including replacement of the adsorbent, and allows parameter adjustments in response to varying influent concentrations of PFAS.

815-654-2501; www.aqua-aerobic.com; Booth 2641



Aries Voyager HD Mainline Inspection System

The Voyager HD Mainline Inspection System from Aries is a high definition video system for inspecting relined mainlines



6 to 48 inches. It includes a powerful transporter, a full HD 1080p WiperCam camera, and 1,200-foot cable reel — controlled by CANbus technology for instant crawler and camera response. Components are operated by an ergonomically advanced dual joystick controller and reel-mounted pendant. The tractor is equipped with a rear-viewing HD camera and an integral motorized lift to center the camera in a range of pipe sizes. The pan-and-tilt video camera with 120x zoom captures every pipe detail. Built-in lens wiper technology maximizes time in the pipe.

800-234-7205; www.ariesindustries.com; Booth 641

Asahi/America Series 19 S400

Asahi/America has expanded its Series 19 electric actuation line to include a larger-sized actuator, the S400, capable of operating on the company's family of 8- and 10-inch Type-57 butterfly valves. It is part of the SAV Smart Pack electric actuator product line and is available as an on/off, failsafe, modulating, or modulating failsafe unit. The actuators have an output torque range up to 3,540 inch-pounds. Standard features include a heater, one set of dry contacts for PLC confirmation and one for alarm reporting, an OLED screen with push-buttons and local controls.

800-343-3618; www.asahi-america.com; Booth 2653



AWWA Operations/Administrative Membership

AWWA's Operations/Administrative Membership is for operations and administrative staff below the supervisory level at utilities with more than 1,000 service connections or any staff of a utility with less than 1,000 service connections. Members receive access to a range of benefits, including membership in their



local section, a print subscription to Opflow — the water community's primary network for operator-level workers, member-exclusive pricing on trainings and publications to help earn and maintain an operator license, additional member discounts on all other AWWA offerings and a professional network.

800-926-7337; www.awwa.org; Booth 1045

BDP Industries DSP Screw Press

The DSP Screw Press from BDP Industries

is a heavy-duty option for those looking for dewatering performance in a completely enclosed unit with low energy and water consumption, along with reduced operation and maintenance costs. The pivoting basket design allows for increased access for maintenance. Other improvements include the vertical thickener for prethickening, processing flow rates of up to 150 gpm, as well as the ability for a small-scale package system capable of 5 to 10 gpm.

518-695-6851; www.bdpindustries.com; Booth 1743



Blue-White Industries FLEXFLO M4

The low-shearing pumping action of the FLEXFLO M4 peristaltic metering pump from Blue-White Industries allows it to dose long-chain polymers gently and precisely without damage to the chemical. It will also meter off-gassing chemicals such as peracetic acid and sodium hypochlorite without experiencing vapor lock or loss of prime. Advanced features include a responsive 5-inch LCD with clearly recognizable icons that will respond even when the operator is wearing work gloves. Legacy communications include 4-20mA, and advanced communication protocols include Profibus, Modbus TCP and Ethernet IP. M4 firmware is field-upgradeable.

714-893-8529; www.blue-white.com; Booth 3753



Crane Pumps and Systems Barnes Chopper Pumps

Barnes Chopper Pumps from **Crane Pumps and Systems** are designed to meet the rigorous demands of wastewater applications, catering specifically to collection systems, raw sewage and other scenarios with substantial solid content. These pumps excel in solid size reduction, offering heightened reliability, ease of servicing, and overall low life cycle costs. The versatility of choosing between an oil-filled or air-filled motor enhances their adaptability, allowing users to tailor the pump to the requirements of their application. The chopping technology and hydraulic performance in both motor options slice through even the most challenging solids in the waste stream. **937-773-2442; www.cranepumps.com; Booth 3645**



CUES OZ4-HD

The **CUES OZ4-HD** is a 1080p high-definition pan-and-tilt mainline camera for sanitary and storm sewer inspections. Designed to meet the highest industry standards, it offers video with a level of detail that can detect and address potential pipeline issues with superior accuracy. Additionally, it is designed specifically to be backward compatible, meaning customers currently running CUES equipment are now able to upgrade to HD for a minimal investment. GraniteNet Software offers robust support for HD video, ensuring seamless integration and optimal performance when using the camera. **800-327-7791; www.cuesinc.com; Booth 519**



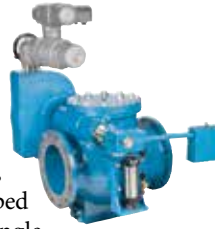
De Nora SORB Contaminant Removal Systems

Using more than three decades of experience in adsorptive technologies, **De Nora** has taken the lessons learned from treating arsenic and other organic contaminants and applied that expertise for the removal of PFAS. Ensuring compliance, **SORB Contaminant Removal Systems** are pre-designed and pre-configured to make application design simple, while maximizing uptime, cost efficiency and ease of operation. Systems are optimized for treating PFAS, whether using ion exchange, GAC or both, and have piloting capabilities to help determine the optimal technology based on the specific water quality matrix. **215-997-4000; www.denora.com; Booth 2616**



DeZURIK APCO SmartCHECK

APCO SmartCHECK pump control valves from **DeZURIK** are for raw sewage, wastewater, raw water, clean water or any fluid pumped through a pipeline. It is a single valve that combines the functionality of a full-featured electric motor-operated pump control valve with the best features of APCO's premium CVS-6000 swing check valve. It has been engineered to control pressure surges during normal pump start-ups and shutdowns, and to close positively upon power failure, without the need for hydraulic power units, accumulators and maintenance-intensive hydraulic controls. The torque unit allows normal function, but will automatically close upon power failure, preventing backflow. **320-259-2000; www.dezurik.com; Booth 917**



Emerald Coast WAVE Vacuum Sampler

The **WAVE Vacuum Sampler** from **Emerald Coast** represents a significant leap forward in wastewater sampling technology. Its sampling chamber delivers a high rate of accuracy. Achieving $\pm 3\%$ accuracy on the first draw and less than 1% repeatability thereafter, it ensures consistent and reliable sampling results. This high level of precision eliminates the need for constant calibration, saving time and reducing operational costs. **850-469-1142; www.emeraldcoastmfg.com; Booth 2061**



Fournier Rotary Press

Experience seamless, fully automated dewatering operations with minimal operator involvement. The **Fournier Rotary Press** optimizes polymer usage through an external mixing process, allowing operators to easily verify floc quality. With extremely low power and washwater usage, it ensures both efficiency and cost-effectiveness. The design features robust construction, few mechanical parts and slow rotation speed, resulting in the lowest maintenance cost. An automated 5-minute daily self-cleaning cycle further enhances reliability, making it a sustainable choice for wastewater management. **800-463-6328; www.fournierindustries.com; Booth 1219**



Halliday Products Series F Flushmount Floodtight Covers

Series F Flushmount Floodtight Covers from **Halliday Products** are made from highly durable aluminum and stainless steel, featuring EDPM compression gaskets, spring assists and stainless steel camlocks. They are structurally designed to support a 25-foot column of water. **800-298-1027; www.hallidayproducts.com; Booth 7329**



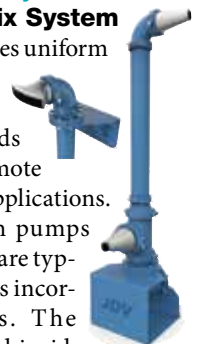
Inovair Blowers

Highly efficient and durable geared **centrifugal blowers** from **Inovair** deliver a low total ownership cost. Thanks to industry-standard components, their proven design offers simplicity and 99.6% uptime. They offer energy savings as high as 45% relative to alternative options, without electrical complexity and durability issues. Designed to be compact and for outdoor installation, implementing the blowers avoids expensive construction costs. **913-469-7244; www.inovair.com; Booth 4075**



JDV Equipment Nozzle Mix System

The dual-zone **Nozzle Mix System** from **JDV Equipment** provides uniform mixing patterns that produce even distribution and a stable environment. It optimizes solids suspension and contact to promote efficiency in a wide range of applications. The system is designed with pumps installed outside the tanks and are typically chopper pumps or pumps incorporating in-line grinders. The high-velocity nozzles mounted inside the tank completely mix the tank contents. Applications include anaerobic digestion, biosolids storage, blending tanks, excess flow tanks, septage or leachate, anoxic zones, CSO handling, aerobic digestion, secondary treatment and biosolids holding ponds. **973-366-6556; www.jdvequipment.com; Booth 2201**



Keller America LevelRat

The **LevelRat** nonfouling level transmitter from **Keller America** is built to provide reliable, low-maintenance service in wastewater level measurement applications. It offers 0.5% FS TEB accuracy, multiple output signal options (analog and digital), and models



equipped with a 4-20 mA analog output include UL/cUL approvals for use in hazardous locations as well as lightning protection at no additional cost. **877-253-5537; www.kelleramerica.com; Booth 935**

KROHNE OPTWAVE 1500 Series

The **OPTWAVE 1500 Series** from **KROHNE** is the latest member of the OPTWAVE 80 GHz radar product family. The affordable, yet high-performance product is suitable for level or open channel flow applications throughout water and wastewater processing facilities. **800-356-9464; www.us.krohne.com; Booth 6323**



Lakeside Equipment Screw Pumps

Lakeside Equipment Screw Pumps efficiently lift large amounts of water at a low static head. Variable pumping capacity automatically adjusts the rate and power, eliminating the need for costly electrical controls. The reliable screw pumps (open and closed) fit a variety of applications including raw and industrial wastewater, as well as stormwater pumping, capable of draining waterlogged land by moving large quantities of water from lower to higher areas. And since they require little attention, they are suitable for remote plants. They are BABA-compliant and make ideal drop-in replacements for less reliable designs. **630-837-5640; www.lakeside-equipment.com; Booth 1829**



OZ Lifting Products Davit Cranes

Streamline water treatment operation with **OZ Lifting Products'** versatile **davit cranes** featuring steel, aluminum, and composite materials. Options include the Alumi-Lite, CompOZite and CompOZite Elite with features like aerospace-grade aluminum and carbon fiber, boasting high strength-to-weight ratios. The Tele-Pro's telescopic boom and XR Series cranes offer exceptional reach and maneuverability. Plus, save money with its multibase system. Buy one crane and use it with multiple strategically placed bases around a facility, reducing overall equipment costs. **800-749-1064; www.ozliftingproducts.com; Booth 8229**



Parkson Granite AGS

Parkson's Granite AGS process is designed to improve the performance of activated sludge systems. It has the ability to form granular sludge rather than typical floc-forming sludge. The advantages of aerobic granular sludge are excellent settleability and robustness of the biological colony. The granules settleability is more than 5X faster than a conventional activated sludge floc from the dense nature of the colony. Denser, better-settling sludge allows plants to be designed with smaller treatment basins, reducing capital costs, and providing greater sustainability given more efficient operation. **888-727-5766; www.parkson.com; Booth 4001**



Polydyne polymers **SNF | POLYDYNE INC.**

Polydyne offers a line of water-soluble **polymers** for municipal water and wastewater treatment applications. The CLARIFLOC line provides high-quality flocculant and coagulant polymers, essential for improving water clarity and treatment efficiency. FLOSPERSE products are designed for effective scale prevention and treatment, ensuring smooth operation and reduced maintenance costs. The FLOSURGE line of drag-reduction polymers enhances flow across various applications, including cake solids hauling, pumping, municipal irrigation, and stormwater management. The solutions are tailored to meet the evolving needs of municipalities, optimizing performance and sustainability in water treatment processes. **800-848-7659; www.polydyneinc.com; Booth 4028**

Saf-T-Flo Chemical Injection Saf-T-Seal

The **Saf-T-Seal** elastomeric duckbill tip from **Saf-T-Flo Chemical Injection** can be a timesaver when added to injection quills dosing sodium hypochlorite or ammonia. These chemicals are prone to forming deposits, which eventually lead to a clogged injection quill. The tip can be added to any 3/8- or 1/2-inch injection quill to help reduce tip clogging, extending maintenance intervals. **800-957-2383; www.safflo.com; Booth 3761**



SAVECO North America BEAST

Designed specifically for septage receiving and other high-solids applications, the **BEAST** from **SAVECO North America** incorporates a dual-drive screening system that allows the drum speed

and auger speed to be controlled independently, allowing for shorter unload times, and higher capture efficiency. A sloped inlet along with a U-shaped flushing header keeps the screen inlet area free of debris buildup. The drum is supported from the top with an oversized slewing ring bearing, featuring a new auto-lube system, decreasing maintenance requirements and downtime. Additionally, it operates without rock traps or grinders, providing high performance and low life cycle costs. **815-636-8306; www.savecowaterna.com; Booth 2217**



SEEPEX Smart Air Injection

Smart Air Injection is a **SEEPEX** customized system solution for pumping over long distances. The system uses compressed air and polymer injections to convey sewage sludge, or other media with a dry matter content of 20% to 40%, over distances of up to 1,000 meters. This combination ensures a low pressure level in the delivery line, as well as low friction, which translates into a long life cycle and low operating costs. The system is easy to integrate into existing automation and control systems; reduces the pressure rating of the pipework and valves; and is an enclosed pipework system, eliminating unpleasant odors or rainfall dilution. Open-hopper SAI systems with Smart Conveying Technology reduce maintenance time by up to 85% with the maintain-in-place design, requiring no disassembly of discharge pipework. **937-864-7150; www.seepex.com; Booth 3929**



Smith & Loveless PISTA INVORSOR

Designed to set new standards in grit removal efficiency, the **PISTA INVORSOR** from **Smith & Loveless** captures ultra-fine grit particles down to 75 microns, offering 95% removal efficiency performance across all flow conditions. Model capacities range from 0.5 to 50 mgd, including the largest 75-micron unit capacities. It combines proven particle fine-capture methods: enhanced settling by inclined plates meeting a defined surface overflow rate with hydraulic forced vortex technology. Performance is never derated for wet weather events, which can carry 40 times the normal grit load. Variable inlet-





AMERICAN-MADE. WORLD-CLASS.

Built to last since 1960, Vaughan pumps and systems are available in a variety of sizes and configurations to meet the needs of any operation. For federally funded projects, Vaughan pumps and pumping equipment meet the requirements to receive federal aid under the Build America, Buy America (BABA) act.

- *All Vaughan Company products are manufactured in the United States.*
- *More than 55% of the cost of Vaughan Company products are from components mined, produced, or manufactured in the United States.*

Ask about our free trial program and on-site demos.



weftec
the water quality event™

OPERATIONS CHALLENGE

SEE US AT WEFTEC BOOTH #3717

Vaughan
Unmatched Reliability

GUARANTEED PERFORMANCE | EXPEDITED DELIVERY | TRUSTED HISTORY
888-249-CHOP | CHOPPERPUMPS.COM

outlet design capability for channel layouts yields significant design flexibility.

800-898-9122; www.smithandloveless.com; Booth 4029

Sulzer Pumps Solutions HST 10

The **HST 10** turbocompressor from **Sulzer Pumps Solutions** cuts costs and boosts reliability for smaller treatment plants processing up to 3 mgd. Ideal for municipal and industrial wastewater treatment, it offers best-in-class energy efficiency through cutting-edge turbo technology and a permanent magnet motor. With no gears or mechanical bearings, it ensures minimal maintenance costs and high reliability. Compact and vibration-free, it reduces operational expenditure and has a significant positive impact on sustainability, making it a top choice for efficient and eco-friendly wastewater treatment.



203-238-2700; www.sulzer.com; Booth 6139

Vac-Con Non-CDL Titan

The 3-yard version of the Titan line of trucks provides the performance you'd expect from a **Vac-Con** machine with minimal footprint. This is a suitable option for smaller organizations and those who need to have anyone on the team jump in the truck and go, as no CDL is required. The **Non-CDL Titan** weighs under 26,000 GVWR with full freshwater capacity. It features 3 yards of usable capacity in the debris tank and a simple operating system designed for all skill levels.



888-920-2945; www.vac-con.com; Booth 3009

Vactor 2100i

The **2100i** from **Vactor** provides the cleaning power needed to handle the toughest sewer challenges. This system employs advanced technology that not only enhances the performance of the equipment but the individuals who operate it —

meaning less fatigue, more comfort, push-button operation, greater precision and superior power and performance. An international dealer network maintains a vast inventory of spare parts and offers fast shipment to any region of the world. Altogether, the rugged, reliable unit is easy to operate and maintain, and is an easy choice when you are looking for quality equipment that is built to last.



815-672-3171; www.vactor.com; Booth 2757

Vaughan Conditioning Pump

The **Vaughan Conditioning Pump** returns to the 2024 Vaughan Maintenance Event during the Operations Challenge. As a proud, returning sponsor, they invite attendees to support the over 50 teams from around the globe working on specific scenarios



that include the popular pump. Then visit to discuss how it is designed to be used in different applications, saving teams from costly clean-out cycles and maintenance.

888-249-2467; www.chopperpumps.com; Booth 3717

VEGA Americas VEGAPLUS

The **VEGAPLUS** line of 80 GHz radar sensors from **VEGA Americas** uses precision focusing to deliver reliable measurements regardless of internal obstructions, changing temperatures, condensation or dust. The series is a standalone loop-powered sensor available as either a compact version with cable connection housing or with an IP68 housing and fixed cable connection. These sensors are easily adjusted via Bluetooth with a smartphone or tablet, making setup and diagnostics significantly easier.

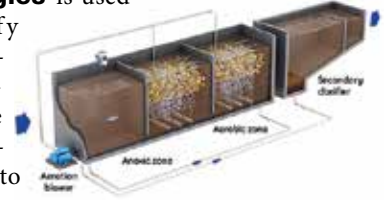


800-367-5383; www.vega.com; Booth 3561

Veolia Water Technologies ZeeLung and zeeDENSE

Upgrading wastewater treatment plants for capacity expansion or nutrient removal can be complex and expensive. The **ZeeLung** Membrane-Aerated Biofilm Reactor from **Veolia Water Technologies** is used

to intensify the conventional activated sludge process without having to construct new bioreactor tanks. It expands biological capacity and improves nutrient removal in a simple, fast and modular way, while also reducing energy and mitigating GHG emissions. The **zeeDENSE** MABR combines the ZeeLung MABR and densification to increase biological and hydraulic capacity, resulting in super-intensification of activated sludge.



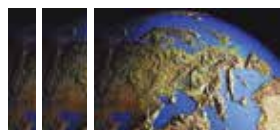
866-439-2837; www.watertechnologies.com; Booth 2229

Xylem Flygt Concertor

Xylem's Flygt Concertor offers wastewater pumping with reliability and efficiency. Its Adaptive N impeller ensures clog-free performance, handling large solids effortlessly. Specialized software adjusts speed and can reverse to clear blockages, minimizing downtime. Integrated monitoring and control adapt in real time, providing crucial operational feedback. With IE4-equivalent motor efficiency and compact design, it optimizes setup and operation, reducing life cycle costs. It's the ideal choice for maximizing performance and minimizing disruptions in wastewater management.



704-409-9700; www.xylem.com; Booth 4429 tpo



Every day is Earth Day.™



Learn all about their tools and techniques. tpomag.com

UNLEASH YOUR LIFTING POTENTIAL



OZ STEEL DAVIT

- STRONG, RELIABLE
- ENTRY-LEVEL
- ECONOMICAL

OZ ALUMI-LITE

- ULTRA-LIGHTWEIGHT
- AEROSPACE-GRADE ALUMINUM

OZ COMPOSITE

- COMPOSITE MATERIAL
- 40% LIGHTER THAN STEEL

OZ COMPOSITE-ELITE

- CARBON FIBER
- POUND-FOR-POUND LIGHTEST & STRONGEST

OZ XR SERIES

- EXTENDED REACH
- 62-INCH HOOK REACH
- 87-INCH HOOK HEIGHT

OZ TELE-PRO

- TELESCOPIC BOOM ADJUSTS UNDER LOAD
- PATENTED TECHNOLOGY

OZ WHEEL BASE

- MOVES LOADS UP TO 1200 LB
- PATENT-PENDING FLOOR-ANCHOR SYSTEM FOR ADDED SAFETY

DAVIT CRANES



NEW ORLEANS 2024

VISIT US AT BOOTH #8229

OCTOBER 7-9



OZLIFTINGPRODUCTS.COM
 SALES@OZLIFTINGPRODUCTS.COM
 507.474.6250



xylem
Utility Solutions

IQ SensorNet The Clear Choice.

- Designed for Process Optimization**
Improve process control and increase operational efficiency
- Designed for Flexibility**
Measure up to 20 parameters per controller
- Designed for Cost Savings**
Save on chemical, energy, and water usage

The proof is in the data.



a xylem brand

+1.937.767.7241
info@ysi.com

Coming Soon!

Get instant access to live sensor data, maintenance reminders and more with IQSN Mobile.



[YSI.com/IQSN](https://www.ysi.com/IQSN)

© 2023 Xylem Inc.

Security in Layers

PHYSICAL BARRIERS, DIVERSE TECHNOLOGIES AND INFORMATION SHARING ARE ALL KEYS TO PROTECTING TREATMENT PLANTS AGAINST INTRUDERS

By Jerry Morris

Water and wastewater treatment plants might not seem like obvious targets for intrusion. Still, there are reasons why individuals or groups might attempt to enter — and so there are good reasons to keep the facilities secure.

One risk is that saboteurs may target treatment plants with intention to harm the environment or public health. Disrupting treatment, resulting in release of untreated water, can have severe consequences that include drinking water contamination and harm to aquatic life.

In addition, treatment plants represent critical infrastructure, vital for public health and sanitation. Terrorist organizations or extremist groups may view these facilities as targets, aiming to cause mass disruption or instill fear and panic.

Some intruders may seek to steal valuable resources, such as chemicals or equipment, that can be sold for profit on the black market. Theft of copper wiring and piping is a common problem at industrial sites including treatment plants. In other cases, a disgruntled person may try to disrupt treatment operations as a form of protest or retaliation.

In sum, ensuring the security of treatment facilities is essential to warding off threats and protecting the integrity of communities and the environment. Layered security provides the best approach to protection.



ABOVE: This roll-up door is protected by a security notification horn. CENTER: A pan-tilt-zoom camera is a common security device for facility fence lines.



An entry door is protected by a camera and a card reader.

MULTIPLE VULNERABILITIES

Layered security is not just a concept; it's a strategic necessity, especially when safeguarding vital infrastructure. Treatment facilities, often sprawling and complex, require meticulous planning to make sure every vulnerability is addressed.

Imagine the layered approach as peeling back the layers of an onion, starting from the skin perimeter and progressing inward. Determining the starting point hinges on various factors, such as previous security incidents, budget constraints and executive decisions.

For instance, if unauthorized individuals have previously breached the plant's perimeter, fortifying the outer fence line becomes paramount. In identifying starting points, it is essential to engage security personnel in dialogue about system weaknesses and desired improvements.

To gauge vulnerabilities accurately, it is important to document past breaches, whether minor intrusions or blatant attempts. Education centers and other public areas within the premises require tailored security measures to control access while ensuring public safety.

PROTECTING THE PERIMETER

Erecting fences, implementing environmental designs, and vetting visitors are standard practices to enforce a secure perimeter. But outer fencing is just the beginning. Buffer zones beyond the initial perimeter provide another layer of defense and can incorporate sophisticated sensor technologies.

Advanced sensor systems strategically placed along a perimeter fence and within buffer zones can detect intrusion attempts. Fence-climbing and cut-detection sensors trigger alarms upon detecting tampering or breach attempts on the perimeter fence.

Ground vibration sensors provide added security by detecting footsteps or movements near the fence line. By dividing the perimeter into zones, security personnel can swiftly pinpoint breach locations and intervene before intruders gain access. Person-detection algorithms help identify and track intruders. Line-crossing detection devices can monitor perimeter boundaries.

Complementing sensor systems, surveillance cameras play a pivotal role

in threat assessment. High-definition cameras provide clear visuals during daylight, while thermal cameras excel in nocturnal surveillance, detecting body heat even in complete darkness. Pan-tilt-zoom cameras offer flexibility, enabling security staff to monitor suspicious activity with precision. Lighting throughout the premises optimizes surveillance effectiveness.

Extending beyond the facility grounds, surveillance cameras can monitor surrounding areas. Integration with person-detection analytics enhances intrusion detection, alerting security to unauthorized movements. Rooftop-mounted cam-

eras offer expansive coverage. Integration with intelligent video analytics further enhances surveillance capabilities.

MOVING INSIDE

Delving deeper into the plant, critical buildings demand heightened security. Access control mechanisms can be deployed to high-priority infrastructure like power stations and pumping facilities. Intrusion detection systems, motion detectors, glass-break sensors and door position switches safeguard entry points.

The integration of door entry and door prop alerts enhances security responsiveness, allowing preemptive action against potential threats. Surveillance cameras paired with these systems provide real-time monitoring, empowering security personnel to assess threats swiftly.

Robust access-control measures also help safeguard critical infrastructure. These systems monitor and regulate entry and exit points to sensitive areas, ensuring only authorized personnel can access vital equipment and facilities. Biometric authentication, proximity card readers and keypad entry systems are commonly used to authenticate personnel credentials and grant access permissions accordingly.

ADVANCING TECHNOLOGY

In striving for comprehensive security, it's vital to appreciate the dynamic nature of security threats. The landscape is constantly evolving, driven by technological advances, geopolitical factors and the ever-changing tactics of malicious actors. Therefore, a proactive and adaptive approach to security is essential.

Emerging technologies such as artificial intelligence, machine learning and the Internet of Things hold great promise for enhancing security systems' effectiveness. For example, AI-powered analytics can analyze vast amounts of data from surveillance cameras and sensor networks, enabling predictive threat detection and proactive risk mitigation.

Ensuring the security of treatment facilities is essential to warding off threats and protect the well-being of communities and the environment.

Machine learning algorithms can continuously refine security models based on evolving threat landscapes, ensuring security measures remain effective. Similarly, IoT devices can enhance situational awareness and facilitate real-time decision-making, providing seamless connectivity and data exchange between various security systems.

For example, IoT sensors embedded in access-control systems can monitor personnel movements and detect anomalies in behavior patterns. Furthermore, advances in biometric authentication offer robust and reliable means of verifying personnel identities and controlling access to sensitive areas.

Biometric modalities such as fingerprint recognition, facial recognition and iris scanning provide secure and convenient authentication methods, reducing reliance on traditional access control measures such as keys or access cards.

WORKING TOGETHER

Continuous monitoring and proactive response are essential components of an effective security strategy. Plant personnel must be equipped with the tools and training they need to respond swiftly to security incidents and potential threats. Regular security assessments and audits help identify vulnerabilities and areas for improvement.

Collaboration and information sharing are also critical to effective security strategies. Partnerships with law enforcement agencies, government authorities and industry stakeholders can facilitate intelligence-sharing and coordinated responses to threats. Participation in industry forums, conferences and working groups allows plant operators to stay abreast of emerging threats and security management best practices.


Ultimately, comprehensive security for treatment plants requires a holistic approach combining physical, technological and organizational measures. By integrating advanced technologies, proactive risk management and collaborative partnerships, plant operators can mitigate security risks and safeguard critical infrastructure against a wide range of threats.

Security is a multifaceted challenge that demands a comprehensive and proactive approach. As the threat landscape evolves, treatment plant operators must remain vigilant and adaptable. By embracing innovation and best practices, plant personnel can effectively protect public health and safety and safeguard the environment, now and in the future.

ABOUT THE AUTHOR

Jerry Morris (jerry.morris@lacity.org) is a communications supervisor in the city of Los Angeles Information Technology Agency. **tpo**

Drying Biosolids



Komline-Wyssmont
Turbo-Dryer®
for Municipal
Biosolids



Komline-Sanderson
Paddle Dryer for
Municipal
Biosolids

weftec
the water quality event™

Visit us at Booth 2416

Komline now offers directly and indirectly heated solutions for biosolids drying, harnessing our decades of expertise. Contact us to see how we can put our experience to work for you.

(800) CALL-4-KS

komline.com



Digital Technology, Cybersecurity

By Craig Mandli

Analytical Instrumentation

HORIBA SCIENTIFIC AQUALOG

The HORIBA Scientific Aqualog is an optical spectrometer that is the gold standard in environmental water research around the world for the study of color dissolved organic matter. It complies with ASTM D8431, and meets the



Aqualog spectrometer from HORIBA Scientific

needs of environmental water researchers around the world studying CDOM using fluorescence spectroscopy. Formerly researchers were using scanning spectrofluorometers to slowly acquire a 3D matrix of the fluorescence excitation and fluorescence emission spectra, called an Excitation Emission Matrix. The EEM provides a fingerprint for studying dissolved organic matter; however, it took up to an hour to collect a single EEM profile, tying the researcher to the lab bench for the entire day. The Aqualog vastly improves the speed with which fluorescence EEMs are collected, dramatically increase the dynamic range across which EEM fingerprints are quantitative, and simultaneously acquires absorbance spectra for absorbance and color analysis of nonfluorescent molecules present in water. The technique that the Aqualog employs is an Absorbance-Transmission Excitation Emission Matrix, or A-TEEM. **866-562-4698; www.horiba.com/scientific**



LCMS RX series of spectrometry instruments from Shimadzu Scientific Instruments

SHIMADZU SCIENTIFIC INSTRUMENTS LCMS RX

The LCMS RX series of triple quadrupole mass spectrometry instruments from Shimadzu Scientific Instruments are supported by integrated hardware and software technologies to ensure reliable and robust results at lower operating costs, even in the most challenging and dynamic laboratory environments. CoreSpray enhances reliability by increasing gas flow and improving nebulizer coaxiality. This improves the heat distribution of the ionization source, ensuring unparalleled sample ionization, significantly enhancing the reliability of analytical data. The IonFocus electrode is a standard feature across all RX models. It effectively removes matrix contaminants, resulting in lower noise levels, superior data quality and reduced maintenance needs. Enhanced software capabilities autonomously monitor the system, reducing the need for manual intervention. **800-477-1227; www.ssi.shimadzu.com**

CoreSpray enhances reliability by increasing gas flow and improving nebulizer coaxiality. This improves the heat distribution of the ionization source, ensuring unparalleled sample ionization, significantly enhancing the reliability of analytical data. The IonFocus electrode is a standard feature across all RX models. It effectively removes matrix contaminants, resulting in lower noise levels, superior data quality and reduced maintenance needs. Enhanced software capabilities autonomously monitor the system, reducing the need for manual intervention. **800-477-1227; www.ssi.shimadzu.com**

Communication Equipment

EARTEC E-PAK W/ LAZER-PRO

E-Pak w/ Lazer-Pro wireless systems from Eartec provide hands-free communication to crews of up to 32 users. The alternative to traditional full earcup-style headsets offers Bluetooth connectivity with a

slimline back band that can be worn comfortably for an entire work shift even with a hardhat. It delivers incoming signals by vibration through the user's temple via bone conduction, leaving users' ears free. It is IP67-rated, splashproof and connects to the compact E-Pak full duplex radio without a cable. This wireless intercom can help streamline on-site logistics, operations and crew coordination as well as enhance training and safety protocols. **800-399-5994; www.eartec.com**



E-Pak w/ Lazer-Pro wireless systems from Eartec

Control/Electrical Panels

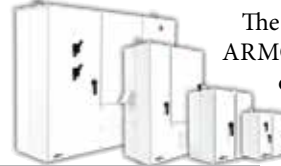
ORENCO SYSTEMS OLS CONTROL PANELS

OLS control panels from Orenco Systems are designed and built for an array of municipal pumping applications including wastewater lift stations, stormwater pump stations, dewatering pump control, sludge pumping and freshwater boosting. The panels are available with Orenco Cloud service, which eliminates the need for a separate SCADA system. As another option, the panels can be connected to an existing SCADA system. Parameters can be configured with our user-friendly startup wizard via a remote computer or tablet or using the included touchscreen. Engineers will preprogram user interfaces to the site-specific needs of an installation, making the panel virtually "plug and play." Maintenance staff can easily adjust settings and monitor the system remotely. The panels are weatherproof and UL 508A listed. They also include service-rated circuit protection, phase and voltage protection, and level controls. **877-257-8712; www.orencocontrols.com**



OLS control panels from Orenco Systems

PRIMEX ARC ARMOR ENCLOSURE



ARC ARMOR enclosure from PRIMEX

The safe, innovative, multiple compartment ARC ARMOR enclosure from PRIMEX reduces the risk of injury resulting from arc flash and electric shock by limiting access to electrical equipment capable of producing arc flash incidents. The control and power circuitry are isolated in separate compartments, where only control voltage is present (120-volt max), thus preventing unnecessary exposure of operators to arc flash. It reduces exposure to arc flash and arc blast with its multiple compartment design and single wall construction. It has a single sheet drip cap with rolled edge drip loops on free-standing models. It includes electrostatically precipitated white polyester powder coating, which reduces heat buildup, and three-point padlockable operating handles. Freestanding, wall mount and pole mount versions are available. **844-477-4639; www.primexcontrols.com**

The control and power circuitry are isolated in separate compartments, where only control voltage is present (120-volt max), thus preventing unnecessary exposure of operators to arc flash. It reduces exposure to arc flash and arc blast with its multiple compartment design and single wall construction. It has a single sheet drip cap with rolled edge drip loops on free-standing models. It includes electrostatically precipitated white polyester powder coating, which reduces heat buildup, and three-point padlockable operating handles. Freestanding, wall mount and pole mount versions are available. **844-477-4639; www.primexcontrols.com**

SMITH & LOVELESS SHADE AIDE

The SHADE AIDE from Smith & Loveless is a human-machine interface screen protector that easily installs onto a variety of control panels so that operators can see their HMI no matter how sunny of a day. It collapses when not in use and is fully lockable. It also protects the display from the harmful effects of constant UV ray exposure, saving the maintenance budget from replacement HMI costs



SHADE AIDE screen protector from Smith & Loveless

due to excessive sun exposure. The product is compatible and customizable to fit every HMI screen sold today, with custom sizes available. **800-922-9048; www.smithandloveless.com**

Drives

AMTECH DRIVES AXPERT-EAZY+ SERIES VFD

The Axpert-Eazy+ VFD from Amtech Drives is designed for a wide range of industrial uses like pumps, cranes and conveyors, standing out with low energy loss and high efficiency. With voltage options from 380 to 480 volts and 500 to 690 volts and power ranges from 1 to 2,815 hp, it meets strict international safety and quality standards, including UL 61800-5-1, CSA C22.2 NO. 274-17, and CE. Equipped with smart protective features, it guards against issues like overcurrent and phase loss, ensuring smooth and reliable operation. Advanced functions such as speed search and auto-restart keep systems running even during abnormal conditions. Designed for harsh environments, it handles temperatures from 5 to 122 degrees F. **770-469-5240; www.amtechdrives.com**



Axpert-Eazy+ VFD from Amtech Drives

FRANKLIN ELECTRIC CERUS X-DRIVE

Designed for variable torque applications up to 600 hp, the Cerus X-Drive is Franklin Electric's all-inclusive drive solution for a variety of markets. It is available as a standalone drive and in multiple enclosed

configurations, the panels are designed to be durable, with every detail and component centered around the application's specific requirements. It can be paired with a choice of motors and pumps to maximize performance of the application. **866-271-2859; www.franklinengineered.com**



Cerus X-Drive from Franklin Electric

Gas/Odor/Leak Detection Equipment

EAGLE MICROSYSTEMS GD-4000

The Eagle Microsystems GD-4000 multiple channel gas detector is designed to monitor hazardous gases commonly found in water and wastewater treatment environments. It is capable of supporting up to four precalibrated gas sensors with an isolated 4-20 mA signal for each sensor. A multicolor touchscreen allows for simple recalibration of sensors, as well as operation of the instrument. Up to 10 programmable relays are available for a fully configurable operation. Available with options and accessories like battery backups and ethernet connectivity, it is designed for versatility. It is built to withstand harsh conditions with rugged construction and excellent durability. **610-323-2250; www.eaglemicrosystems.com**



GD-4000 multiple channel gas detector from Eagle Microsystems

(continued)



SEEPEX.
An Ingersoll Rand Business

CONVEY DEWATERED CAKE AND SLUDGE EFFICIENTLY.

SEEPEX open hopper pumps and systems are designed for use with common dewatering and storage devices on the market. These pumps allow for high solids pumping over long distances in a fully enclosed system without odor nuisance or pollution.

Various options are available to monitor pump speed, hopper media level, stator temperature,

discharge pressure and a number of other functions. These optional controls and sensors run autonomously, but are also capable of connecting with plant operation systems (SCADA).



Contact us today and learn how we can help you optimize your processes and lower energy costs.

BTHE RANGE PUMP



TOUCH CONTROLLER

**VISIT US AT WEFTEC!
BOOTH# 3929**

SEEPEX Inc., An Ingersoll Rand Business • sales.us@seepex.com • +1 937 864-7150 • www.seepex.com

PJ OPERATING AIMSAFETY PM100 AND PM400

AimSafety from PJ Operating offers two lines of portable gas monitors. The PM100 series includes disposable, single-gas monitors and the PM400 series includes rechargeable multi-gas monitors. Both lines have bump/calibration test stations available. The PM100 has sensors for carbon monoxide, hydrogen sulfide, oxygen, ammonia and sulfur dioxide. This series is capable of logging events and operates for two years. The monitor gives a 30-day end of life warning. With an IP67 rating, it is dust-tight and water-resistant. There is a three-tier alarm system (audible, visual and vibrations) if unsafe gas levels are detected. The PM400 series detects carbon monoxide, hydrogen sulfide, oxygen and combustible gases. The LEL sensor can either be infrared (immune to poisoning) or a catalytic bead. All sensors can have alarm set points and log events and data. The IR version charge lasts for 60 days while the Catalytic Bead is 24 hours. This series is also rated IP67. **330-262-5547; www.pjoperating.com**



AimSafety PM100 and PM400 gas monitors from PJ Operating



GX-Force gas monitor from RKI Instruments

RKI INSTRUMENTS GX-FORCE

The GX-Force is RKI Instruments' smallest personal 1-4 gas monitor with a strong internal sample pump capable of a 100-foot sampling range. Weighing only 9.8 ounces, the it can monitor the standard confined space gases (LEL combustibles, oxygen, carbon monoxide and hydrogen sulfide). It is built around high-quality micro-sensor technology, which are compatible with the GX-3R, GX-3R Pro, 04 Series, and Gaswatch 3 instruments. Having two operating modes, it can be used for confined space safety monitoring in its normal operating mode. A leak check mode is the solution for all leak investigations. It operates 30 hours on a Li-ion battery, and has a large LCD showing

all gas readings, battery level, current time and automatically backlights in alarm conditions. Standard alarm types include vibration, visual and audible alarms, which can be set to latching or nonlatching. **800-754-5165; www.rkiinstruments.com**

Meter

SENSUS, A XYLEM BRAND CORDONEL

The Cordonel is an ultrasonic commercial and industrial water meter from Sensus, a Xylem brand, that measures low-to-high-volume flow with proven accuracy. The unique flow tube has three measurement channels to capture every drop and seamlessly integrates with the FlexNet communication network to provide accurate readings in real time. Cordonel is also a sensor that enables the digitalization of water distribution systems by incorporating temperature and pressure data that helps utilities meet customer expectations. Transferred securely, this actionable information helps utilities maintain water quality, balance pressure levels and gain visibility into its operations. **800-638-3748; www.sensus.com**



Cordonel water meter from Sensus, a Xylem brand

Monitors

CPI COMPRESSION PROFLO PF2

The Proflo PF2 from CPI Compression is a programmable monitoring and shutdown device used to protect compressors from lack of lubrication and help prevent costly over lubrication. A self-calibrating function improves the critical measurement of the lubrication rate, reported as a cycle time. Cycle time accuracy is further supported through the various cycle time calculations and the visual trend graph on the new large LCD screen. Collectively, these functions and tools help decrease continuous lubrication adjustments, resulting in optimized lubrication rates. It offers wireless connectivity via iOS and Android mobile apps as well as a computer-based software to view historical data and diagnose lubrication rate issues. Wired Modbus data transfer is also available on the new quick-connect cable. It is globally certified for use in hazardous locations. **281-207-4600; www.cpicompression.com**



Proflo PF2 monitoring device from CPI Compression

Operations/Maintenance/ Process Control Software



Operator10 from AllMax Software

ALLMAX SOFTWARE OPERATOR10

Operator10 from AllMax Software provides a central database for all of a plant's operational and process control data. Users have the ability to manually enter data, pull data directly from SCADA and/or import data from LIMS programs. Built-in tools allow for regulatory reporting/electronic submittal, custom report creation, graphing, process control calculations, built-in formulas (mean cell residence time, sludge volume index, food-to-microorganism ratio, etc.), easy customizable data entry sheets, customizable user dashboards, a full audit trail and a biosolids module. Users benefit from easy access to historical/current plant data, decreased time on monthly reporting, better overall data management and improved plant efficiency. **800-670-1867; www.allmaxsoftware.com**

AQUATIC INFORMATICS RIO

Rio from Aquatic Informatics is a compliance and operations data management solution for water and wastewater professionals. It helps manage operations, compliance, data and reporting to stay ahead of risk and protect a community's water supply. It can be used to centralize and organize compliance and operations data in a secure, online platform for a holistic view of the water system — integrated with electronic lab transfers and field data captured through mobile devices. It can also be used to unlock insights with data visualization and dashboards for optimized analysis and empowered decision-making. Its use can help ensure data accuracy with the calculation validation engine to produce reliable, accurate reports for regulatory requirements or internal operations. It also collects data remotely — while connected or offline — for improved visibility without any duplication of effort. It lets utilities achieve efficient, proactive operations by reviewing and analyzing data faster, supporting compliance and more informed decision-making. **877-870-2782; www.aquaticinformatics.com**



Rio data management solution from Aquatic Informatics

SMARTSIGHTS SMARTBUNDLE

SmartBundle from SmartSights provides a full-field view of operational conditions from anywhere, allowing users to make real-time decisions. The software offers insights on process data specifically tailored to key roles in organizations, from operators to management to compliance. Benefits include extending reach for mobile access giving users streamlined, focused context to make smart decisions from anywhere; improving productivity with visualization of the data that matters most; increasing uptime with holistic real-time process views; and simplifying rationalization of data to focus on the needed metrics. The software's SmartFocus feature includes snippets of XLReporter information to monitor critical data without having to search. Users can also manage processes' performance in real time and compare historical analytics to improve efficiencies. Through customizable widgets that tell the story of the critical data, users can expand their HMI reach. It enables operations teams to monitor and respond to changing process and asset conditions from anywhere. **512-326-1011; www.smartsights.com**



SmartBundle software from SmartSights



Xylem Vue software

XYLEM VUE

Xylem Vue powered by GoAigua's Unified Plant Management and Unified Network Management applications provides wastewater treatment plant operators with a comprehensive solution for optimized operations. These applications offer real-time monitoring and suggested

actions for treatment plants and sewer networks, enabling centralized visibility and control across the entire wastewater system. With Unified Plant Management, operators can simulate treatment processes, enhance plant control, and reduce energy costs or chemical dosing while ensuring regulatory compliance. Unified Network Management provides 360-degree network visibility and real-time decision support with system-wide remote monitoring and predictive capabilities for wet weather events and capacity optimization. **704-420-3383; www.xylem.com**

Process Control Systems

FORCE FLOW WIZARD 4000

The Wizard 4000 from Force Flow is a powerful chemical inventory system for monitoring chlorine gas, sodium hypochlorite, hydrofluosilicic acid and all other chemicals used in water treatment. It can help ensure a safe process and a safe plant by providing essential information such as current chemical feed rate, how much chemical has been fed and how much chemical remains. With four separate channels, it can be used to simultaneously monitor levels in up to four separate tanks. Each tank can be monitored independently while monitoring combined totals for all the tanks. The daily usage function allows for easy recordkeeping, and a days-until-empty function makes it simple to anticipate tank refilling and chemical reorder points. A feed-rate function allows early



Wizard 4000 chemical inventory system from Force Flow

Leading the way in wastewater aeration solutions

Howden is a world leading turbomachinery manufacturer with over 300 years of combined experience across our legacy brands of **TURBLEX™, HV-TURBO®, Spencer®, and Donkin.**

Howden products are designed to achieve maximum efficiency and long reliable operational life through our focus on engineering excellence. This has been established and enhanced across the largest base of single stage turbo compressors in the world.



Centrifugal Compressor



Power Mizer® Compressor

For more information contact:

Tel: 1 860 688 8361 | Email: inquiries.USA@howden.com

Revolving Around You™



CubusTurbo
by Howden



Meet the ChartWater™ team at WEFTEC® booth #3661, Hall E



fact

On-site verification of process flows or inline meters at any location

OPTISONIC 6300 P – technology driven by KROHNE

- Portable, battery-powered ultrasonic clamp-on flowmeter for temporary flow measurement of liquids
- Intuitive installation and operation: get reliable flow data within 10 minutes
- Integrated data logger, thermal energy measurement option
- Process temperature -40...+248°F, pipe diameter 1/2...60"

See us in New Orleans, Booth 6323

- ▶ products
- ▶ solutions
- ▶ services



▶ measure the facts

More facts about the OPTISONIC 6300 P:
us.krohne.com

product focus

Digital Technology, Cybersecurity

warning of dangerously low or high feed-rate conditions, preventing hazardous underdosing or overdosing of chemicals to the water supply. **925-686-6700; www.forceflowscales.com**

PULSAFEEDER PULSATRON MP SERIES

Pulsafeeder's Pulsatron MP Series features an optional 4-20 mA output signal that provides a remote indication of pump speed to remotely confirm the pump's speed is adjusting to process parameters, and more accurately estimate chemical usage over time. The pump transmits a 4-20 mA signal proportional to the actual speed of the unit and is factory calibrated for easy installation in the field. It is a true microprocessor-controlled instrument delivering precise and accurate metering control. Packed with standard features, it includes automatic control via 4-20 mA or 20-4 mA inputs, an external pace function with a stop feature, and a graphical LCD with support for English, French, German and Spanish languages. Models are capable of flows ranging between 3 and 504 gpd and pressure ranges from 20 to 300 psig with a turndown ratio of 1000-1. **800-333-6677; www.pulsafeeder.com**



Pulsatron MP Series from Pulsafeeder



IQSN Mobile managing tool from YSI, a Xylem brand

YSI, A XYLEM BRAND IQSN MOBILE

IQSN Mobile from YSI, a Xylem brand, is a tool for managing the IQ SensorNet network and sensor data remotely. This intuitive app provides on-the-go data access and simplifies the management of process instrumentation with color-coded sensor health monitoring and customizable maintenance reminders. It

lets users access critical data anytime, from the comfort of an office, home, or anywhere with Internet access. It can monitor sensor health in real time with colored indicators and customizable push notifications for alerts, alarms, and reminders on a mobile device. Stay on top of maintenance with factory default reminders and customized alerts to clean and calibrate sensors. Manage, export, and share measured data, maintenance history, system configuration and sensor logbooks from the mobile app at any time. Quickly respond to plant upsets and retain peace of mind with remote data visibility to IQ SensorNet data at all times, even away from the plant. **937-767-7241; www.ysi.com**

Sensor

AUTOMATION24 VEGAPULS C 21

The VEGAPULS C 21 from Automation24 is a noncontact, radar level sensor utilized frequently in wastewater management applications. The device has been used to monitor water levels in pumping stations and for monitoring flow in open channels and dams. It is made of resistant and durable materials to help it survive harsh industrial environments, dealing with environmental factors like a humid environment, condensation on the sensor body and foamy water. It has a measuring range of up to 50 feet and outputs a radar frequency of 80 GHz to keep a narrow 8-degree beam angle. This sensor has features that can be edited through the VEGA software, either via Bluetooth on smartphones or on a computer for more nuanced tweaks to see the true level and flow of the water that is being treated. **800-250-6772; www.automation24.com tpo**



VEGAPULS C 21 sensor from Automation24

More Samples. More Often.

The Most Advanced Vacuum Wastewater Sampler



WAVE™

- Fully Programmable Sampling
- 7" Color Touchscreen
- High-Impact, Acrylic/ABS Enclosure
- Heavy Duty, Piston Vacuum Pump
- Modular Refrigeration

Patent #11,598,696
Patent #11,768,132

Made in the U.S.A.



EMERALD
COAST™
MANUFACTURING

EmeraldCoastMFG.com
(850) 469-1142

Visit us at WETEC 2024 Booth #2061

The WAVE™ by Emerald Coast Manufacturing is an electronically controlled, heavy duty vacuum wastewater sampler capable of fully programmable composite sampling with a high level of accuracy.

Now the WAVE™ has Sequential Capabilities!

The WAVE's powerful vacuum system generates stronger purges that remove contamination and can draw samples from greater distances than other samplers on the market, up to 200 Feet.

The WAVE's integrated touch screen and user-friendly interface provide for straightforward control of sample volume, time and temperature, and the high impact acrylic/ABS body make this all-climate unit able to withstand even the harshest outdoor environments.



Chris Powell, Lab Supervisor
Mebane Bridge Wastewater Treatment Facility
Eden, N.C.

EAT.
SLEEP.
SAVE THE
ENVIRONMENT.
REPEAT.

TREATMENT PLANT OPERATOR
tpo

Subscribe for FREE at tpomag.com



OZ Lifting Products Alumi-Lite davit crane

OZ Lifting Products' portable Alumi-Lite davit crane is constructed from lightweight, aerospace-grade aluminum, and it boasts exceptional strength while being easy tools required, and its 360-degree rotation and adjustable boom height provide superior versatility. All OZ Lifting Products' davit cranes come equipped with a manual brake winch and a drill drive adapter, and AC and DC electric winches are also available. These cranes are made in the USA and each one is individually tested and certified at 125%, ensuring safety and reliability.

800-749-1064;

www.ozliftingproducts.com



INDCO foldable impellers for closed-lid mixing

INDCO folding impellers are designed to enter through the small container openings often encountered in closed-lid mixing environments, then expand to their full operating diameter as the mixer shaft rotates. Standard two-blade folding impellers are sized for use with 2-inch standard bungs up to 6-inch tote openings. They have an operational size from 2 3/8 inches to 14 inches in diameter. Models are available in 304 and 316/316 L stainless steel for chemical resistance, with some small-diameter plastic impellers available for laboratory scale mixing applications. INDCO foldable impellers are compatible with

product spotlight water

System provides a safe, clean disinfection option

By Craig Mandli

Hypochlorite generation has been recognized as an effective method for disinfection of water for more than 35 years. The **Microclor system** from **Cleanwater1** is the latest innovation of the technology, making advancements in system safety and ease of operation.

The system's vertical cell arrangement is the most significant of the many features that distinguish it from the earlier generations of equipment. The electrolytic cells are configured in a vertical array and vented directly to the atmosphere. This prevents the chance of over pressurization by releasing virtually all hydrogen directly from each cell. Other systems use the storage tanks as hydrogen separators which can contribute to excessive cell pressure and vibration in the discharge piping.

"The vertical electrolytic cell was key to improving safety, efficiency, ease of maintenance and operation, and redundancy within each system," says Haley Goddard, sales and business development engineer for Cleanwater1. "It was a total game-changer, and the market hasn't looked back since."

The hydraulic lift created by the hydrogen separation circulates electrolyte through the cell loop at 3 foot pounds per second. This reduces the requirement for cell cleaning and minimizes heat accumulation in the cell. The cell's vertical orientation not only allows better hydrogen separation, but is also more compact, resulting in a more space-efficient



Microclor system from Cleanwater1

footprint. The clear acrylic cell body supports the electrode array and eliminates the need for internal baffles and fasteners, reducing maintenance and repair costs over the life of the system.

Microclor's hypochlorite solution is also below most hazardous material concentration thresholds — 0.8% versus 1%. "That means the solution is no longer classified as a hazardous material, and it greatly reduces the rate of degradation and prevents off-gassing," says Goddard. The only raw materials required for the OSHG process are salt and water. This will reduce vendor deliveries by about 66% compared to commercial bulk hypochlorite, and result in a more sustainable and robust treatment facility better able to withstand the demands imposed by a natural disaster or health emergency, according to Goddard.

"Replacing the use of chlorine gas in any water and wastewater application is an opportunity to benefit the safety of operations staff and surrounding communities," she says. "It is certainly the safest option when compared to chlorine gas and high-strength sodium hypochlorite, but it is also the most economical as well."

855-669-3845; www.cleanwater1.com

various portable mixer types, including drum and tote mixers as well as for handheld mixers and drill motors.

800-851-1049; www.indco.com



Franklin Electric next gen of SubDrive Connect VFDs

Franklin Electric's newest generation of SubDrive Connect variable frequency drives include several re-engineered features and technology upgrades that optimize SubDrive

Connect for more jobs. A new built-in input filter boosts performance and consistently mitigates interference with electronic devices in residential settings. Installers can also purchase the filter separately as an add-on for existing SubDrive Connect units. The drives are equipped to optimize submersible and above-ground pumps with single-phase, two-wire and three-wire, or three-phase motors to accommodate more water system possibilities while still delivering the same intuitive start-up experience. And a scannable QR code in each unit will quickly pair SubDrive Connect to the FE Connect mobile app.

866-271-2859;

www.franklinwater.com



Vogelsang XRL260 large format waste grinder

Focused on improving waste-handling capabilities including organic waste, scraps, pits and tops, as well as post-consumer waste with metal and plastic, Vogelsang USA is bringing its largest format grinding system, the RedUnit XRL260, to North America. Nicknamed Big Red, Vogelsang's largest hopper-fed grinder is designed specifically to reduce large quantities of solid waste material quickly. The RedUnit

XRL260 features two 50 hp geared motors capable of handling up to 130 cubic yards of solid waste per hour. The 5 foot by 2 foot inlet handles higher volumes of waste material. Units are available in different sizes with various blade options, offering continuous height adjustment.

800-984-9400; www.vogelsang.info

Badger Meter BlueEdge customizable software

Badger Meter launched BlueEdge, a customizable suite of solutions designed to drive visibility and optimization of water assets. Through the BlueEdge suite of solutions, customers can monitor their water use with highly accurate and reliable meters, sensors, instruments and valves, enhanced by real-time data collection and transmission. Powerful software analytics and visualization tools deliver insights into water quality, usage patterns, asset performance and system health. This level of detail informs action, driving continuous improvement and expansion of a customer's BlueEdge solution deployment.

877-243-1010;

www.badgermeter.com



FCI FLT93 flow switch series

The FLT93 flow switch series from Fluid Components International offers a dependable, rugged set-and-forget solution that is flexibly designed to give multiple configuration and performance options to support a wide range of industries. The series is suitable for flow detection of liquids or gasses and is available in several wetted materials for compatibility with virtually any fluid. It is a dual-function instrument capable of monitoring and alarming on both flow and temperature in a single device. Dual 6A relay outputs are standard and are assignable to flow or temperature. The FLT93 flow switches can be specified in either insertion or inline styles for installation in pipe/tube

diameters from 1/4 inch and larger. Models FLT93S and FLT93F are insertion types and are the solution for liquids and gasses in larger diameter pipe sizes, respectively. And, for sanitary processes, the Model FLT93C provides 20Ra electro-polished 316 L stainless steel wetted parts and tri-clamp sanitary flanges to meet the requirements in the food, beverage and pharmaceutical industries.

800-854-1993;

www.fluidcomponents.com



ECD FC80 Series chlorine analyzers

FC80 Series chlorine analyzers from Electro-Chemical Devices simplifies the workday by providing dependable free chlorine measurement without being bogged down by monitoring for the time-consuming frequent replacement of sensor reagents. The digital plug-n-play FC80 Series installs quickly right out of the box. Its practical panel mount design includes built-in flow control, which eliminates the need for complicated pressure regulators and rotometers. Built-in automatic pH compensation with ECD's S80 pH sensor also eliminates the need for costly reagents to reduce time-consuming maintenance and high analyzer sensor life cycle costs. Available with an FM approved and an ATEX/IECEx compliant transmitter design, the analyzer's configuration is certified for hazardous locations where combustible gases.

800-729-1333; www.ecdi.com tpo

(continued)

Check out more
manufacturers
and dealers at:

tpomag.com

Plus sign up for your
FREE subscription.

Data Where and When You Need It

Understand concentrations of phosphate throughout your plant and tailor chemical dosing with real-time monitoring.

The ChemScan mini OP with outdoor enclosure mounts on the rail for accurate phosphate measurements wherever they're needed.



In-Situ

Visit us at WEFTEC, Hall D, #2553.



LEARN MORE

Every day is Earth Day.™

"We're met with a new challenge each day. Whether it's the sewer or water department ... we take our jobs very seriously, and the key thing is knowing that we're in compliance and not polluting our waters."



Jeff Chartier
An Original Environmentalist
SUPERINTENDENT
Town of Bristol (N.H.) Sewer
and Water Department

tpo

Read about original environmentalists like Jeff each month in *Treatment Plant Operator*.

FREE subscription at www.tpomag.com



**De Nora Water Technologies
Booth #2616 | WEFTEC 2024
New Orleans, October 5-9**

Looking for an effective, proven way to remove PFAS contaminants?

With 25+ years of experience removing arsenic, our SORB™ Contaminant Removal offers complete process and equipment design, from pilot to full scale.

Stop by **Booth #2616** during WEFTEC and talk to our experts:

- Find out more about De Nora and our vast contaminant removal experience
- Check out our latest system designs
- Learn about media selections
- Explore piloting options, installation methods, and more

Safeguarding your water with proven PFAS solutions

Denora.com

**THE ORIGINAL
ROTARY PRESS**

SLUDGE DEWATERING EQUIPMENT

FACTS

Easiest Maintenance

Lowest Polymer & Power Usage

The Only Expandable Technology

Reliable Unattended Operations



Patented technology

MORE THAN **500** INSTALLATIONS WORLDWIDE



PLEASE ASK US ABOUT OUR FULL SCALE PILOT OPTION

See us in New Orleans, Booth 1219



800-463-6328

fournierindustries.com/en/



product news

product spotlight wastewater

Aeration systems optimize mixing in wastewater

By Craig Mandli

Stormix aeration systems from **AER-USA** harness advanced technology and innovative design to deliver unparalleled results across a wide range of wastewater treatment applications.

The versatile, high-performance aeration systems draw air from the surface and release it as microbubbles to optimize air and oxygen dissolution in water. They are also designed to efficiently distribute and dissolve pure oxygen or ozone, and can inject and mix chemicals into the water.

“The Stormix MA, Stormix PRT, and Stormix Vario MAC systems set themselves apart through their innovative design and advanced technology,” says Ellie Rubio, marketing director for AER-USA. “Their unique features ensure optimal oxygen transfer and mixing efficiency, making them highly reliable and effective solutions for various applications, from wastewater treatment to restoration of lakes and ponds, use in castle moats, hydroponic farming, production systems and more.”

In the municipal wastewater treatment industry, Stormix systems are particularly well suited for aeration, mixing and oxygenation tasks, making them suitable for wastewater treatment plants, lagoons and industrial processing facilities. According to Rubio, their adaptability allows them to excel in diverse environments and treatment processes, ensuring optimal performance and efficiency.



Stormix aeration systems from AER-USA

“The design process involved rigorous testing and optimization to enhance efficiency, reliability and durability,” she says. “This commitment to innovation and quality makes Stormix the perfect fit for the industry, offering cutting-edge solutions to address the challenges of wastewater treatment and environmental management.”

Each system is offered at various horsepower, able to adapt to fit the needs of the customer. AER-USA also offers a variety of mounts, including static and floating mounts. The Vario MAC features a light motor body, with all Stormix systems using microbubbles to increase oxygen transfer rate. Additionally, each can be combined with a mixer (Rio or Brio) to create a combined system that pushes the microbubbles further and deeper into the water, increasing contact time. All models are built with conservation in mind, saving up to 30% of energy resources.

“Each has been praised for its reliability, efficiency and performance, noting significant improvements in water quality, oxygen transfer and mixing efficiency,” says Rubio. “Customers appreciate the versatility and the ability to meet diverse application requirements, delivering superior results and cost-effective solutions for their wastewater treatment needs — surpassing systems that they used in the past.” **863-659-4611; www.aerusa.com**

By Craig Mandli

Instrument helps facility optimize performance and save money

Problem

The 50 mgd Binney Water Purification Facility in Aurora, Colorado, provides award-winning drinking water. Because floc formation is a key step in filtration, Binney staffers sought to quantify floc size as part of their decision-making process.

Solution

Relying on full-process water samples, they used a **RoboJar benchtop instrument** to collect data on floc diameter. This helped the team adjust metal and polymer doses and improve final effluent. RoboJar uses laser illumination and optics to process floc images and produces floc diameter graphs with exportable data. The laboratory and operator teams tested full process samples from the coagulation system effluent with RoboJar to collect floc data. The instrument provided a view into the tank where the floc is formed and measured how full process chemical dose changes would affect floc size and filtration.



RESULT:

The floc data helped staffers optimize plant performance and reduce chemical usage. Between 2013 and 2015, the team reduced chemical spend 9-15% annually. The facility saved \$415,000 in chemical costs over those three years compared to the baseline year 2012. **833-762-6527; www.rob jars.com tpo**



SAF-T-FLO retractable injection quills are designed to provide a maintenance friendly way of maintaining injection feeds prone to scale and clogging.

Rarely are any two injection points the same. Our wide range of sizes, materials, and unique features allows each quill to be configured for the intended application. No compromises, just the right tool for the job.

Key Features

- 1/2" to 3" Connection Sizes
- Restraint ratings of both 150psi and 250psi.
- Integrated check valves on select sizes.
- Does not require the main to be depressurized for insertion/removal.
- SAF-Seal Elastomeric Tip for excessive scale prone feeds.

Learn More

call: 800-957-2383

visit: www.saffflo.com

view: youtube.com/saffflo

See us
in New Orleans,
Booth 3761



Every day is Earth Day.™

“Most don't even think their tap water is safe to drink. If I can help the public understand how high quality their tap water is and how important source-water protection is, I believe they will take ownership of keeping their water resources safe.”

Jane Moore
An Original Environmentalist
PRODUCTION SUPERVISOR
Philipsburg (Pa.) Water Treatment Plant



Read about original environmentalists like Jane each month in *Treatment Plant Operator*.

FREE subscription at tpomag.com

MORE?!



More Stories at TPOMag.com/featured

See what's not in print!

William Mammen Jr. joins DSI/Dynamatic

DSI/Dynamatic welcomed William Mammen Jr. as its director of engineering, where he will be responsible for the development and sustainability of all products while also supporting business and investment strategies for Dynamatic. Prior to joining Dynamatic in April, Mammen developed military and automotive products/systems for over 30 years. He has worked on a variety of domestic and international programs with ship, vehicle, and component manufacturers including General Motors, Ford, Visteon, ArvinMeritor and DRS Leonardo.



William Mammen Jr.

Ovivo partners with Evocra on PFAS removal technology

Ovivo now has the exclusive right to manufacture and commercialize Evocra's Ozone Foam Fractionation technology in the United States and Canada. Evocra is an Australian technology company, and the partnership aims to bring its continuous foam fractionation process to the United States and to Canada, specifically to tackle PFAS. This strategic move follows Ovivo's acquisition of E2metrix in February, which brought onboard advanced electrochemical oxidation technology for onsite PFAS destruction.

FieldComm Group joins PACTware Consortium

FieldComm Group announced that earlier this year it became the 23rd member of the PACTware Consortium. When users install PACTware, all currently registered HART communication protocol FDI device packages will also be installed. With the support of FDI technology in PACTware 6.1, PACTware supports the two leading device integration technologies, FDI and FDT/DTM, within a single tool.

MISCOwater adds AqueoUS Vets as a clean water solution

AqueoUS Vets is expanding its manufacturers' representation network by signing an agreement with MISCOwater, a United Flow Technologies company. Serving the western U.S. mountain region, MISCOwater is committed to providing reliable and cost-effective solutions for municipal water and wastewater treatment. The newly formed partnership comes as regulatory efforts increase against various contaminants, including the six federally regulated PFAS compounds and other contaminants of concern such as perchlorate, 1,4-Dioxane, and hexavalent chromium (chromium-6).

Seeq selected by Equinor for enterprise-wide analytics

Seeq and Equinor, an international energy company, announced a multi-year commercial agreement for the Seeq Industrial Analytics and AI platform to be leveraged across Equinor's global assets to further accelerate digital transformation outcomes. Through the agreement, Equinor will implement Seeq to empower its engineering teams to optimize production and improve energy performance across a variety of assets. Initially, the company plans to leverage Seeq to monitor well and process behavior, thereby gaining a deeper understanding of daily operations to maximize production, enhance workforce collaboration and increase efficiency.

Paul Schuler rejoins Carollo as SVP and strategic adviser

Paul Schuler has rejoined Carollo Engineers as senior vice president and strategic adviser. With more than 30 years' executive experience, Schuler will use his expertise and industry connections to offer utilities advanced technology options, creative contracting concepts for faster project delivery and alternative project funding solutions. His primary focus will be aligning Carollo's innovative solutions with client needs, helping them navigate evolving regulatory and climate challenges to plan, design and build resilient, sustainable water systems.



Paul Schuler

classifieds **September 2024** TREATMENT PLANT OPERATOR **tpo**

POSITIONS AVAILABLE

Operates wastewater treatment processes at the Noman M. Cole Jr. Pollution Plant in Lorton, VA. **703-324-3368** (009)

AVERAGE MONTHLY CIRCULATION REACHES

61,000+ READERS!

www.tpomag.com

CLASSIFIEDS ▾

> View Classifieds

> Place a Classified



Classifieds **get the job done.**

Print | Online | Mobile

Place your classified ad today.
www.tpomag.com/classifieds/place_ad

Covenant Technical Solutions launches in California

Covenant Technical Solutions announced its inception as an integrated solutions provider for the water sector, delivering comprehensive in-house execution from water quality assessment to construction and project commissioning. Backed by decades of industry expertise, the water conveyance and treatment project company boasts a leadership team of three industry veterans: Rob Crow as CEO and founder, Bill Williams as president and founder and Sean Summers as vice president of operations. Based in California, the company will launch as a primary partner for water providers in its home state, targeting contaminants of emerging concern impacting local groundwater supplies.

AQS forms strategic partnership with VODA.ai

Aquarius Spectrum has partnered with VODA.ai, a pioneer in artificial intelligence-driven pipe condition assessment and risk management. This collaboration aims to deliver an integrated, holistic approach to addressing nonrevenue water issues, to empower water utilities to enhance operational efficiency, optimize resource allocation and improve customer satisfaction.

Force Control names new West Coast manufacturer's rep

Force Control Industries has added DJ Reps as its new manufacturer's representative for the West Coast. DJ Reps will present Force Control Industries' full lineup of oil shear brakes, clutches and clutch brakes to existing and prospective distributors, OEM and end-user customers within the states of Idaho, Washington, Oregon, California, Arizona and Nevada. **tpo**

PARK PROCESS

The Big Tipper
Permanently Mounted Dewatering Container



Features

- Different Capacities & Styles
- Handrails & Walkways
- Bio Solids Dewatering
- Hydraulic Dumping

Available Packaged With

PolyCat
Just Flocc It!



Batch Mixing Polymer System

Features

- Ages Polymer
- Skid Mounted
- Includes VortaFlo™ Static Mixer

See us in New Orleans, Booth 4056

855.511.PARK
www.ParkProcess.com

CAS DATALOGGERS

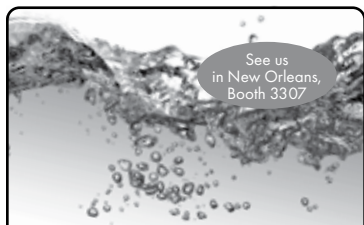
OdaLog® G20 Gas Logger

The first gas logger with smart digital sensors

- Sensor Health Indication
- 90 Day Deployment Period
- Direct Modbus Integration
- 0-200 & 0-2000ppm Models



Email: sales@dataloggerinc.com
Phone: 800-956-4437
Website: www.dataloggerinc.com



PHi
Pulsed Hydraulics, Inc.

Big Bubbles

No Trouble Mixers

800-641-1726
www.phewater.com

SMART. COMPACT. POWERFUL.

NEW!
Series 19 S400 Electric Actuator for 8" and 10" Butterfly Valves



asaahi@asahi-america.com | 1-800-343-3618 | asahi-america.com
WEFTEC Booth #2653

ASAHI/AMERICA
Your Experts in Plastics™


share
discover
connect



facebook.com/TPomag
instagram.com/TPomag
twitter.com/TPomag
youtube.com/TPomagazine
linkedin.com/company/treatment-plant-operator-magazine


ELODE Electro-Osmosis Dehydrator **Charter Machine Company**
(Authorized Dealer)

Reduce Sludge Cake 60% in Just 3 Minutes



Visit us in New Orleans, #4409

Belt-Pressed Cake 15% Dry Solids → ELODE-Dried Cake 45% Dry Solids



exam STUDY GUIDE

Get help on sticky questions.

tpomag.com

> Dewater using electricity without heat, chemicals, or mechanical force

> Easily retrofit into existing dewatering operations with compact design

> Improve landfill acceptance or incinerator efficiency with drier cake

> Our ELODE non-thermal dryer works with 95%+ municipal WWTPs

ElodeUSA.com

Find out how Henderson Water Utility reduces 67% of their cake with ELODE.

people/awards

Louisville Water's Pure Tap received high marks for quality, taste and value in the organization's 2023 Annual Water Quality Report.

The Barstow (California) Wastewater Treatment Plant received the 2024 Air Aware Award from the Mojave Desert Air Quality Management District. Barstow plant team member **Christopher Biles** received the Mechanical Technician Person of the Year award from the California Water Environment Association.

Dennis Doll, chairman of the board for the Middlesex Water Company, received a Distinguished Service Award from the New Jersey Utilities Association, of which he is a past chairman. He was honored for 35 years of industry service and leadership.

Barbara Chappell, water services director in Goodyear, Arizona, received a 2024 William D. Hatfield Award for her leadership, integrity, vision and encouragement of her operations team to be involved in and passionate about their careers.

The **City of Lloydminster**, Saskatchewan, won the 2024 Willis Award for Innovation from the Canadian Association of Municipal Administrators in category got population 20,000 to 100,000 for its new mechanical wastewater treatment facility.

The **Washington County Service Authority** earned a Gold Award in operations and performance excellence from the Virginia Department of Health Office of Drinking Water.

The **City of Ocala** took top honors at the 2024 Region XI North Central Florida Best Tasting Drinking Water Competition hosted by the Florida Section AWWA.

Erin Jones was appointed the surface water treatment plant superintendent for Pender County (North Carolina) Utilities.

Board members **Darrell Patzer** and **Mardee Heinrich** were recognized by the Stutsman (North Dakota) Rural Water District on their retirement after nearly 30 years of service.

Will Hamblin was named public utilities director for Hickory, South Carolina, replacing **Shawn Pennel**, who retired.

TPO welcomes your contributions to Worth Noting. To recognize members of your team, please send notices of new hires, promotions, certifications, service milestones or achievements as well as event notices to editor@tpomag.com. tpo



events

Sept. 8-11

AWWA Water Infrastructure Conference 2024, Arizona Grand Resort, Phoenix. Visit awwa.org.

Sept. 8-11

Kentucky/Tennessee Water Professionals Conference, Kentucky International Convention Center, Louisville. Visit kytnwpc.swoogo.com.

Sept. 9-11

AWWA 2024 WaterPro Conference, Savannah Convention Center, Georgia. Visit awwa.org.

Sept. 9-12

WaterJAM 2024, Virginia Beach Convention Center, Virginia. Visit site.phedloop.com.

Sept. 10-13

Michigan-ACE 2024, Amway Grand Plaza, Grand Rapids. Visit mi-water.org.

Sept. 11-13

2024 IMS-AWWA Annual Conference, Kanab Convention Center, Utah. Visit ims.awwa.org.

Sept. 11-13

Wisconsin Section AWWA Annual Conference, Monona Terrace, Madison. Visit wiawwa.org.

Sept. 11-13

South Dakota Section AWWA Annual Conference, Deadwood Lodge, Deadwood. Visit sdawwa.org.

Sept. 17-19

Illinois Association of Wastewater Agencies Annual Conference, Wyndham Moline on John Deere Commons. Visit ilwastewater.org.

Sept. 17-20

Western Canada AWWA Section Annual Conference, RBC Convention Centre, Winnipeg, Manitoba. Visit wcwwa.ca.

Sept. 17-20

Minnesota AWWA Section Annual Conference 2024, Duluth Entertainment and Convention Center. Visit mnawwa.org.

Sept. 18

2024 Massachusetts Rural Water Association Annual Trifecta, Northfield Mountain Recreation Area. Visit massrwa.org.

Sept. 18-19

Western Colorado Water and Wastewater Conference, Grand Junction Convention Center. Visit rmsawwa.org.

Sept. 18-20

Maine Water Environment Association Fall Convention, Sunday River Resort, Newry. Visit metwea.org.

Sept. 19

Granite State Rural Water Association Operator Field Day and Trade Show, Pats Peak Ski Area, Hanniker, New Hampshire. Visit granitestatewater.org.

Sept. 22-24

Atlantic Canada AWWA Section Annual Conference, Fredericton (New Brunswick) Convention Center. Visit acwwa.ca.

Sept. 24-26

AWWA WaterSmart Innovations, South Point Hotel, Las Vegas. Visit awwa.org.

Sept. 24-26

Washington Association of Sewer and Water Districts Fall Conference and Trade Show, Northern Quest Resort Conference Center, Airway Heights. Visit waswd.org.



**AquaNereda® Installation:
Wolcott WWTP at Wolcott, KS**

THE ONE AND ONLY. TRUE AEROBIC GRANULAR SLUDGE TECHNOLOGY

With over two decades of installed experience at more than 100 facilities worldwide, Nereda® technology is the **One and Only** true aerobic granular sludge on the market today.

Since its introduction to the U.S. and Canada in 2017, more than 40 AquaNereda® plants are currently in design, under construction or in operation throughout North America.

Consultants and end-users continue to realize the process and cost saving benefits associated with AquaNereda technology through on-site pilot testing, installation visits and technical seminars.

ADVANTAGES OF AQUANEREDA® TRUE AGS TECHNOLOGY:

- Design MLSS of 8,000 mg/l greatly reduces footprint
- Robust process that adapts to changing conditions
- Capable of enhanced nutrient removal
- Applicable for municipal and industrial waste streams
- Suitable for retrofits and greenfield sites
- Significantly less construction cost compared to conventional treatment
- Exceptional effluent without chemical addition
- Energy and chemical savings results in lowest cost of ownership



SVI₅ comparison of aerobic granular sludge (left) and conventional activated sludge (right)

See us
in New Orleans,
Booth 2641

www.AquaNereda.com | 815.654.2501

Aqua-Aerobic Systems, Inc. is the exclusive U.S. and Canada provider of Nereda® technology developed by Royal HaskoningDHV.



AQUA-AEROBIC SYSTEMS, INC.
A Metawater Company

Professional Chemical Feed Equipment



VISIT US IN NEW ORLEANS
BOOTH 3236



Total Fluid Management

Lutz-JESCO is your reliable partner for all of your chemical feed/metering applications. From the single metering pump to the complete chemical feed system, we provide you with the appropriate Total Fluid Management solution.

Please contact us for more information!



Lutz-JESCO, Corp. · 55 Bermar Park · Rochester, NY 14624
Phone: (585) 426-0990 · Tollfree: (800) 554-2762 · Fax: (585) 426-4025
www.lutzjescoamerica.com