

TREATMENT PLANT OPERATOR

# tpo™

DEDICATED TO WASTEWATER & WATER TREATMENT PROFESSIONALS

tpomag.com  
AUGUST 2023

IN MY WORDS:  
Operators Without Borders | 32

TECHNOLOGY DEEP DIVE:  
Capturing the  
finest grit | 36

William "Tucker" Randles  
Deputy Superintendent  
Zanesville, Ohio

## Aiming High

TUCKER RANDLES MET THE WATER PROFESSIONS  
AS A KID. NOW HE'S A DEPUTY PLANT SUPERINTENDENT.

18

HOW WE DO IT:  
Remote alarm  
notification | 16



BOOTH 1248

# Blue-White<sup>®</sup>

## Simple, Dependable and Precise Chemical Dosing & Water Analysis



### FLEXFLO<sup>®</sup> M4

For Accurate Chemical Dosing with  
No Vapor Lock and No Lost Prime.



### APNTU ONLINE TURBIDITY ANALYZER

Ultra-Low Turbidity Range, Touch Screen  
Display and Data-Logging Terminal.



*Fluid Metering Solutions Made Simple.*

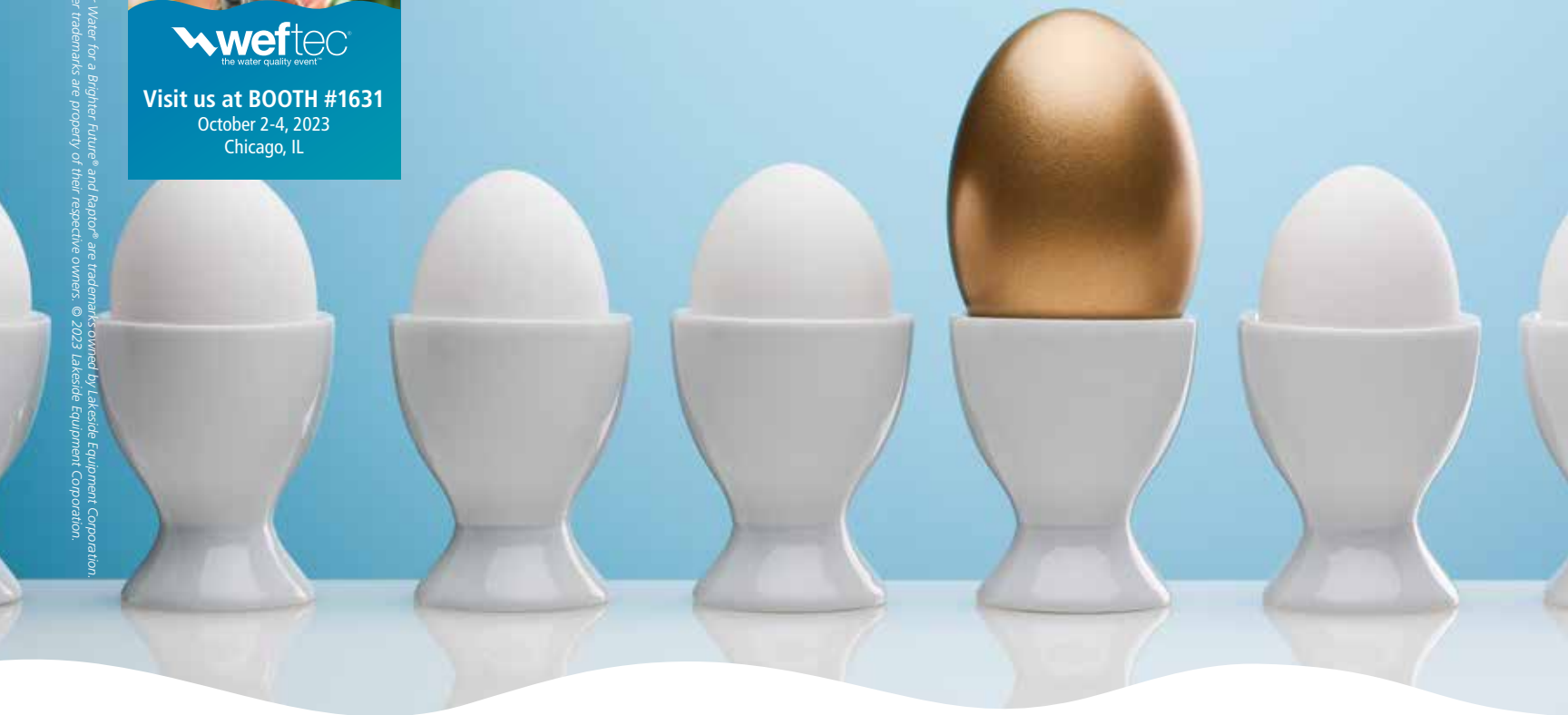
Learn more about the **M4** and **Analyzer** at [www.blue-white.com](http://www.blue-white.com)



Cleaner Water for a Brighter Future® and Raptor® are trademarks owned by Lakeside Equipment Corporation. All other trademarks are property of their respective owners. © 2023 Lakeside Equipment Corporation.



Visit us at **BOOTH #1631**  
October 2-4, 2023  
Chicago, IL



## WE STAND OUT FROM THE CROWD.

As you would expect from Lakeside, our **Raptor® Multi-Rake Bar Screen** is an efficient, proven screen technology for rapid removal of inorganic solids in municipal and industrial applications. But what sets it apart is the simple fact that ours is built to Lakeside's renowned standards and features superior quality. As with everything we do, our *Raptor* Multi-Rake Bar Screen is well-engineered, designed for optimum performance and durability, and is manufactured in the USA. That's important on a lot of levels. When critical decisions are made on design and specifications, stand out with the Lakeside *Raptor* Multi-Rake Bar Screen, the gold standard of the industry.



Cleaner Water for a Brighter Future®

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](mailto:sales@lakeside-equipment.com) or visit our website [www.lakeside-equipment.com](http://www.lakeside-equipment.com)



### 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

# The BEAST Septage Receiving Station

## A complete septage pretreatment system.

















- Removes the inorganic debris from septage.
- Handles heavy solids loading.
- Fast truck unloading time.
- No rock trap required.

**weftec** 2023 McCormick Place  
the water quality event™ Chicago Booth 1629

**SAVECO**  
Member of WAMGROUP®  
Formerly Enviro-Care®

www.savecowaterna.com • 815-636-8306

## advertiser index August 2023

Anaergia .....	21	 Koline-Sanderson .....	35
BCR Environmental .....	9	 Kuhn North America, Inc. ....	56
 BDP Industries, Inc. ....	5	 Lakeside Equipment Corporation	3
<u>Blue-White</u> Blue-White Industries .....	2	Landia, Inc. ....	47
Bright Technologies, Division of Sebright Products, Inc. ....	33	NSI Lab Solutions .....	13
Charter Machine Company .....	25	Park Process .....	55
Duperon Corporation .....	7	Paxxo .....	51
E&I Corporation .....	49	Prime Solution, Inc. ....	22
 Eagle Microsystems, Inc. ....	57	Pulsar Measurement .....	37
 Earth Science Laboratories, Inc.	31	Pulsed Hydraulics, Inc. ....	55
ELODE USA, Inc. ....	31	 Saf-T-Flo Chemical Injection .....	49
Fournier Industries .....	30	 SAVECO North America, Inc. ....	4
 Hach .....	23	 ScreeningO Systems LLC .....	55
Hurst Boiler .....	59	 Smith & Loveless, Inc. ....	29
Industrial & Environmental Concepts, Inc. ....	35	 Vaughan Company, Inc. ...	back cover
Ixom Watercare .....	17	Veolia Water Technologies .....	49
 JDV Equipment Corporation .....	58	<b>CLASSIFIEDS</b> .....	57
 JWC Environmental Inc. ....	15		

share  
discover  
connect



facebook.com/TPOmag    instagram.com/TPOmag  
twitter.com/TPOmag    youtube.com/TPOmagazine  
linkedin.com/company/treatment-plant-operator-magazine

**EAT.  
SLEEP.  
SAVE THE  
ENVIRONMENT.  
REPEAT.**

**tpo** IT'S YOUR MAGAZINE.  
TELL YOUR STORY.

SEND YOUR IDEAS FOR FUTURE ARTICLES  
TO EDITOR@TPOMAG.COM



Thickening | Dewatering | Composting



30" DSP Screw Press



1.0m Enclosed Gravity Belt Thickener

**Designed & Manufactured in the USA**

- Belt Presses
- Screw Presses
- Gravity Belt Thickeners
- Rotary Drum Thickeners

- Process Optimization
- On-Site Service & Mobile Demos
- Complete Compost Facility Design



2.0m 3DP Belt Press



Feedbox & Gravity Zone on 3DP Belt Press

[www.bdpindustries.com](http://www.bdpindustries.com)  
 (518)-695-6851  
[info@bdpindustries.com](mailto:info@bdpindustries.com)

# contents **August 2023**

- 8 **LET'S BE CLEAR: PULLING IT ALL TOGETHER**  
The One Water concept helps point the way to the most Sustainable ways to manage earth's most essential resource.  
By Ted J. Rulseh, Editor
- 8 **LETTERS**
- 16 **HOW WE DO IT: SPEED WHEN IT MATTERS MOST**  
ReWa looks to remote alarm notification software to enable reliable and proactive response, improve efficiency and avert problems.  
By Cody Bann
- 24 **HEARTS AND MINDS: FAMILY FUN WITH A PURPOSE**  
An engaging mascot, recycled art contest, Earth Day festival, rain barrel workshops and more highlight a New Jersey utility's diverse outreach program.  
By Sandra Buettner
- 32 **IN MY WORDS: LENDING A HAND. WORLDWIDE.**  
North American volunteers join Operators Without Borders to help improve wastewater treatment in the world's neediest place.  
By Ted J. Rulseh
- 34 **SUSTAINABLE OPERATIONS: DOWN WITH FLARING**  
A renewable natural gas process replaces CHP at an Oregon clean-water plant, making use of what had been surplus biogas and generating revenue.  
By Steve Lund
- 36 **TECHNOLOGY DEEP DIVE: WHAT COULD BE FINER?**  
PISTA INVORSOR system combines settling and hydraulic forces to enable high-efficiency capture of grit particles down to 75 microns.  
By Ted J. Rulseh
- 38 HEADWORKS AND BIOSOLIDS MANAGEMENT DIRECTORY**
- 44 **PRODUCT FOCUS: HEADWORKS AND BIOSOLIDS MANAGEMENT**
- 50 **PRODUCT NEWS**  
Product Spotlights:  
Wastewater: Flow switches help keep pumps safe  
Water: Signal advancement increases automation of chemical feed process  
By Craig Mandli
- 52 **CASE STUDIES: HEADWORKS AND BIOSOLIDS MANAGEMENT**

## top performers



**10 WATER OPERATOR: "YOU'RE NOT IN THIS ALONE."**  
An unlikely beginning set Jennie Woods on a career path to the top of her game. Now she helps develop the next generation of water managers in rural Oklahoma.  
By Suzan Chin-Taylor and Stormy Shafer

**18 WASTEWATER OPERATOR: AIMING HIGH**  
Tucker Randles got his introduction to the clean-water professions as a kid. Now he's a deputy plant superintendent with his eye on Ohio's highest license.  
By David Steinkraus

cover story

**ON THE COVER:** William "Tucker" Randles got his introduction to wastewater from his godfather, who was a plant superintendent. After starting his career as an operator, he is now deputy superintendent of the wastewater treatment plant in Zanesville, in the Appalachian foothills of eastern Ohio. (Photography by Todd Yarrington)

**26 WATER OPERATOR: DOING IT RIGHT. ALL THE TIME.**  
Daniel Welk's career embodies care for the critical nature of water treatment and the role of a quality workplace in optimizing plant performance.  
By Ted J. Rulseh

- 56 **INDUSTRY NEWS**
- 57 **EXAM STUDY GUIDE**  
By Rick Lallish and Drew Hoelscher
- 58 **WORTH NOTING**  
People/Awards; Events

**coming next month:** September 2023 FOCUS: **WEFTEC Pre-Show Issue / Digital Technology**

» Let's Be Clear: The Professional Operator credential, revisited » **TOP PERFORMERS** – Wastewater Operator: Larry Peterson, Cheland County, Washington | Wastewater Operator: Bruce Royce, Midland, Michigan | Laboratory: Derek Gormon, Brownsville, Indiana » How We Do It: A hybrid activated sludge technology » In My Words: Putting biogas to good use » Tech Talk: Choosing the right chemical metering pump » Sustainable Operations: Pursuing net zero in northern California » Hearts and Minds: Water festival and science fair in New Hampshire » Technology Deep Dive: Accurate dosing with chlorine analyzers



## AT THE HEART OF DUPERON IS A STEADY **RHYTHM OF INNOVATION.**

For nearly 40 years, we have listened to our customers to create products that are simple, adaptive solutions that manage all sizes of debris. Big or small, we have a solution to fit your needs.

COMING TO WEFTEC 2023

# OUR FINEST SCREENING YET

**BOOTH #1600**

[www.duperon.com](http://www.duperon.com)  
800.383.8479  
[dcsales@duperon.com](mailto:dcsales@duperon.com)

## Advances in Thermal Hydrolysis

It was interesting to see thermal hydrolysis being researched at Washington State University being presented as a new and novel process (*TPO*, July 2023, Sustainable Operations, “Getting More from Digestion”).

There are many thermal hydrolysis pretreatment (THP) processes on the market, most notably Cambi, but including other names such as PONDUS, Lystek, and Terranova. Cambi has been used extensively in Europe and now is used in many plants in the U.S. including Washington, D.C. I did not see what is new with this research.

Research on thermal pretreatment goes back many years. In the 1970s and 1980s Roger Haug with Los Angeles County and Perry McCarty published articles in the Water Pollution Control Federation research journal on pilot testing and full-scale testing on the benefits of high-temperature pretreatment ahead of anaerobic digestion.

Benefits were the same as described in the *TPO* article and can be derived from the current THP systems on the market. It seems it would have been quite beneficial for your reader operators to describe in an article like this the options which are already available and are proven processes. Thank you for your consistently good magazine.

Sincerely,

**Steve Reusser, Adjunct Professor**  
**University of Wisconsin-Madison, Civil and Environmental Engineering**

### We welcome letters to the editor.

Share your opinions about *TPO* articles. Send a note to [editor@tpomag.com](mailto:editor@tpomag.com)



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](http://www.tpomag.com) / Email: [info@tpomag.com](mailto: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](http://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](http://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](mailto: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](mailto:holly.gensler@colepublishing.com).

**ADVERTISING RATES:** Call Kim Bruss at 715-891-0404 or email [kim.bruss@colepublishing.com](mailto:kim.bruss@colepublishing.com), or call Phil Hahn at 715-493-9913 or email [phil.hahn@colepublishing.com](mailto: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](mailto:editor@tpomag.com).

**DIGITAL REPRINTS AND BACK ISSUES:** Visit [www.tpomag.com](http://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](mailto:holly.gensler@colepublishing.com).

**CONTROLLED CIRCULATION:** 60,500 per month

© 2023 COLE PUBLISHING INC.

No part may be reproduced without permission of publisher.



## Pulling It All Together

THE ONE WATER CONCEPT HELPS POINT THE WAY TO THE MOST SUSTAINABLE WAYS TO MANAGE EARTH'S MOST ESSENTIAL RESOURCE

By Ted J. Rulseh, Editor



**I**n school we all learned about the water cycle — lakes and streams, evaporation, clouds, rainfall.

In school or as adults we also learned about the urban water cycle: surface or groundwater, drinking water, wastewater, discharge.

These cycles portray water as a single resource or system, and yet in daily life we tend to think of water's various forms or stages as separate entities. To cite just one small example, in my home community of Two Rivers, Wisconsin, stormwater and wastewater are separate

divisions under the Department of Public Works, and drinking water is in an entirely different department — under utilities, with electricity.

How would things be different if we started thinking of water in all its manifestations — precipitation, lake, river, groundwater, stormwater, wetland — as a single resource? That's the principle behind One Water, a concept rapidly gaining acceptance.

The core idea is that we could manage water more efficiently and sustainably, and deal more effectively with water issues — quality, reliability, availability, affordability — if we thought of water more holistically.

### HOUSE DIVIDED

Consider for a moment how we look at water on the macroscopic scale. We have separate industry associations for wastewater (WEF), drinking water (AWWA), stormwater (National Municipal Stormwater Alliance) and groundwater (National Ground Water Association).

To be sure, those areas have needs and issues of their own, but the obvious thing they have in common is that they deal with the same resource, and in various ways they are interconnected.

Traditionally, in many communities, the objective with stormwater, whether from rain events or snow melt, has been simply to make it go away. In my hometown, that meant collecting it and piping into the rivers or Lake Michigan.

To illustrate the trouble with such an approach, look to California, which last winter saw massive snowfalls. Some of that snowmelt ended up in rivers that communities could tap for drinking water and farmers could draw upon for irrigation — this could help alleviate supply shortages from years of drought.

But some of the water ended up threatening floods or simply flowed into the Pacific Ocean. What if infrastructure had been in place to capture more of that melt water for irrigation, drinking water and industrial processes?

### TAKING ACTION

The One Water concept is not entirely new. The recycling of wastewater is an excellent example of water being treated holistically.

In many communities, especially in more arid regions, wastewater once treated and piped into a river and sent downstream is now captured and used



for irrigation, or given advanced treatment and made part of the drinking water supply, by being discharged to a drinking water reservoir or plugged directly into the potable water system.

There are other examples of communities taking One Water seriously. The U.S Water Alliance describes such efforts at its One Water Hub ([www.uswateralliance.org/one-water](http://www.uswateralliance.org/one-water)). Here are a few:

**Green City, Clean Waters: Philadelphia.** The city's outdated stormwater system led to combined sewer overflows. In response, the city embarked on a 25-year plan using green infrastructure like green roads, rain barrels, pervious pavement and rain gardens to capture runoff on land. The goal is an 85% reduction of stormwater pollution entering waterways.

How would things be different if we started thinking of water in all its manifestations — precipitation, lake, river, groundwater, stormwater, wetland — as a single resource?

**Water Hub, Emory University, Atlanta.** This project recycles up to 400,000 gpd with a campus-scale water reclamation and reuse system. It uses natural plant-based treatment processes to recycle up to two-thirds of the water produced on the campus, cutting potable water usage by 40% — enabling tens of millions in projected savings over 20 years.

**Adaptive management of phosphorus, Madison, Wisconsin.** The Madison Metropolitan Sewerage District faces EPA requirements to cut phosphorus runoff in a 185-square-mile service area. Instead of going it alone, the district collaborates with more than 30 partners in a project where farmers, utilities, and developers all work to reduce nutrient releases and improve water quality in the Yahara River Watershed.

**Aquifer replenishment, Tucson, Arizona.** In its dry climate, Tucson faced depletion of the aquifers that supplied its drinking water. In response Tucson Water worked with American Rivers on a comprehensive management plan that looks at water supply holistically, with an emphasis on conservation integrating stormwater with the water supply portfolio. The city also runs an extensive reclaimed water system for irrigation and is looking to potable reuse in the future.

#### BASIC PRINCIPLES

Tying, all these efforts together, the Water Alliance lists seven hallmarks of One Water:

- A mindset that all water has value
- A focus on achieving multiple benefits — economic, environmental, social
- A systems approach
- Watershed-scale thinking and action
- Right-sized solutions
- Partnerships for progress involving all sectors
- Inclusion and engagement of all

You can read the alliance's foundation report at the One Water Hub online. [tpomag.com](http://tpomag.com)



## PROVEN BIOSOLIDS TREATMENT

APPLICATION:  
SLUDGE DRYERS

**Bio-Scru® 3.0**

Indirect • Compact • Autonomous  
Class A/EQ Biosolids



## ADVANCED OXIDATION

**CleanB®**

Continuous Class B Biosolids  
In Just 10 Minutes

**Neutralizer®**

Batch Class A Biosolids < 8 hours



1-866-724-9145  
[bcrinc.com](http://bcrinc.com)

Unplug. A PRINT SUBSCRIPTION TO *TPO* IS FREE.

Visit [www.tpomag.com](http://www.tpomag.com) to subscribe, and to check out the quick and extensive digital resources that are always available.

THEN SIT BACK AND SAVOR ALL YOU LOVE ABOUT YOUR OWN PRINTED COPY.



# “You’re Not in This Alone.”

AN UNLIKELY BEGINNING SET JENNIE WOODS ON A CAREER PATH TO THE TOP OF HER GAME. NOW SHE HELPS DEVELOP THE NEXT GENERATION OF WATER MANAGERS IN RURAL OKLAHOMA.

STORY: **Suzan Chin-Taylor and Stormy Shafer**  
PHOTOGRAPHY: **Matt Cameron**



“I had a really good director who allowed me to take as much training as I could, and I ended up loving it.”

JENNIE WOODS

The Broken Bow Water Treatment Plant has a capacity of 9 mgd and treats 4.5 mgd on average.



Jennie Woods, supervisor at the Broken Bow Plant (filter air valves from Kinetrol)

Jennie Woods is a cheerleader for water management careers. It's what she teaches students in her beginner water lab course for the Oklahoma Rural Water Association. And it's more than lip service. As water treatment plant supervisor for the Broken Bow (Oklahoma) Public Works Authority, she lives what she teaches. Twenty-two years ago Woods was a scale house operator at the City of Broken Bow landfill when she was asked to move to the water treatment plant. Authority director Gary Swift tapped supervisor Mary Hodge to train Woods, a motivated student. "It was pure luck," Woods says. "I had no background. They just asked if I would be willing to learn and train. I had a really good director who allowed me to take as much training as I could, and I ended up loving it."

### UNLIKELY BEGINNINGS

She remembers, "It was right out of high school. I was married, had already started a family, no college. My supervisor, Mary Hodge, said that a person who was really interested could turn this field into a career, not just a job. Obviously, she was right."

Jennie Woods,  
Broken Bow (Oklahoma)  
Public Works Authority



POSITION:  
**Water Treatment  
Plant Supervisor**

DUTIES:  
**Manage plant  
operations, turbidity  
and other lab testing,  
repairs, reporting,  
training**

CERTIFICATIONS:  
**Class A Water with  
Lab, Wastewater with  
Water, Wastewater  
with Lab, and Waste-  
water Operator**

EDUCATION:  
**Associate degree,  
physical science,  
Carl Albert College**

GOALS:  
**Advocate water  
management as a  
career path; educate  
and mentor the next  
generation**

After a few years, Woods enrolled at Carl Albert College, where she earned a degree in physical science with a base in water and wastewater. Then she progressed through all the Oklahoma certification levels.

Woods started at Broken Bow as a lead operator, not a typical entry position. After she got her Class C Water or Plant Operator certification, the plant's second supervisor Mary Hodge, retired. Woods then moved into that role.

Such opportunities for advancement were an advantage of working for a small municipality. Broken Bow (population 4,300) nestles in the foothills of the Kiamichi Mountains. Its 1990-era plant supplies water to about 15,000 of McCurtain County's 34,000 residents.

The gravity-flow plant's clearwell bottom sits at an elevation of 975 feet and treats about 4.5 mgd with a capacity of 9 mgd. Its source is 185-foot-deep Broken Bow Lake fed by clear water from the Mountain Fork River. Its two ground storage wells hold 2 million gallons each.

“You have to take on every problem, and you can solve it. If you don't know the answer, there are people out there who can help you.”

JENNIE WOODS



The staff at the Broken Bow Water Treatment Plant includes, front, Jennie Woods, water treatment supervisor; middle row, from left, Vickie Patterson, city manager; Gary Swift, retired public works director and current project manager; and Shawn Hilton, operator; back row, Jamie Denison, public works director; Kenneth Moore, maintenance/operator; and Stacey Humphrey and Misty Swift, operators.



From left, Stacey Humphrey, Jennie Woods and Kenneth Moore waste sludge from the plant's sedimentation basin.

Woods' attitude, work ethic and enthusiasm for the field drives her commitment to excellence. She simply loves her job, which is more than supervision: "I'm still considered an operator. When I get to work, we have a big whiteboard. I look at what has gone wrong since my last 12-hour shift, what needs to be fixed, and what we need to think about over the next few days.

"I make sure the testing is fine, that we have no problems with turbidity or low chlorine. Then I begin my day with whatever, because in water, every

day is different." Woods especially particularly enjoys dealing with turbidity, and her teaching with ORWA.

#### VARIED DUTIES

She runs lab tests and walks the plant, making sure the water is where it needs to be. She and her team constantly test to ensure that levels are spot-on. "Visually, you can see a lot," she asserts. "You do it enough years, you can hear and feel it. You know if the water's got a problem that particular day."

After her rounds, if something — a pump or other piece of equipment — needs repair, she rolls up her sleeves and gets busy. She supervises operators Shawn Hilton, Stacey Humphrey, Rashad Marshall, Misty Swift and maintenance/operator Kenneth Moore.

This team oversees water intake from about 50 feet below the lake's surface. The raw water is moved up to the conventional plant by three General Electric 5K44 motors with

Peerless pumps. Raw turbidity averages 1.1 NTU.

"Our water is super clear, super cold and has very low alkalinity," Woods says. "So we use alum and cationic polymer, lime for pH adjustment, and a touch of soda ash to help boost alkalinity. Our concrete sedimentation basins take four to six hours for solids to settle out. The water runs through dual anthracite and 12 inches of sand. At the very end of our process, we inject chlorine and sodium hypochlorite for disinfection." *(continued)*

spex<sup>®</sup>certiprep | nsi | hps

# REACH FULL CONFIDENCE IN YOUR WASTEWATER TESTING.

Choose NSI's **Certified Reference Materials (CRMs)** to monitor analytical performance of your wastewater testing with **full confidence**.

- Unique, pre-measured, single use reference materials that **prevent laboratory errors and re-work**.
- Ready-to-use CRMs require **no preparatory steps to save time and effort**.
- Offering scheduled **Proficiency Testing**, **on-demand PT Express™** and **custom standards**.
- Quality assured **ISO 17025, ISO 17034 and ISO 17043** accredited.
- **Universal Water Microbe Cocktail** - unique, stable microorganism blend in a single pellet.

ORDER @  
[WWW.NSILABSOLUTIONS.COM](http://WWW.NSILABSOLUTIONS.COM)

LEARN MORE



The treatment process also includes U.S. Motors flocculators (Nidec) and sludge collector drives (SEW-Eurodrive Inc.).

A SCADA system (Micro-Comm) enables continuous real-time monitoring of the process. “They’re a wonderful company, always there 24/7,” Woods says. Finished water turbidity runs about 0.02 NTU.

“Alkalinity is our No. 1 concern,” Woods says. “I’ve seen our alkalinity hit zero, and anybody with a water treatment background knows on zero, you cannot get alum to work, or any chemical, for that matter. So we’re constantly checking alkalinity throughout the plant. Every day, every two hours.”

## LOOKING SHARP

When it comes to maintenance, “There are not a lot of challenges other than every couple of months, we take down one 250,000-gallon sedimentation basin, and usually three operators get in there to clean it with fire hoses.

“We’re very proud of how clean our plant is. It’s about 32 years old, but when you look around, you wouldn’t ever guess that. Cleanliness is something I push hard. We take great pride in our plant, its maintenance, and landscaping. Somebody is always painting or mowing or sweeping.

“We have a lot of tourism now, so appearance is more important than ever. It’s like if you pull up to a restaurant, you can tell from the outside if you want to go in. We take enough pride at the front gates that you know we’re going to have top-notch everything. We might be little, but we work hard for cleanliness.”

These high standards likely played out when Woods received a 2022 Excellence in Operations Award from the ORWA. “I was very pleasantly surprised,” she recalls. “I’ve won a few awards in the last several years, but this one was a shock. I’m very honored and humbled to receive it.”

## STEADY COMPLIANCE

She believes a big factor in that win was her plant’s history of uncommonly steady compliance with Oklahoma’s Stage Two THMM and HAA5 process measurement: “At one time, we were probably the only county that was in compliance. A few years ago, we had to change up our treatment and ended up getting out, but we’re back in again. Oklahoma DEQ told me at one point, we were probably the only county that had done extremely well with it.

“If you’re in water treatment, whether a rural district or municipality, you try to stick together. Since the city sells water to a lot of smaller communities, if they have a problem they know to call and I’ll help them with paper-work or whatever. Broken Bow is a pretty good city to work for. They’re willing for me to help others.”

Woods developed that helpful attitude early on, emulating how she was treated by her earliest mentor, Hodge. She remembers her best advice: “If you turn this job into a career, you’ll never regret it. That’s the most truthful thing ever said to me. When I teach a class, that’s exactly what I tell everybody. The sky’s the limit in this field.”

Woods has a few other words of wisdom for those planning long water management careers.

“Don’t overreact. I feel the effects when I’m under the gun and things aren’t going well. Maybe somebody called out sick. I’ve worked a lot of nights lately. You just always say to yourself, ‘Take a deep breath and go slow.’

“Give yourself 15 minutes and realign, because at the end of it, we are here to make the best potable water a person possibly can, and that’s just what we’re going to do. You have to take on every problem, and you can solve it. If you don’t know the answer, there are people out there who can help you.”

She advises building a professional network of people who will pick up the phone when called and are ready to help solve problems: “Just remember, you’re not in this alone.” tpo

## A FLOOD OF COMPETENCE

On May 1, 2019, Oklahoma was struck by a storm system that dropped 17 tornadoes and up to six inches of rain on an area that included the Broken Bow Public Water Authority water treatment plant.

“We’ve got a good Corps of Engineers team here in our area,” says plant supervisor Jennie Woods. “They opened all eight gates on the spillway, but the water went over the top of the dam. When it does that, the water is going to back up to our intake building. Then it rises, and we have to shut down the plant to save the electrical system.”

It was a nightmare, but “one that we did fairly well,” she recalls. “But the second one, in December the same year, was literally staggering, the amount of water. All summer we had heavy rains, so there was no place for the water to go but down. Once again they opened all floodgates, but it still breached the dam. The flow was taking trees down as if they were matchsticks. It was just scary.”

The floodgates are at the bottom of Mountain Fork River, where the spillway and river meet. “Our intakes are less than a couple hundred yards from this spillway, so the water naturally is going to back up,” Woods says. “We tried sandbagging. The whole community tried to help, but within seconds after the water started rising, it took the bags out.”

Her team put together a plan to tap into the 24-inch line and find alternate ways to handle the water with pumps. “We ended up not using that too much; just for a couple hours, trying to keep everybody in water, because we supply McCurtain County, and we do have a hospital here. So we tried that, and then other options.”

But when all was said and done, the plant had to be shut down: “We knew it was going to get bad, so we had planned for that. We had all our storage tanks full. At the time, we had a 2 million-gallon clearwell, but we need about 4.5 million gallons. The potable water supply went down pretty quickly, so we had to come up with a plan on that.”

When the emergency had passed, the Broken Bow team had to carefully bring the plant back online. When restarting a gravity-flow plant, “It takes a team effort to make sure you don’t airlock those big 24-inch lines as the plant starts back up.

“Then we had to fill and pressurize our tanks enough to create distribution. I believe we did extremely well. We were down probably half the time predicted. It was impressive how well we all worked together.”

## featured products from:

**Kinetrol USA, Inc.**  
972-447-9443  
[www.kinetrolusa.com](http://www.kinetrolusa.com)

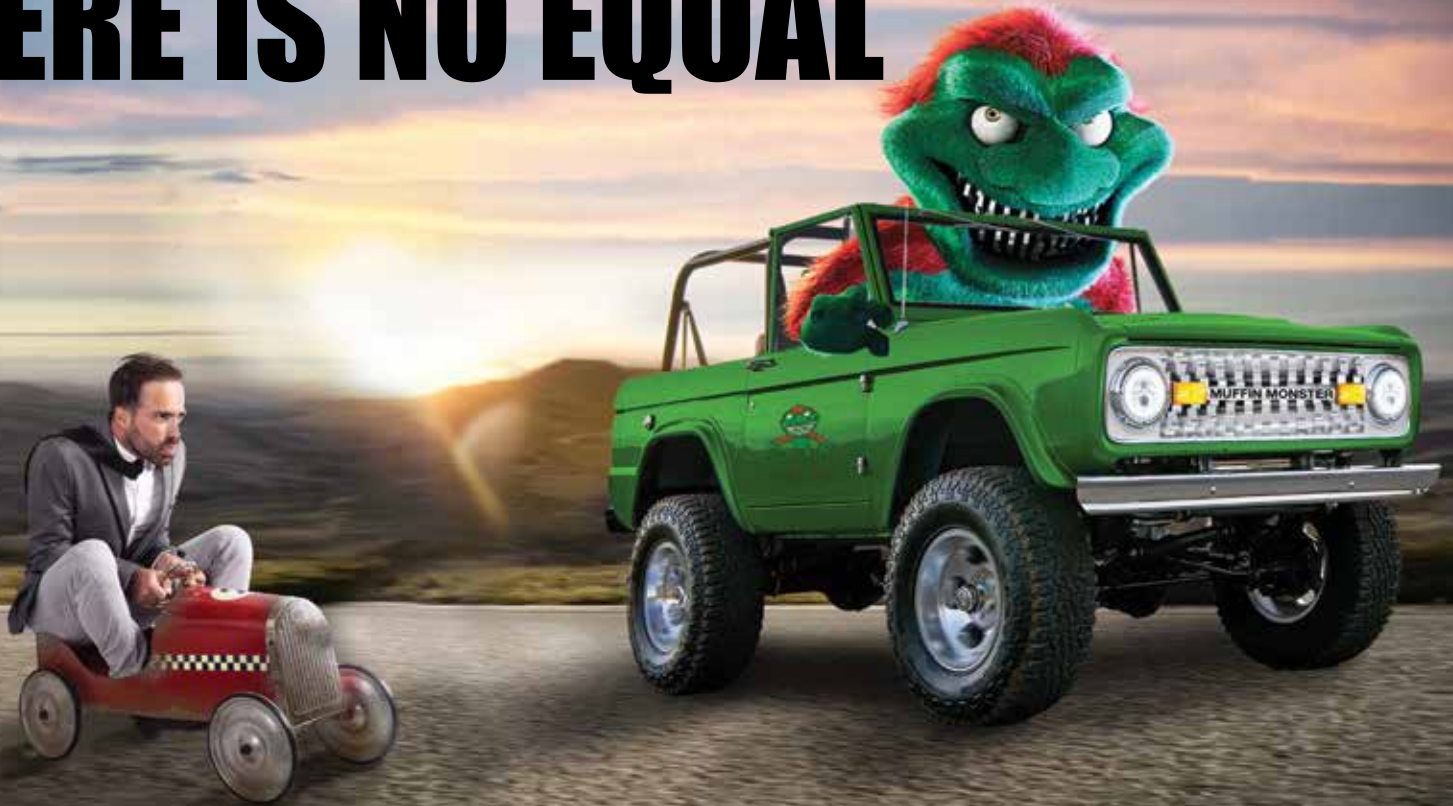
**Peerless Pump Company**  
800-879-0182  
[www.peerlesspump.com](http://www.peerlesspump.com)

**Micro-Comm Inc.**  
913-390-4500  
[www.scadaview.com/Micro-Comm](http://www.scadaview.com/Micro-Comm)

**SEW-Eurodrive, Inc.**  
864-439-7537  
[www.seweurodrive.com](http://www.seweurodrive.com)

**Nidec Motor Corporation**  
888-637-7333  
[acim.nidec.com/motors/usmotors](http://acim.nidec.com/motors/usmotors)

# THERE IS NO EQUAL



## JWC's Wastewater Solutions are Unparalleled Since 1973

- Specified nearly three to one over the next two competitors combined
- Thirteen patents and counting
- End-to-end solids reduction and removal equipment offering

There's Only One Monster Family  
of Wastewater Solutions



Customize a Solution to Fit Your Waste Stream  
800.331.2277 | [jwce@jwce.com](mailto:jwce@jwce.com) | [jwce.com/tpop-there-is-no-equal](http://jwce.com/tpop-there-is-no-equal)



# Speed When It Matters Most

REWA LOOKS TO REMOTE ALARM NOTIFICATION SOFTWARE TO ENABLE RELIABLE AND PROACTIVE RESPONSE, IMPROVE EFFICIENCY AND AVERT PROBLEMS

By Cody Bann

For almost 100 years Renewable Water Resources (ReWa) has been responsible for water and wastewater infrastructure in South Carolina's Greenville County.

The county encompasses some 795 square miles with a population of more than 500,000. The water and wastewater infrastructure is intricate and robust and includes over 350 miles of pipes connecting the community and providing for future growth and development.

ReWa manages eight water resource recovery facilities (WRRF) that treat more than 40 mgd. The utility also operates 83 pump stations and nine water treatment facilities, each with a self-sufficient treatment process, on-site power generation and multiple gauges, flowmeters and storage tanks.

Starting in 2002, ReWa relied on the AVEVA System Platform SCADA system integrated with WIN-911



The Wonderware interface (AVEVA) displays one of the utility's eight water resource recovery facilities, now equipped with remote alarm notification supplied and integrated by WIN-911 and MR Systems.



ReWa treatment facilities process more than 40 mgd in a county encompassing 795 square miles with a population of more than 500,000.

remote alarm notification software to monitor and alert the team about any abnormal operating conditions.

This involved a complicated process in which the SCADA system called a mobile phone. Operators would then stop work, answer the call, input a unique identification number and enter an acknowledgement. The process could take up to one minute — a critical loss of time during possible emergencies.

In addition, since the alarm notifications were transmitted via cellphones, calls could break up if the operator was in a part of the facility without good cell service, and the entire identification input process had to be repeated.

## UPGRADING TECHNOLOGY

In 2020 ReWa, WIN-911 and MR Systems, the utility's systems integrator, identified opportunities to improve the WRRF alarming systems by deploying the more streamlined and technologically advanced mobile solution.

Tony Jones, ReWa business analyst, worked with Edward Noyes, application engineer with MR Systems to design a system that met the utility's high security requirements, improved ease and efficiency in operators' monitoring and acting on SCADA alarms, and deployed a proactive monitoring system to notify ReWa technology personnel in case of a system issue.

The WIN-911 mobile app enhances plant operating efficiency by enabling operators to monitor and act on SCADA alarms using mobile devices with redundant voice and text callouts. "The team quickly adapted to working



“Before the upgrade, ReWa functioned in a reactive mode. We have completely changed that mindset.”

TONY JONES

with the more efficient and robust system,” Jones observes. “They no longer waste time punching in identification codes or depending on intermittent cell service to acknowledge an alarm.”

WIN-911 provides faster response time, which is critical because many alarms involve lost power. In such situations, every minute of delay in getting an alarm message to the team could mean the difference between starting an emergency generator and experiencing an overflow.

### SECURE MONITORING

The system monitors alarms that cover critical functions — pumps, UV disinfection, generators and the utility power — that can stop a process and result in a sewer overflow or a discharge of untreated water.

Highly secure architecture ensures that system integrity is not compromised. Noyes and the MR Systems team deployed the highest security levels offered by WIN-911, using intercomponent encryption with a custom-built proactive monitoring system that detects whether WIN-911 and AVEVA are communicating and notifies designated personnel of any issues.

Integration of WIN-911 with the SCADA system offers another layer of security. “It gives ReWa the confidence that they can trust the systems,” says Noyes.

### MAKING A DIFFERENCE

The proactive and continuous monitoring routinely averts problems. In the event that any of the equipment is not operating properly, WIN-911 Interactive alerts the ReWa team via the mobile app, phone call, email or text. One such instance occurred when the team received an alarm related to a power outage at one of the WRRFs.

When a newly installed generator did not automatically start during a power failure, WIN-911 alerted technology staff members, who then began a dialogue with the operations team using the mobile app’s chat feature. This early and real-time intervention enabled ReWa to assess the problem and determine that the generator was improperly wired. In this way they avoided problems an extended power loss would have caused.

“Before the upgrade, ReWa functioned in a reactive mode and waited until the WIN-911 software notified the operations team there was an issue,” says Jones. “We have completely changed that mindset, and they have become more efficient. The IT team knows there is a system problem long before the operations team.”

### THE FUTURE

Named a Utility of the Future by the National Association of Clean Water Agencies, ReWa is committed to enhancing the area’s quality of life through the quality of local waterways. Using advanced technology like AVEVA System Platform with the WIN-911 mobile app helps the team keep that commitment.

“This is a journey,” says Jones. “As a forward-thinking early adopter, ReWa continues to explore technology like WIN-911 that allows us to improve infrastructure and operating efficiency.”

### ABOUT THE AUTHOR

Cody Bann ([cody.bann@win911.com](mailto:cody.bann@win911.com)) is director of engineering at WIN-911.

tpo



Pump station wet wells need mixing and the GridBee® AP500 is the best there is.

- Mix away FOG. Stop pump clogs.
- Extremely affordable price point
- No moving parts in the water
- Everything you need in one kit
- Quick and easy to deploy



All Weather, Quiet Air Unit



Heavy-Duty Air Hose



Deployment Chain



Watch the Video Before and After



Ask us about our 30-Day Free Trial



Become an AP500 Distributor partner

A proven solution with thousands of installations!

Contact us today!



[www.ixomwatercare.com](http://www.ixomwatercare.com) | +1 866 - 437 - 8076 | [watercare@ixom.com](mailto:watercare@ixom.com)

# Aiming High

TUCKER RANGLES GOT HIS INTRODUCTION TO THE CLEAN-WATER PROFESSIONS AS A KID. NOW HE'S A DEPUTY PLANT SUPERINTENDENT WITH HIS EYE ON OHIO'S HIGHEST LICENSE.

STORY: **David Steinkraus** | PHOTOGRAPHY: **Todd Yarrington**



“The outcome, if you get your Class IV, is that you could go to any plant in Ohio, and on day one you would be able to start operating that facility.”

**TUCKER RANGLES**

William “Tucker” Randles got his introduction to wastewater from his godfather, who was a plant superintendent.

After starting his career as an operator, Randles is now deputy superintendent of the wastewater treatment plant in Zanesville, in the Appalachian foothills of eastern Ohio.

He oversees operations, supervises the plant team, and is starting to lead a capital improvement project.

His godfather, Gene Mathias, started as an operator in Coshocton, Ohio, and for the last 10 years of his career was plant superintendent there. “As a kid I spent some time down there with him, got to know the plant, and got to see everything,” says Randles. “He was always happy with the work he was doing.”

When the city needed an operator, Mathias gave Randles a recommendation. He started in 2008, studied at the Operator Training Committee of Ohio, put in the mandatory year of hands-on experience, and passed his Class I license exam. He also worked at the Coshocton water plant and picked up a Class I water license.

With the dual licensing, Randles worked a year at Pickaway Correctional Institution near Columbus, which had both water and wastewater plants serving the prison and surrounding community. In 2012, he moved on to Columbus and worked there for nine years, advancing to supervisor. He took the job in Zanesville in 2021.

## VALUED EDUCATION

Randles grew up in the small town of Warsaw, still lives there, and commutes 50 minutes south to Zanesville. He earned an associate degree in environmental science at Zane State College.

In his previous supervisory job, he didn’t do much with budgets, ordering parts or preparing change-of-operations forms. Scott Brown, wastewater superintendent, taught him all that. “Going before city council, I’d never done that previously,” Randles says. “Scott really showed me how to be professional in talking to people.”

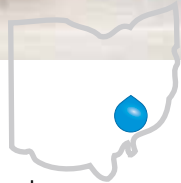
As deputy superintendent, Randles oversees the Zanesville plant’s 33 team members and daily operations. That includes meeting with Doug Barry, maintenance foreman, and Brandon Fink, chief operator, Fink to learn



Tucker Randles (left) shown with Dustin Bowers, is in his second year on the board of directors of the Ohio Water Environment Association.

## William “Tucker” Randles

Zanesville (Ohio) Wastewater Treatment Plant



**POSITION:**  
**Deputy Superintendent**

**EXPERIENCE:**  
**15 years in wastewater**

**DUTIES:**  
**Oversees 33 team members and daily plant and collection system operations**

**EDUCATION:**  
**Associate degree, environmental science, Zane State College**

**CERTIFICATIONS:**  
**Class III wastewater, Class II water**

**GOAL:**  
**Form a team to compete in the WEF Operations Challenge**

how the plant is doing day to day. It also means coordinating with vendors to order parts, assigning work to budget lines, and interacting with Clint White, pretreatment coordinator, and Steve Shirley, collections system supervisor.

Wastewater in the plant flows through two grit tanks, three primary clarifiers, three AccuPac trickling filters (Brentwood Industries), an activated sludge process, four secondary clarifiers and two chlorine gas disinfection tanks.

Biosolids are pumped to a single pit followed by a WEMCO gravity thickener (Trillium Flow Technologies) and two anaerobic digesters. A 2-meter belt press (Komline-Sanderson) produces cake hauled by a contractor (Little Farms) for land application. Digester gas fires two boilers (Bryan Steam, LLC) that heat the digesters. Excess gas is flared.

The plant (11 mgd design, 7 mgd average) was built in 1959 and serves about 18,000 customers, with an annual budget of \$7 million. Under a schedule Randles created, operators work 12-hour shifts.

“They now get three days off one week and four days off the next week,” he says. “So far they have really liked it. I think going forward it makes us more competitive for hiring people. Since COVID, it seems people value more time off and more time with their families.”

### LOOKING AT UPGRADES

Randles and his team are preparing for a \$20-\$25 million capital improvement project that would affect almost every plant process. CTI Engineers is doing the design. Randles’ job includes leading the project and helping with the design and budget that will be presented to the city council for approval.

One project goal is to redo the headworks, replacing the current submersible pumps with screw pumps. The plan also calls for adding a second automated screen, combining the grit system with the primary pumps in the same building and adding a new septage receiving station. Also on the list is replacing chlorine gas disinfection with UV or sodium hypochlorite.

The plan also calls for replacing the trickling filters with another activated sludge train or with more capacity in the current train. “The challenge with the trickling filters is we don’t have a way of bypassing them,” Randles says. When the flow drops, there are odor issues, and the filters are a breeding ground for snails. Their shells build up in tanks and plug pumps; they need to be removed periodically with a vacuum truck.

### HIGHER CERTIFICATION

Recently, with encouragement from Brown, Randles applied for his Class IV (highest) wastewater license. “It was always in the back of my mind as something I wanted to do, but I didn’t know if I was able to do it myself,” says Randles.

## LEARNING BY COMPETING

While working at the wastewater treatment plant in Columbus, Ohio, William “Tucker” Randles was invited to join the plant’s Operations Challenge team.

It was 2014, and the Ohio Water Environment Association conference was in Columbus. Randles and four other volunteers became the Columbus Outfalls and took part in five events: lab, written tests, safety, collections and maintenance.

In his last competition, the maintenance event began with a wet well full of water and a submersible pump: “We had to put together a gantry system. One teammate killed the power to the pump. The others had to pull the pump out of the wet well, bring it to a working table, tear it completely apart, replace the rubber gasket, replace some bolts, lube everything, put it all back together and lower it down into the wet well.”

The pump had to work when power was restored. Judges assessed penalties for unsafe behavior or incorrect use of tools.

The top two teams in each state challenge went on to compete at the national Operations Challenge at WEFTEC. The Columbus team won the state competition three times and placed second three times, so he went to nationals all six years in which he competed.

“At nationals it’s amazing,” he says. “You compete against 40 to 45 teams from around the country, and some teams from out of the country. It’s an awesome experience.” It also took practice: a couple of hours once a week throughout the year, and then every day during the week before the national competition.

Zanesville doesn’t have a team, but down the road Randles would love to put one together: “I really enjoyed doing that, and I learned a lot from it.”



From left, Travis Breedon, Howard Cornell, Doug Barry, Tucker Randles, and Keith Fleming with the primary sludge pump (Flygt - a Xylem Brand).

Preparing the application took about a year. To qualify, an operator must supervise plant operations, and a Class IV operator must attest to the applicant’s skills, experience and job duties.

Each application has 12 sections, including a section on research, for which Randles did a six-week study of ammonia levels in the collections system. “The outcome, if you get your Class IV, is that you could go to any plant in Ohio, and on day one you would be able to start operating that facility,” he says.

His application was 150 typed pages. With additions that included a copy of the plant NPDES permit, flow charts, lab data and training program outline for incoming operators, the total exceeded 300 pages.

The next step is for the Ohio EPA to review the application, which takes two to three months. The Operator Certification Advisory Council will then send notes and comments to which Randles will need to respond; another round of questions may follow.

“Team members now get three days off one week and four days off the next week,” he says. “So far they have really liked it.”

**TUCKER RANGLES**

Operator-in-training Tim Wells (left) and Tucker Randles view the status of the plant from the SCADA screen in the operations control center.



## QUALITY PERFORMANCE

In the meantime, Randles and his team have maintained a high-performing facility and have earned recognition for their work. Randles received the 2022 Professional Wastewater Operations Award from the Ohio Water Environment Association. In the same year the plant received a Resource Conservation Award in the non-agricultural division from the Muskingum Soil and Water Conservation District.

“We work with the county, and all the county flow comes here into the plant,” Randles says. Various industries are located in the county, including a Dollar General warehouse, two bakery plants and a meat processing plant for the White Castle restaurant chain.

Randles joined the OWEA during his time in Columbus when his superintendent mentioned that it included a group for young professionals. Randles worked to get younger people interested in wastewater operations and helped organize contact hours for training young operators.

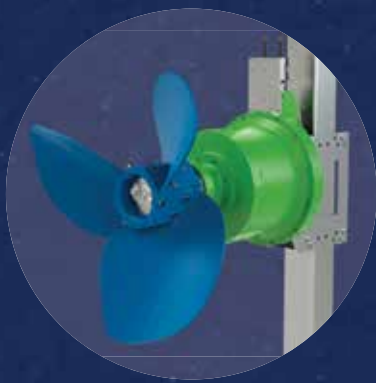
He is now in his second year on the board of directors for the association’s southeast section, where he helps set up training and organize plant tours. He considers OWEA meetings a great place to talk to other operators about issues they’ve experienced.

One current topic is finding qualified applicants. In Zanesville the solution was to create an operator-in-training position. “We had an operator position come open, and no one who applied had a license,” says

*(continued)*



# CAN WEATHER ANY SH\*T STORM.



## Introducing the OmniMix™ Smart Electric Mixing System.

Pardon our French, but our electric mixer is the highest performing mixer in the world. In one minute, it delivers more flow than most pump mixers deliver in an hour. If you're searching for a highly efficient, energy-saving solution that is low on maintenance, look no further.



[www.anaergia.com/omnimix](http://www.anaergia.com/omnimix)



**PRIME**  
SOLUTION

## Celebrating Our 20th Anniversary!

*We Are Thankful for Our Customers*

***Evolving to meet the ever-changing demands of sludge and capacities.***

**Prime Rotary Fan Press Family of Solutions**  
*Low speed, a larger capacity, smaller footprint, higher cake solids, minimal maintenance, with remarkable results!*

**DEWATERING PERFORMANCE SIMPLIFIED**  
*The Original Rotary Fan Press • The Rotary Fan Press 2.0*



**269.694.6666**



The staff at the Zanesville Wastewater Treatment Plant includes, front row, from left, Doug Barry, maintenance foreman; Jarrod Blake, vehicle operator; Chris Fleming, crew leader; Keith Fleming, plant maintenance; Tucker Randles, deputy superintendent; Amy Hursey, lab supervisor; Dustin Bowers, lab technician; and Larry Hatcher, industrial technician; back row, Tim Wells, operator in training; Brandon Fink, chief operator; Steve Hackney and Bob Stemm, maintenance workers; Travis Breeden and Howard Cornell, plant maintenance; Ron Morrison, seasonal employee; David Work, operator; Don Wallace, vehicle operator; and Clint White, environmental coordinator. (Vacuum excavation truck from Sewer Equipment.)

Randles. The operator-in-training position, which aims to take a person from zero experience to basic licensing, attracted five applicants.

After starting from the bottom in his own career, Randles aspires to help someone else along the same path. **tpo**

### featured products from:

**Brentwood Industries, Inc.**  
610-374-5109  
[www.brentwoodindustries.com](http://www.brentwoodindustries.com)

**Bryan Steam, LLC**  
765-473-3074  
[www.bryanboilers.com](http://www.bryanboilers.com)

**Flygt - a Xylem Brand**  
855-995-4261  
[www.xylem.com/pumping](http://www.xylem.com/pumping)

**Komline-Sanderson**  
800-225-5457  
[www.komline.com](http://www.komline.com)  
*(See ad on page 35)*

**Sewer Equipment**  
888-477-7611  
[www.sewerequipment.com](http://www.sewerequipment.com)

**Trillium Flow Technologies**  
559-442-4000  
[www.trilliumflow.com](http://www.trilliumflow.com)



# EZ Series Online Analyzers

Wide Analytical Range.  
Flexibility.  
Faster Decisions.

**Expand your capabilities  
with the NEW standard in  
online monitoring.**



*Be Right™*

**Explore the full range of parameters and technologies:  
[Hach.com/EZ-Series](http://Hach.com/EZ-Series)**

# Family Fun With a Purpose

AN ENGAGING MASCOT, RECYCLED ART CONTEST, EARTH DAY FESTIVAL, RAIN BARREL WORKSHOPS AND MORE HIGHLIGHT A NEW JERSEY UTILITY'S DIVERSE OUTREACH PROGRAM

By Sandra Buettner



ACUA offers wastewater treatment plant tours to all ages. Tours include a visit to the authority's wind energy farm.

Atlantic County Utilities Authority finds multiple ways each year to deliver its message of environmental stewardship.

“Our president, Richard Dovey, has a long history of getting the community and children involved in learning the importance of what we do here and how it helps the environment,” says Amy Cook-Menzel, communications manager. “There’s something for everyone.”

The authority, in southern New Jersey and serving a population of 275,000, operates a 40 mgd wastewater treatment facility in Atlantic City. The plant includes the Jersey Atlantic wind farm and has 2,700 solar panels and a 1 MW battery storage project on its grounds.

## ALL SEASONS

The education and outreach programs are available all year and cover all ages. “We plan to add and refine some of the current programs, but for now

one focus is on promoting careers in water, especially for the children,” Cook-Menzel says.

Treatment plant tours are a key component of outreach. While on tour, visitors learn how the utility treats the water. They also tour the wind farm and solar panel area. All ages and even some visitors from other countries take the tours, which are offered year-round.

“The work we do here is important,” Cook-Menzel says. “We stress that to the children who take our tours, and we ask them to think about a career here when they get older.” That messaging accompanies other activities, too. They include:

- **Earth Day festival.** Celebrating 30 years in 2022, the festival attracts some 10,000 visitors from within and outside the service area. Food trucks, over 100 vendor booths, a hay maze at the recycled playground and treatment plant tours are just some of the activities.
- **Recycled art contest.** All ages make artwork out of recycled items and drop their entries off at local libraries, which display them. ACUA staff members judge them based on age categories and award cash prizes. Winning entries are displayed at utility events.
- **Drive Electric Celebration.** The authority showcases the conversion of its fleet from biodiesel to compressed natural gas, along with electric vehicles. The event features local fleets, car dealers and EV owners as well as an online workshop with industry experts.
- **Environmental Stewards Program.** Partnering with Rutgers Cooperative Extension, the authority provides 15 weeks of classroom and 60 hours of fieldwork to certify residents. Since 2008, more than 200 have passed through the program.
- **Garden Talks.** Also offered with the Rutgers Extension, this monthly all-ages offering invites residents to community gardens at the ACUA facility to learn gardening methods.
- **Master Composter training.** Residents get 12 hours of training through online courses and fieldwork, then complete volunteer hours to achieve certification. More than 90 have attended.
- **Rain barrel workshops.** The authority holds workshops to instruct residents how to build 55-gallon rain barrels, where to put them and how to use them. About 30 barrels are built each year.
- **Fall Clean Communities Challenge.** Adopt-A-Road groups compete to see who can pick up the most material during October. Throughout the year, ACUA supports residents, community groups and families cleaning up their communities with supplies, mini-grants and an annual recognition dinner.

## SUPERCAN TO THE RESCUE!

Thousands attend these activities, some of which have been available for 30 or more years.

“All of our activities are well attended, but by far the most popular is our Earth Day festival,” says Cook-Menzel. “Families and people from all over attend every year. In addition to help from many staff of over 250 helping out, we have many community volunteers.”





# CharterMachine Company

Your Complete Source for Dewatering Equipment

See us @WEFTEC 2023  
Visit us in Chicago, Booth 4454



**ROYAL SCREW PRESS**  
High-Efficiency, Low Power



**SKIDMOUNT SYSTEMS**  
The All In One Solution



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



**ELODE**  
Electro Osmosis Dehydrator



**ROEMIX**  
Lime Post Treatment System



**L-2 POLYMER**  
Cost Effective, Simple



**ROEDOS VI**  
Customized Dry Polymer System



**CONVEYORS**  
To Suit Your Needs

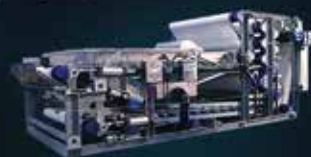


**TP7.4 TOWER PRESS**  
Smaller Capacity, Big Capabilities

**GRAVITY BELT THICKENER**  
Effective, Affordable



**DEWATERING TRAILERS**  
Self-Sufficiency on Wheels



**TOWER PRESS**  
High Solids, Low Maintenance



FOLLOW US



@chartermachinecompany



www.chartermachine.com

CONTACT US

55 Wester Ave,  
Metuchen, NJ 08840

732-494-5350

FAX 732-494-4596



ABOVE: The Supercan mascot is a popular attraction at ACUA functions and other community events. RIGHT: Workshops teach ACUA residents how to build 55-gallon rain barrels and how to use them.

A popular attendee at events is the authority's mascot, Supercan, created by way of a several years ago. Displaying the utility's colors of blue and green, he shows up at many events and is invited to classrooms, community gatherings and mascot races and activities, spreading a message of environmental stewardship.

Says Cook-Menzel, "He is hugely popular and a big hit with all ages wherever he goes." **tpo**

“All of our activities are well attended, but by far the most popular is our Earth Day festival.”

**AMY COOK-MENZEL**

### What's Your Story?

**TPO welcomes news** about your public education and community outreach efforts for future articles in the Hearts and Minds column. Send ideas to: [editor@tpo mag.com](mailto:editor@tpo mag.com) or call 877-953-3301





# Doing It Right. All the Time.

DANIEL WELK'S CAREER EMBODIES CARE FOR THE CRITICAL NATURE OF WATER TREATMENT AND THE ROLE OF A QUALITY WORKPLACE IN OPTIMIZING PLANT PERFORMANCE

STORY: Ted J. Rulseh | PHOTOGRAPHY: Michael McLoone

**D**aniel Welk holds two college degrees and a Wisconsin Surface Water Treatment certification.

But a key component of his education in the water treatment sector came through the school of hard knocks. Welk was a chemist with the Milwaukee Water Works at the time of the *Cryptosporidium* outbreak in spring 1993 that sickened more than 400,000 people.

Welk, now water plants manager with the utility, calls that event a constant reminder of how essential it is for treatment professionals to be vigilant, capable and forward-looking. "These are really important jobs," he says.

"Sometimes I don't sleep well. I think of things, and I ponder worst-case scenarios. That leads to asking how I can address the situation. Everybody who works here gets like that. When they see something wrong, they say

something. I tell everybody we hire, 'We all play a role, and we all need to do our jobs right, or else we have negative impacts.'"

Welk assumed his current position in 2010, but has been with the Milwaukee utility since 1986. He oversees the Linnwood Water Treatment Plant (275 mgd), the Howard Avenue Water Treatment Plant (100 mgd), which draws source water from Lake Michigan. He is also responsible for distribution operations (pumping, storage and pressure). Among his achievements is winning a 2022 Meritorious Operator Award from the Wisconsin Section AWWA.

## INSPIRED BY STUDIES

After high school Welk studied geology at the University of Wisconsin-Milwaukee but after three years



Dan Welk in front of the Milwaukee Water Works building, constructed in 1935.

Eager to improve his status, Welk took every training opportunity he could find and earned his way onto civil service eligibility lists for a variety of jobs. He worked up the operator ranks, then became a chemist for 10 years and a lead chemist for five years before rising to operations manager at the Linnwood plant in 1999. Along the way he completed his college work, earning a bachelor's degree in environmental science from Carroll University.

### SHOCK TO THE SYSTEM

Welk was a chemist at the Howard Avenue plant when the *Cryptosporidium* outbreak hit. In fact, he was at home sick with cryptosporidiosis on the day the city issued a boil order. "That really rocked our world," he recalls. "It was devastating."

While the precise source of the parasite was never determined, an investigation found that a breakdown in quality control at the Howard Avenue plant had allowed *Cryptosporidium* cysts to breach the conventional sand-and-gravel filtration process.

After investigating options to prevent future waterborne illnesses, the city opted for ozone treatment (Ozonia North America, a Veolia company) upstream of the coagulation/flocculation basins at both water treatment plants. That \$90 million investment at the time represented the largest water plant ozone retrofits in the world, says Welk.

The city also switched to dual-media filtration with sand/gravel and two feet of anthracite, significantly improving performance. In addition, particle counters (Chemtrac units) were added at the outlets of all the filter beds, providing a check on the filters' effectiveness. The devices count particles larger than 2 microns (*Cryptosporidium* cysts range from 2 to 5 microns).

"That became a really sensitive tool to monitor overall plant performance," Welk says. "In the event of any disruption in the process, we would notice it way faster with particle counting than with turbidity measurement." Finally, the intake for the Howard Avenue plant

“I remember going to the first course and saying, ‘I love this. This is what I want to do for the rest of my life.’”

DANIEL WELK

found himself “floundering,” unsure of a career direction. Then he learned about associate degrees available at Milwaukee Area Technical College, paid a visit there, and met with instructors.

“The last group I talked to were the people running the water and wastewater technology program,” he recalls. “I didn’t even know what that was. When they explained it, I was interested. I remember going to the first course and saying, ‘I love this. This is what I want to do for the rest of my life.’”

He graduated from that program in 1984 and two years later took a job at the Linnwood plant as an operator trainee, doing miscellaneous tasks that included washing sludge out of the settling basins with hoses: “I remember on the second day thinking, ‘Why do I need boots that go this high?’ I found out pretty quick.”

## Daniel Welk, Milwaukee (Wisconsin) Water Works



POSITION:  
**Water Plants Manager**

RESPONSIBILITIES:  
**Oversee two major treatment facilities and the distribution operations**

EXPERIENCE:  
**37 years with the utility**

EDUCATION:  
**Associate degree, water and wastewater technology, Milwaukee Area Technical College; bachelor's degree, environmental science, Carroll University**

CERTIFICATIONS:  
**Wisconsin Surface Water Treatment**

AWARDS:  
**2022 Meritorious Operator Award, Wisconsin Section AWWA**

GOALS:  
**Resolve staffing challenges, continue to optimize treatment operations, continue to maintain and upgrade treatment and pumping infrastructure to meet future needs**

“We know what we’re doing is critically important. So we need to be resilient, forward-thinking and try to adapt.”

DANIEL WELK

was relocated farther from shore and in deeper water than the original intake structure. That greatly improved raw water quality.

### MOVING ON UP

In another response to the *Cryptosporidium* outbreak, the utility created a Water Quality Section, of which Welk became a part as a lead chemist. After four years as Linnwood plant operations manager, Welk became plant manager in 2003. When the plant manager at Howard retired in 2010, Welk became manager of a newly formed Plants Section and took on responsibility for both treatment plants.

In that role he led an initiative to optimize the distribution system under the Partnership for Safe Water. “The partnership also has a treatment optimization program to address *Cryptosporidium* concerns,” Welk says. “We didn’t join it because our leadership believed we were already doing everything at the plants that the partnership was focused on, and more.

“The distribution program, which we joined in 2014, was more meaningful for us. It’s about optimizing chlorine residuals and disinfection byproducts, maintaining adequate pressure, managing main breaks and replacing mains, hydraulic modeling, asset management — essentially everything we do.

“I volunteered to lead the charge to get us through that program. It was a team effort involving all sections of the utility — plants, engineering, water quality, distribution and administration — to conduct a self-assessment.



Leading members of the Milwaukee Water Works team include, from left, Theo Rafaelidys, senior water treatment officer in charge; John Bielinski, operations manager; Jacob DeBelak, senior water treatment officer in charge; Daniel Welk, water plant manager; Mike Dwyer, senior water treatment officer in charge; Michael Schaefer, water security manager; and Ryan Dienhart, steamfitter.

In two years we received the Directors Award, Phase III level, which is the second highest level in the program. Since then, we’ve been using things we developed under the partnership as the basis for future planning: how we can keep making improvements. It’s a never-ending process. We’re also trying to educate and include our employees in that process so it becomes second nature.”

### PEOPLE AND MACHINES

Keeping a strong team in place is a persistent challenge. “We have a number of good people, but with the job market the way it is, staffing is really difficult,” says Welk. “When I started here it took four operators and a chemist on each shift to run each plant 24/7. We are now down to two operators on each of six shifts per plant. Operators now do some of what the shift chemists used to perform; collecting grab samples, running basic lab tests and determining dosing for all of the treatment chemicals.”

From left, Welk talks with Alex Kobasick, steamfitter; Todd Ahnert, maintenance manager; Ryan Dienhart, steamfitter and HVACR mechanic; Don Simon, machine repairs; and David Makkos, machinery mechanic.

(continued)



From the Leader in Advanced Grit Removal Technologies



Smith & Loveless Inc.

# DON'T JUST SETTLE... CAPTURE 75-MICRON GRIT



S&L introduces **PISTA<sup>®</sup> INVORSOR<sup>™</sup>**... the breakthrough grit removal solution that combines two advanced separation processes in one tank for the modern problem of ultra-fine grit. Inquire below to discuss with an expert 95% removal of particles down to 75-micron grit across all flows—without ever derating. Search **#INVORSOR**

SmithAndLoveless.com • 800.898.9122

# ROTARY PRESS™

## SLUDGE DEWATERING EQUIPMENT

### FACTS

High Cake Dryness

Clean and Easy Operation

Fully Automated

Expandable

Operator Friendly

Fully Integrated "Plug & Play" Systems Available

MORE THAN  
**500**  
INSTALLATIONS  
WORLDWIDE

PLEASE ASK US  
ABOUT OUR FULL  
SCALE PILOT OPTION

800-463-6328

fournierdewatering.com



Automation has helped with that transition: An Automation Section includes staff electricians and other skilled team members who acquired new capabilities, along with a newly hired automation manager, controls engineers and automation technicians.

"We constantly work to upgrade our capability," Welk says. "Eventually we got to the point where we could completely operate the Howard Avenue plant remotely, from the control room at Linnwood. Both plants use automation features, but many actions are still initiated by operators, such as pump changes, chemical feeds and filter backwashing."

"We have seven pressure districts, and right now we have a dedicated operator who keeps an eye on all that, making pump changes and filling the tanks when needed. All of that could be automated. We haven't committed the resources yet to get there, but that's something we're working toward. We need good operators, but we also need good automation people."

Retaining team members is a top priority: "The 30-year employee, I don't know if that is a fair model anymore. And yet you can't lose focus or give up hope. I always want to get input from our managers and our operators. I try to do everything I can to make this a great place to work."

"We've initiated a change management system so that anytime we do something out of the ordinary, we're going to be thoughtful about it. Everybody talks about it. We plan for the workday scenarios and make sure we have action plans so bad things don't happen, and if they do, how are we going to respond? We do this as a team. No one person here has all the answers."

Sometimes the limitations of a public budget cause the wheels to turn slowly in making changes. That calls for patience, raising issues repeatedly with leadership, including proposals in the capital improvement budget and waiting for the timing to be right: "You have to resolve that eventually, if it's for the betterment of the utility, it will work out."

### GIVING BACK

Welk was honored to receive the Meritorious Operator Award and believes his volunteer service may have contributed. He is vice chair of the Treatment Operations Committee for the Wisconsin AWWA section and helps plan the annual Treatment Operations Seminar. He also has served on the advisory council for Milwaukee Area Technical College water and wastewater program.

"It's always nice to get recognized, but I didn't do it for awards," Welk says. "You do it because you feel you're making a difference, doing something worthwhile for the citizens of Milwaukee."

"There's always something new coming up. That's half the fun of the job. There are always challenges. You always have to think, learn and adapt. People in this profession take a lot of pride in their jobs. We know we have to do things right, all the time. We have operators on duty 24/7 and working on holidays. It's always a challenge for me: How can I make it a better world for them? Because that's where I came from." tpo

### featured products from:

**Chemtrac, Inc.**  
800-442-8722  
www.chemtrac.com

**Ozonía North America, LLC**  
201-676-2525  
www.ozonia.com

says. "They follow a defined structure and then propose ideas. Management reviews them and gives a response. It's not just a person saying, 'No, you can't do that.'"

Any topic is fair game other than compensation. For example, a proposal to allow team members to shadow people in other jobs, or to change the shift schedule, would receive due consideration. "If there are ways to make the workplace more attractive or make our organization more innovative, we have a process for bringing ideas forward," Welk says. "It's really exciting, and it has generated a lot of interest."

He wonders whether the IDEAS group might help some suggestions he has made in the past get implemented: "If it comes from that group, maybe it gets done. If it's for the betterment of everybody, if it helps with the running of the utility, makes people happier and makes this better place to work, that's what it's all about."

## A SOURCE OF IDEAS

Daniel Welk is proud of the IDEAS Group recently forming within the Plants Section of the Milwaukee Water Works.

The acronym stands for Inclusion, Diversity, Equity, Access and Solutions. "Operators and staff all get together and talk about ways we can make things better in the workplace," Welk says. The initiative is open to all team members based at the Linnwood and Howard water treatment plants. It includes the operators, maintenance and electrical staffs, and staff members working in the Water Quality and Automation sections.

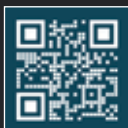
The program originated with the utility's Distribution Section. "They shared with us how they developed it," says Welk. "We run it a little differently, but we like the basic process. It's very task-driven."

The core team includes a manager champion, a project manager, and team members from operations, maintenance, lab, electrical and automation. "They work as a team to develop suggestions," Welk

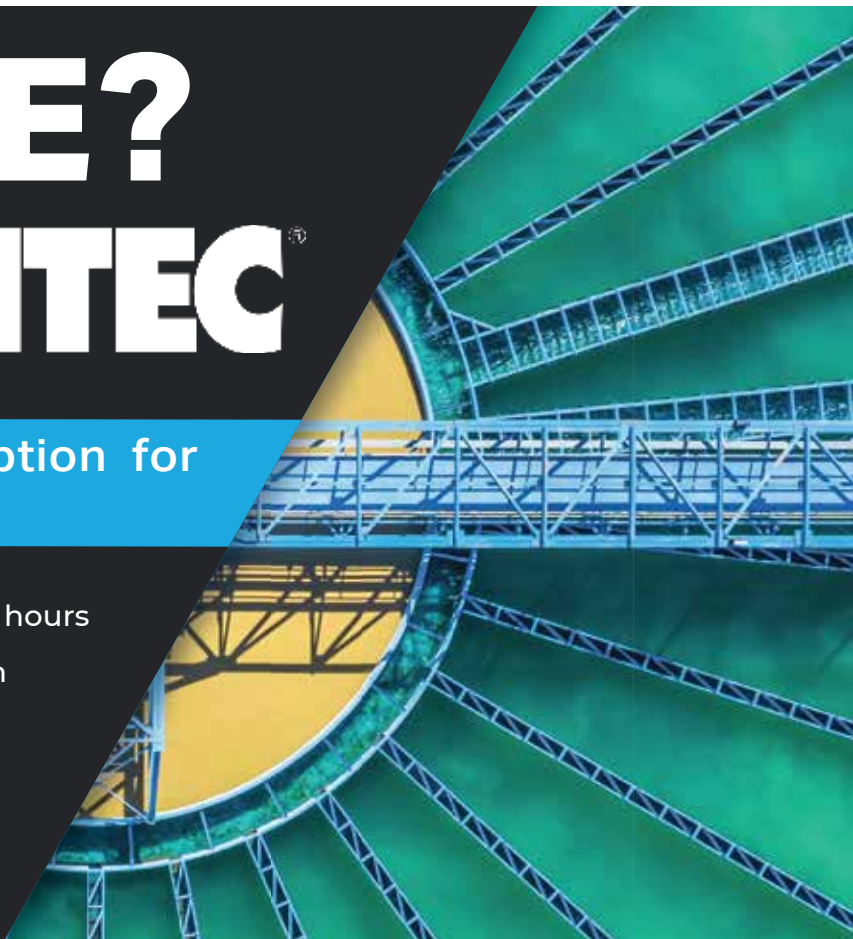
# Got **ALGAE?** Get **EARTHTEC**<sup>®</sup>

The alternative treatment option for algae prevention & control.

- ◆ Eliminates harmful algal blooms in 24-36 hours
- ◆ Self disperses for quick & easy application
- ◆ Lower TTHMs & HAA5s
- ◆ NSF Certified



EarthTecWaterTreatment.com



**ELODE**<sup>®</sup> Electro-Osmotic Dehydrator

**CharterMachine Company**  
(Authorized Dealer)

## Reduce Sludge Cake 60% in Just 3 Minutes



Your Cake at 20% DS



After ELODE<sup>®</sup> at 47% DS



- > Works on 95% + of municipal WWTP sludge cake
- > Non Thermal sludge cake dryer
- > No Chemical, No Heat, No Mechanical force used!
- > Super efficient using only electricity
- > The smallest foot print dryer
- > Huge savings by reducing sludge cake weight

Elode USA, Inc.

✉ ElodeUSA.com ☎ 201-568-7778

Norwood, NJ

Visit us in Chicago  
Booth 7739L and 4454

# Lending a Hand. Worldwide.

NORTH AMERICAN VOLUNTEERS JOIN OPERATORS WITHOUT BORDERS TO HELP IMPROVE WASTEWATER TREATMENT IN THE WORLD'S NEEDIEST PLACE

By Ted J. Rulseh

The world watches as Western countries pour military aid into Ukraine to help its army fight off the Russian invaders.

What the world doesn't see is the water and wastewater treatment expertise flowing into that country by way of the five-year-old organization called Operators Without Borders. Ukraine is just one of several places where operators from North America are helping developing countries, and those dealing with the aftermath of disasters, to restore and improve their water and wastewater services.

OWB deploys certified operators who are willing to volunteer in challenging situations. They work alongside utility personnel in their host countries toward restoring treatment plants and networks and training facility staff. The host utility pays no labor cost. OWB raises funds to cover volunteers' airfare, and the utility provides accommodation and meals.

The volunteer operators arrive in teams and work for terms of at least two weeks. In extremely difficult situations (such as Ukraine) where the volunteers would be at risk, they lend expertise and support remotely.

The organization has partners that include the Caribbean Disaster Emergency Management Association, the Environmental Operators Certification Program, the Caribbean Water and Sewerage Association, and the Canadian Water and Wastewater Association. Valerie Jenkinson, a founding director of OWB and CEO of World Water and Wastewater Solutions, talked about the organization in an interview with *Treatment Plant Operator*.

**tpo:** What is your background in the water sector?

**Jenkinson:** My background is in education and management, and I have worked in the water industry for about 14 years. In 2017 I had been working in the Caribbean water industry for about 10 years. I had a consulting company doing capacity building, to include training and climate change resiliency measures.

**tpo:** Where did the idea for Operators Without Borders originate?

**Jenkinson:** In 2017 the Caribbean nations were hit hard by hurricanes Irma and Maria. At the Caribbean Water and Wastewater Association meeting in Guyana, the keynote speaker was Bernard Ettinoffe, general manager of the Dominica Water and Sewage Company. He described the damage from Irma. There wasn't a house on the island that was not damaged. After his



LEFT: Valerie Jenkinson presented a keynote address at the 2022 Canadian Water and Wastewater Association National Water and Wastewater Conference in Halifax, Nova Scotia. RIGHT: From left, Bernard Ettinoffe, general manager of Dominica Water & Sewerage Company; Ignatius Jean, executive director of the Caribbean Water and Sewerage Association; Jenkinson, a founding director of Operators Without Border; and Kevin Carter, OWB board member, share a moment at the 2022 Canadian Water and Wastewater Association Conference and Exhibition.

presentation, I asked him, "What do you need?" He said "We need everything. We could use some people to help us rebuild."

**tpo:** How did you respond to his appeal?

**Jenkinson:** I was on my way to the Canadian Water and Wastewater Association conference, and I asked the executive director, Robert Haller, if I could make a presentation so we could collect money to provide some help. He agreed. I made the presentation, and a lot of people said they would love to volunteer, but only three could help on short notice. We raised enough money through a silent auction to send them to Dominica.

**tpo:** What were these three volunteers able to accomplish?

**Jenkinson:** This was about two-and-a-half months after the hurricane. There was still no electricity on the island, the wastewater treatment plant was down, and water was not available in many of the villages. At that point we weren't an organization yet, just three people and myself saying, "What can we do to help?" In two weeks the volunteers got the wastewater plant up and running and fixed the outfall piping that had been destroyed. We also gave them training so they could run the plant according to best practices after we left.

**tpo:** From that beginning, how did Operators Without Borders become established?

**Jenkinson:** The Dominica experience was so successful that I thought, why stop here? A whole bunch of people have volunteered. Let's set something



up. I asked several prominent people in Canada to be on our board of directors, and we started OWB. We initially raised about \$5,000. We had no paid staff. We received our non-government organization status in 2018. We earned our charitable status in Canada in 2020 and are seeking that in the U.S. as well.

**tpo: Where does the money for OWB come from?**

**Jenkinson:** I speak at conferences. For example, I spoke at the WWETT Show. They gave us a donation of \$5,000 and then put a message on their registration page asking for help for us, which resulted in an additional \$3,000. I believe we are the only charity in the world that focuses on operators and utilities. We are a charity of choice for WEF and the WWETT Show.

**tpo: Who decides what kind of work the volunteer operators perform?**

**Jenkinson:** We go at the behest of the utility. We ask: What would you like us to do? Our volunteers are all certified operators. They have great expertise, and often the utility staff will say, "OK, you know what you're doing, you can lead the charge on what you do." When people realize how much experience we bring to the table, they are generally pretty happy, but we work alongside the local employees and do whatever they request.

**tpo: Why have you branched out beyond helping with natural disasters?**

**Jenkinson:** We had about 60 volunteers sign up, and that was more than needed for help with disasters. So, we turned on a dime. Having worked in the Caribbean for all these years, I knew how little training was done there. We work very closely with Caribbean Water and Sewerage Association to provide training. We have offered numerous courses free of charge, both in person and online.

**tpo: What would you cite as an example of a successful training program?**

**Jenkinson:** In Belize we trained 120 of their staff — all the operators, the health and safety staff and their management — in safety aspects. We put on a one-week course covering confined space, trenching and excavating, chlorine leaks and contamination, and we trained all those people. Last November we worked with the Global Water and Wastewater Initiative and did a pilot test in Kenya. We got, to our knowledge, the first two operators ever certified in Africa.

**tpo: What is your organization's involvement in Ukraine?**

**Jenkinson:** Our work there has been primarily remote. We don't send anyone into danger. We've been doing just a massive amount of work with the Ukraine Water Quality Technical Group. Their systems weren't great before the war, and now they need even more help. One of our volunteers put together a paper on decentralized systems to help them understand the factors to consider when choosing that equipment. We've also putting together two workshops for water utilities and the Ministry of Health on nuclear and chemical contamination of water systems. We hope that never has to be used, but they had nothing like it in place and didn't know much about that topic.

“ We go at the behest of the utility.

We ask: What would you like us to do?”

VALERIE JENKINSON

**tpo: What about basic water and wastewater training?**

**Jenkinson:** We've been doing 12-week courses. We've done wastewater collection and treatment training in Barbados, St. Lucia, Belize and Grenada. During COVID some of our trainers got up at four in the morning and trained for three hours every week for 12 weeks before they went to their jobs. All our people are volunteers who work for utilities, or work in other water professions. They volunteer their time and their holidays.

**tpo: What other kinds of training can you provide?**

**Jenkinson:** We offer incident command systems training, which is

used by FEMA in the U.S. and also in Canada and the Caribbean. It deals with how to manage a disaster after it has happened. It's a proven process that has been used for years and refined. We have provided the training for three countries in the Caribbean, and I am putting together a proposal for about 18 additional countries. These countries experience disasters every year, not necessarily hurricanes but flooding and drought. We've trained hundreds of people in ICS, and the people are absolutely loving it.

**tpo: How is the OWB organization structured?**

**Jenkinson:** We have board members in Canada and the U.S., and we have an advisory council that consists of people from the Caribbean and other countries where we do work. Our volunteers are from Canada and the U.S.

**tpo: How do you recruit volunteers, and how many are there now?**

**Jenkinson:** We have about 70, and I recruit in the same way I do fundraising. I go to conferences. I speak online. I'm not a technical person. I'm there to make the connections, recruit volunteers, and raise money to send them places.

**tpo: In the big picture, how would you assess the difference Operators Without Borders has made?**

**Jenkinson:** By the middle of last year we had provided \$1.5 million worth of services with a budget of about \$60,000, with no paid staff, only volunteers. That doesn't count the work we've done in the last year, which is the busiest year we've ever had. Sometimes I have to pinch myself about how far we've come. tpo

**Like something? Hate something? Agree? Disagree?**

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

Send a note to editor@tpomag.com

# Down With Flaring

A RENEWABLE NATURAL GAS PROCESS REPLACES CHP AT AN OREGON CLEAN-WATER PLANT, MAKING USE OF WHAT HAD BEEN SURPLUS BIOGAS AND GENERATING REVENUE

By Steve Lund

The Metropolitan Wastewater Management Commission was producing more biogas than its equipment could use to generate electricity and heat. As a result, the plant was flaring about 40% of the biogas it produced.

The regional facility, which serves the cities of Springfield and Eugene and Lane County, Oregon, could have added more generating capacity. Instead, the commission invested in a new system to turn the biogas into renewable natural gas to be sold into the natural gas grid.

The decision required a substantial investment in equipment, and a receiving point for the natural gas utility to accept the RNG. “A number of factors went into the decision,” says Mark Van Eeckhout, project manager.

## A FISCAL DECISION

“We looked at a cost-benefit analysis with a consultant. Ultimately, we decided that between the capital cost of adding generators, the price we would receive for the increased power production, and the offset from additional energy credits, it made more sense to go with the RNG system.”

Steven Barnhardt, operations manager, notes that market incentives made RNG a better choice: “In the 1990s and early 2000s, there was quite a bit of revenue from Renewable Energy Credits for the electricity, but then the RECs went away. We were basically getting just the kilowatt value for the energy produced versus the RECs on top of that.”

However, credits in the form of Renewable Identification Numbers are available for RNG. Now the utility sells the RNG to gas supplier NW Natural and receives energy credits marketed by a broker, ANEW, which sells them mainly to fuel refiners. The RNG facility was connected to the gas grid in November 2021.

“My expectations are high, so we really have a way to go, But we’re heading in the right direction.”

MARK VAN EECKHOUT

## CHP AS BACKUP

The commission still maintains its CHP system powered by an 800 kW generator (Jenbacher). “It’s available when we have issues with the RNG facility or if there are other issues,” Van Eeckhout says. “We use the CHP to produce power if we’re offline for some reason, because RNG systems don’t always run seamlessly.”

The wastewater treatment plant, in Eugene, has a design capacity of 49 mgd and an average flow of 28 mgd. The biological nutrient removal plant has a standard primary and secondary treatment and a tertiary system that uses



Aerial view of the Metropolitan Wastewater Management Commission plant shows equipment for purifying biogas. The Greenlane Biogas pressure swing adsorption system in the center foreground.

Spencer Goodro, left, lead operator for the RNG facility, was named 2022 Operator of the Year by the Pacific Northwest Clean Water Association. The award was presented by Rob Lee of Leeway Engineering Solutions, past PNCWA president.


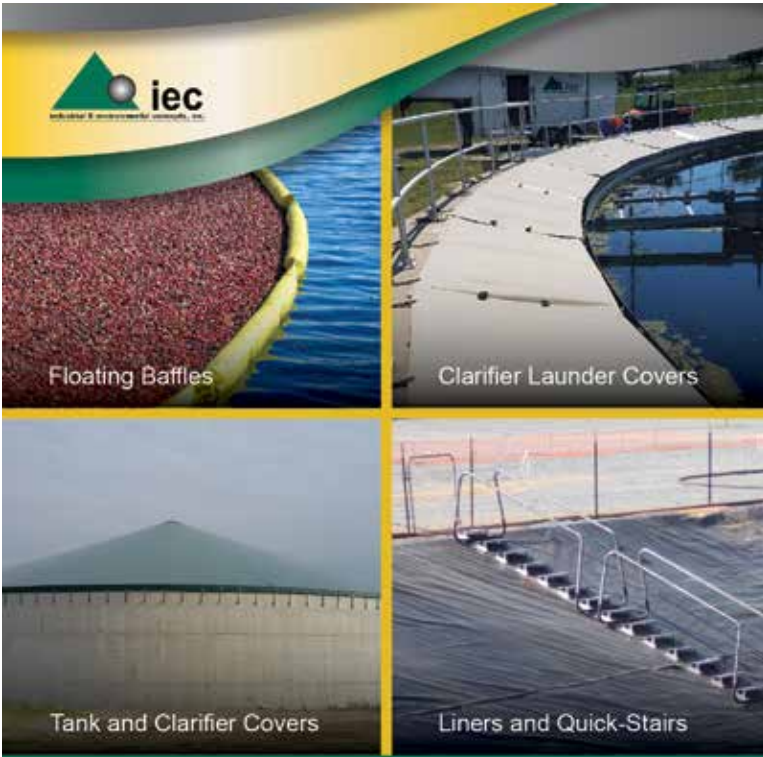


fuzzy filter technology (Schreiber, a Parkson brand). Effluent disinfected with sodium hypochlorite and dechlorinated with sodium bisulfide is discharged to the Willamette River.

Biosolids from four anaerobic digesters are pumped to a commission-owned Biosolids Management Facility about 6 miles away and stored in stabilization lagoons. The material is dewatered on belt filter presses and further dried on site before land application on a poplar tree plantation owned by the commission and on grass seed farms.

Biogas was treated for the CHP system, but RNG requires much more purification. The process uses a pressure swing adsorption system (Greenlane Biogas). In addition, gas chromatographs in the production facility and the gas grid monitor the RNG to make sure it meets specifications.

After a little more than a year of operating the system, Van Eeckhout is encouraged by the results: “Generally, when we’re injecting, it’s been quite

**Industrial & Environmental Concepts (IEC)**  
 21860 Hamburg Ave. PO Box 250 Lakeville, MN 55044  
 Phone: 952.829.0731 info@ieccovers.com

successful. We have had issues with certain contaminants, and we go back to flaring until we get it figured out.”

**DEDICATED OPERATOR**

One decision that helped the project go smoothly was to dedicate one operator to the new process from the beginning. “That was one of the keys to the operation, to have a resident expert who could do the problem-solving and troubleshooting we needed,” Barnhardt says.

“It’s not something that’s easily handed off to the rest of the people in the operations group. It takes quite a bit of time to work the bugs out of the system and to train people on it during startup. It was like a full year of startup where things were changing all the time.”

Spencer Goodro is the lead operator of the RNG facility. As a result of his work during the new facility’s first year, he was named 2022 Oregon Treatment Plant Operator of the Year by the Pacific Northwest Clean Water Association.

While RNG production has been successful, Van Eeckhout says it might not fit every treatment plant: “The decision would be unique to any facility. From an environmental standpoint, I think it’s the right way to go, and financially it is paying us back. We’re not having to flare, and the environmental credits are hopefully offsetting geologically produced natural gas.”

Another environmental plus is that in the Pacific Northwest, most power is generated at hydroelectric dams. Although the commission now produces RNG instead of electricity, the power it buys off the grid is generally carbon-free hydro power.

Even though the biogas flare still gets used from time to time, Van Eeckhout is satisfied with progress at the RNG facility. “My expectations are high, so we really have a way to go, but we’re heading in the right direction,” he says.

“We’re always going to have that flare as a safety outlet. There are always issues. There is always maintenance. There are always things going on, but we’re trying to minimize the amount of flaring.” **tpo**



**Thickening Throughput**

**Dewatering Dependability**

**Fabric Flexibility**

*Filter media for any equipment*

**weftec**  
the water quality event™  
Visit us at Booth 2231

Komline-Sanderson equipment and filter media are backed by industry and process experts with decades of experience. Contact us to see how we can put that to work for you.

(800) CALL-4-KS  
www.komline.com

**Komline-Sanderson**

2



1) The PISTA INVORSOR combines enhanced settling by inclined plates meeting a defined surface overflow rate (SOR) with the established hydraulic forced vortex to achieve ultra-fine grit removal efficiency down to 75-micron particle size across all flows.

2) The system maintains 95% grit removal efficiency all the way through complementary grit washing and dewatering devices in a PISTAWorks packaged configuration.

3) The PISTA INVORSOR grit chamber model sizes range from 0.5 to 50 mgd in a single unit. A 1 mgd unit is shown here.

1



3

# What Could Be Finer?

PISTA INVORSOR SYSTEM COMBINES HYDRAULIC FORCES AND SETTLING TO ENABLE HIGH-EFFICIENCY CAPTURE OF GRIT PARTICLES DOWN TO 75 MICRONS

By Ted J. Rulseh

**G**rit removal in clean-water plants is essential to effective treatment and to protecting equipment downstream from the headworks. Sand removal in potable water plants is also essential.

The challenge is to capture the widest range of grit particle sizes and do so in an efficient and reliable system. Smith & Loveless has introduced a new generation of its long-established PISTA Grit Removal system. It's designed to remove ultra-fine particles.

The PISTA INVORSOR vortex grit system combines proven particle-capture methods. It uses enhanced settling by inclined plates that meet a defined surface overflow rate, combined with hydraulic forced vortex grit removal. The manufacturer says this process results in 95% efficient removal of ultra-fine grit down to 75-micron particles across all flows, with no derating at low, average, high or peak flows.

The system is designed to deliver low capital and operating costs, large capacity in individual units, significant design flexibility for inlet-outlet options, and a high surface-area-to-volume ratio to generate consistent fine grit capture during low flow, daily flow and peak flow conditions. Flow capacities in single units are up to 50 mgd.

Systems can be sized by flow or by a defined particle size. William Flores, Smith & Loveless vice president of the municipal products and systems division and customer service, who has served on the WEF Grit Characterization Task Force, talked about the technology in an interview with *Treatment Plant Operator*.

**tpo:** What events in the market led you to develop this technology?

**Flores:** The technology when we started developing this product was

focused on removing 95% of 105-micron particles. We saw a drive in some geographic areas for removal of smaller particles. That is what drove the market for 95% removal at 75 microns — what we call ultra-fine particles.

**tpo:** Why is the market looking for more removal of ultra-fine particles?

**Flores:** With 75-micron particles, the abrasives issue that customers had with wearing pump impellers and damaging other downstream equipment may be less important than with larger particles like 105, 200 and 300 microns. But the 75-micron particles contribute to accumulation in downstream basins. The trend is also technology-driven, to prevent damage to membrane bioreactors, which are a relatively delicate technology.

**tpo:** Does this technology include elements of the established PISTA Grit system?

**Flores:** It is a different technology, but we retained key elements of the PISTA Grit Removal system as we developed this product. They include the vortex unit with the propeller blade, the flat-floor design, and the way the flow stream is introduced to the chamber on a tangent to create the vortex, which is an efficient way to remove the larger particles. We also kept the lower grit hopper to enable intermittent pumping.

**tpo:** What processes have been added for the INVORSOR technology?

**Flores:** To remove the 75-micron particles we needed an extra step, and that is where the inclined plates above the vortex come into play. The purpose there is to break the vortex and create a sedimentation step in more qui-

# Radar and Ultrasonic

## The Best of Both Technologies.

We understand that every application is different, there's not always a simple solution to the problem.



Scan this code for more details or visit:  
[pulsarmeasurement.com/  
radar-and-ultrasonic](https://pulsarmeasurement.com/radar-and-ultrasonic)

Contact us at:  
[northamerica@pulsarmeasurement.com](mailto:northamerica@pulsarmeasurement.com)



Pulsar Measurement are experts in both technologies. Providing the perfect product to give you accurate and reliable level measurements.

**pulsar**  
MEASUREMENT

“This technology provides 95% removal of 75-micron particles with no derating at higher flows.”  
**WILLIAM FLORES**

escent conditions. We developed this technology using computational fluid dynamics while also validating the results with an actual installation.

**tpo:** How would you describe the grit removal sequence for the larger particles?

**Flores:** After screening, the wastewater travels down an open channel to a sloped portion that feeds into the lower part of the INVORSOR unit. The flow is introduced to the unit tangentially, and when it hits the circular chamber, the grit is caught by the vortex. The larger particles are hydraulically pushed toward the center of the flat floor, pass under propeller blades that rotate at a very low rpm, and are trapped in the lower hopper. A grit pump then intermittently sends the collected grit particles to the grit washing and dewatering process.

**tpo:** What is the purpose of the propeller blades?

**Flores:** The propeller blades are designed to reject organic material; this is the first step in washing the grit. The less organics the grit contains, the better the quality of the material dumping into the hopper.

**tpo:** How are the finer particles then captured?

**Flores:** The 75-micron particles that remain in suspension will transition upward to the quiescent settling zone (similar to a clarifier). There, the particles travel between inclined parallel plates and fall to the bottom plate, where the surface tension retains them.

**tpo:** Once the 75-micron particles are captured by the inclined plates, how are they removed from the system?

**Flores:** Basically, because of the slow rotation of the propeller blades,

a Coandă effect is created where the fine particles hug the center propeller shaft all the way down to the lower hopper.

**tpo:** Does the capture rate for 75-micron particles vary with the flow rate?

**Flores:** This technology provides 95% removal of 75-micron particles with no derating at higher flows. Previously when technologies were promoted for removal of 75-micron particles, you would see that at peak flow conditions they would only remove particles at 105 or 200 microns. As an added advantage, our existing grit washers and grit classifiers are also capable of handling those 75-micron particles.

**tpo:** What maintenance does this process require?

**Flores:** The drive mechanism uses a 2 hp sealed motor that needs very little maintenance. Every six months the operators should inspect the upper inclined plates to make sure no unwanted material has been trapped there. If necessary, the plates can be rinsed with nonpotable water. The inclined plates do not come in a single piece. We designed them to come out in sections. For maintenance that's a lot easier than having to remove an entire inclined plate module.

**tpo:** Is this system fully automated?

**Flores:** It is very hands-off. Operators can monitor it from an HMI, but most prefer to do a daily walk-around as they would for any other equipment to see if anything is out of place. They also typically monitor the dump container to make sure everything is being removed properly. When a systems integrator is not necessarily part of the project and the customer wants an individual control system, we offer an in-house design called a QuickSmart with its own HMI. **tpo**

		Bins/Hoppers/ Silos	Biosolids Treatment/ Application	Centrifuges/ Separators	Chemical/Polymer Feed Equipment	Coagulants/ Flocculants/ Polymers	Composting Equipment	Conveyors	Digesters
	<b>Alfa Laval Inc.</b> 10470 Deer Trail Dr., Houston, TX 77038 713-934-3160 ashbrook.sales@alfalaval.com www.alfalaval.us		✓	✓					
	<b>Anaergia</b> 4210 S Service Rd., Burlington, ON L7L 4X5 905-766-3333 www.anaergia.com		✓						✓
	<b>Aqualitec Corp.</b> 3415 S Sepulveda Blvd., Ste. 1100, Los Angeles, CA 90034 855-650-2214 info@aqualitec.com www.aqualitec.com								
	<b>BCR Environmental</b> 100 N. Laura St., Ste. 601, Jacksonville, FL 32202 866-724-9145 904-819-9170 marketing@bcrinc.com www.bcrinc.com		✓						
	<b>BDP Industries, Inc.</b> P.O. Box 118, Greenwich, NY 12834 518-695-6851 Fax: 518-695-5417 dan@bdpindustries.com www.bdpindustries.com		✓				✓		
	<b>Blue-White Industries</b> 5300 Business Dr., Huntington Beach, CA 92649 714-893-8529 Fax: 714-894-9492 info@blue-white.com www.blue-white.com				✓				
	<b>Bright Technologies Specialty div. of Sebright Products, Inc.</b> 127 N Water St., Hopkins, MI 49328 800-253-0532 269-793-7183 Fax: 269-793-4022 julie@brightbeltpress.com www.brightbeltpress.com	✓						✓	
	<b>Charter Machine Company</b> 55 Wester Ave., Metuchen, NJ 08840 732-494-5350 walterk@chartermachine.com www.chartermachine.com		✓	✓					
	<b>CleanTek Water Solutions</b> 7984 University Ave., Fridley, MN 55432 866-929-7773 info@cleantekwater.com www.cleantekwater.com							✓	
	<b>Duperon Corporation</b> 1200 Leon Scott Ct., Saginaw, MI 48601 800-383-8479 989-754-8800 Fax: 989-754-2175 info@duperon.com www.duperon.com							✓	
	<b>E&amp;I Corporation</b> 214 Hoff Rd., Westerville, OH 43082 614-899-2282 info@eandicorp.com www.eandicorp.com							✓	
	<b>Eagle Microsystems, Inc.</b> 366 Circle of Progress Dr., Pottstown, PA 19464 800-780-8636 610-323-2250 Fax: 610-323-0114 info@eaglemicrosystems.com www.eaglemicrosystems.com				✓				
	<b>ELODE USA, Inc.</b> 97 Oak St., Norwood, NJ 07648 201-568-7778 alexm@elodeusacom www.elodeusa.com		✓	✓					
	<b>Federal Screen Products, Inc.</b> 7524 Bath Rd., Mississauga, ON L4T 1L2 905-677-4171 info@federalscreen.com www.federalscreen.com								
	<b>FKC Co., Ltd.</b> 2708 W 18th St., Port Angeles, WA 98363 360-452-9472 Fax: 360-452-6880 mail@fkcscrewpress.com www.fkcscrewpress.com							✓	

Grinders/Shredders	Grit Handling/Removal/Hauling	Headworks	Pumps - Archimedes/Screw	Screens/Strainers/Screening Systems	Screw Conveyors	Septage Receiving Stations	Sludge - Dewatering/Presses	Sludge - Dryers	Sludge - Hauling/Disposal	Sludge - Heaters	Sludge - Land Application	Sludge - Mixers/Thickeners	Sludge - Screens	Other
				✓			✓		✓		✓			
											✓			
		✓		✓			✓							
								✓						
							✓							
							✓							
							✓	✓				✓		
	✓	✓		✓	✓	✓			✓		✓		Heat Exchangers	
	✓	✓		✓	✓									
	✓	✓		✓	✓		✓						Flocculators	
							✓	✓			✓			
		✓		✓									Intake Screens	
					✓		✓				✓			

		Bins/Hoppers/ Silos	Biosolids Treatment/ Application	Centrifuges/ Separators	Chemical/Polymer Feed Equipment	Coagulants/ Flocculants/ Polymers	Composting Equipment	Conveyors	Digesters
 See ad on page 30	<b>Fournier Industries</b> 3787 Frontenac Blvd. W, Thetford Mines, QC G6H 2B5 Canada 800-463-6328 418-423-4241 www.fournierdewatering.com		✓	✓	✓			✓	
	<b>Headworks International, Inc.</b> 11000 Brittmoore Park Dr., Houston, TX 77041 713-647-6667 Fax: 713-647-0999 hw@headworksintl.com www.headworksintl.com								
	<b>HUBER Technology, Inc.</b> 1009 Airlie Parkway, Denver, NC 28037 704-949-1010 Fax: 704-949-1020 marketing@hhusa.net www.huberforum.net								
 See ad on page 59	<b>Hurst Boiler</b> 100 Boilermaker Ln., Coolidge, GA 31738 877-994-8778 229-346-3545 Fax: 229-346-3874 info@hurstboiler.com www.hurstboiler.com		✓						
	<b>Hydro International</b> 2925 NE Aloclak, Hillsboro, OR 97124 866-615-8130 503-615-8130 Fax: 503-615-2906 questions@hydro-int.com www.hydro-int.com								
	<b>Hydro-Dyne Engineering</b> 4750 118th Ave. N, Clearwater, FL 33762 813-818-0777 Fax: 813-818-0770 info@hydro-dyne.com www.hydro-dyne.com								
	<b>Hydro-Thermal Corporation</b> 400 Pilot Ct., Waukesha, WI 53188 800-952-0121 262-548-8900 info@hydro-thermal.com www.hydro-thermal.com		✓						✓
 See ad on page 35	<b>Industrial &amp; Environmental Concepts (IEC)</b> 21860 Hamburg Ave., Lakeville, MN. 55044 952-829-0731 anderson@ieccovers.com www.ieccovers.com								✓
 See ad on page 17	<b>Ixom Watercare</b> 3225 Hwy. 22, Dickinson, ND 58601 866-437-8076 701-225-4495 emil.anheluk@ixom.com www.ixomwatercare.com								
 See ad on page 58	<b>JDV Equipment Corporation</b> 1 Princeton Ave., Dover, NJ 07801 973-366-6556 sean@jdvequipment.com www.jdvequipment.com		✓					✓	✓
	<b>Jim Myers &amp; Sons, Inc.</b> 5120 Westinghouse Blvd., Charlotte, NC 28273 704-554-8397 Fax: 704-554-9113 sales@jmsequipment.com www.jmsequipment.com		✓			✓		✓	
 See ad on page 15	<b>JWC Environmental</b> 2850 S. Red Hill Ave., Santa Ana, CA 92705 800-331-2277 949-833-3888 jwce@jwce.com www.jwce.com							✓	
 See ad on page 35	<b>Komline-Sanderson</b> 12 Holland Ave., Peapack, NJ 07977 800-225-5457 908-234-1000 Fax: 908-234-9487 info@komline.com www.komline.com		✓						
 See ad on page 56	<b>Kuhn North America, Inc.</b> P.O. Box 167, Brodhead, WI 53520 608-897-2131 Fax: 608-897-2561 chris.searles@kuhn.com www.kuhn-usa.com		✓				✓		
 See ad on page 3	<b>Lakeside Equipment Corporation</b> 1022 E Devon Ave., Bartlett, IL 60103 630-837-5640 Fax: 630-837-5647 sales@lakeside-equipment.com www.lakeside-equipment.com								



	Grinders/ Shredders	Grit Handling/ Removal/Hauling	Headworks	Pumps - Archimedes/ Screw	Screens/Strainers/ Screening Systems	Screw Conveyors	Septage Receiving Stations	Sludge - Dewatering/ Presses	Sludge - Dryers	Sludge - Hauling/ Disposal	Sludge - Heaters	Sludge - Land Application	Sludge - Mixers/ Thickeners	Sludge - Screens	Other
					✓	✓	✓	✓				✓	✓		
			✓		✓	✓									
		✓	✓		✓	✓	✓	✓	✓			✓	✓		
															Heat Exchangers
		✓	✓										✓		
		✓	✓		✓	✓	✓								Washing Compactors
										✓					Heat Exchangers
															Covers/Liners
												✓			Air Powered Mixing Equipment
		✓	✓		✓	✓	✓	✓		✓	✓	✓			
	✓				✓		✓	✓				✓	✓		
								✓	✓			✓			
									✓		✓	✓			
		✓	✓	✓	✓	✓	✓					✓			Grease Screening

(continued)

		Bins/Hoppers/ Silos	Biosolids Treatment/ Application	Centrifuges/ Separators	Chemical/Polymer Feed Equipment	Coagulants/ Flocculants/ Polymers	Composting Equipment	Conveyors	Digesters
 See ad on page 47	<b>Landia, Inc.</b> 111 Triangle Trade Dr., Cary, NC 27513 919-466-0603 info@landiainc.com www.landiainc.com								
 See ad on page 55	<b>Park Process</b> 7015 Fairbanks N Houston Rd., Houston, TX 77040 855-511-7275 713-937-7602 Fax: 713-937-4254 russ@parkprocess.com www.parkprocess.com	✓	✓		✓	✓			
	<b>Parkson Corporation</b> 1401 W Cypress Creek Rd., Ste. 100, Ft. Lauderdale, FL 33309 888-727-5766 954-974-6610 Fax: 954-974-6182 technology@parkson.com www.parkson.com		✓					✓	
 See ad on page 51	<b>PAXXO Inc.</b> 1924 Millard Farmer Rd., Newnan, GA 30263 770-502-0055 Fax: 770-502-0088 chris.pettigrew@paxxo.com www.paxxo.com								
	<b>Press Technology &amp; Mfg., Inc.</b> 1401 Fotler St., Springfield, OH 45504 937-327-0755 dberner@presstechnology.com www.presstechnology.com		✓	✓					
 See ad on page 22	<b>Prime Solutions, Inc.</b> 610 S. Platt St., Otsego, MI 49078 269-694-6666 kelley@psirotary.com www.psirotary.com		✓		✓			✓	
	<b>Process Wastewater Technologies (PWTech)</b> 9004 Yellow Brick Rd., Ste. D, Rosedale, MD 21237 833-888-2651 info@pwtech.us www.pwtech.us								
 See ad on page 55	<b>Pulsed Hydraulic, Inc.</b> 1 Oro Beach Dr., Oroville, WA 98844 800-641-1726 425-785-3225 info@phiwater.com www.phiwater.com								
 See ad on page 49	<b>Saf-T-Flo Chemical Injection</b> 4091 E La Palma, Ste. U, Anaheim, CA 92807 800-957-2383 714-632-3013 Fax: 714-632-3350 info@safflo.com www.safflo.com				✓				
 See ad on page 4	<b>SAVECO / Enviro-Care</b> 1570 St. Paul Ave., Gurnee, IL 60031 815-636-8306 847-672-7968 www.savecowaterna.com							✓	
	<b>Schwing Bioset, Inc.</b> 350 SMC Dr., Somerset, WI 54025 715-247-3433 Fax: 715-247-3438 marketing@schwingbioset.com www.schwingbioset.com	✓	✓					✓	
 See ad on page 55	<b>Screenco Systems LLC</b> 13235 Spur Rd., Genesee, ID 83832 208-790-8770 sales@screencosystems.com www.Screencosystems.com							✓	
 See ad on page 29	<b>Smith &amp; Loveless, Inc.</b> 14040 Santa Fe Trail Dr., Lenexa, KS 66215 800-898-9122 913-888-5201 Fax: 913-894-0488 answers@smithandloveless.com www.smithandloveless.com				✓			✓	✓
	<b>SRS Crisafulli, Inc.</b> 1610 Crisafulli Dr., Glendive MT 59330 800-442-7867 406-377-6637 Fax: 403-365-8088 leesak@crisafulli.com www.crisafullipumps.com								
 See ad on back page	<b>Vaughan Company, Inc.</b> 364 Monte-Elma Rd., Montesano, WA 98563 888-249-2467 360-249-4042 info@chopperpumps.com www.chopperpumps.com		✓						✓

Grinders/ Shredders	Grit Handling/ Removal/Hauling	Headworks	Pumps - Archimedes/ Screw	Screens/Strainers/ Screening Systems	Screw Conveyors	Septage Receiving Stations	Sludge - Dewatering/ Presses	Sludge - Dryers	Sludge - Hauling/Disposal	Sludge - Heaters	Sludge - Land Application	Sludge - Mixers/Thickeners	Sludge - Screens	Other
			✓											Digesters Mixers
	✓			✓			✓							
	✓	✓	✓	✓	✓	✓	✓				✓			Sludge Removal
	✓	✓		✓										
				✓			✓				✓			
					✓		✓				✓			
			✓	✓			✓	✓			✓	✓		
							✓							
	✓	✓		✓	✓	✓							✓	
					✓		✓	✓	✓	✓				Sludge - Pumps Nutrient Removal Mobile Units
	✓	✓		✓		✓								
	✓	✓		✓	✓	✓								Grit Pumps
							✓							Sludge - Dredges
		✓	✓			✓			✓		✓			

# Headworks and Biosolids Management

By Craig Mandli

## Belt Filter/Rotary Presses

### BDP INDUSTRIES 3DP BELT PRESS

The skid-mounted 3DP Belt Press from BDP Industries is a turnkey dewatering solution with all components integrated on a hot dip galvanized skid for easy semi-permanent installation. This skid includes a booster pump, sludge pump, emulsion polymer system, hydraulic unit, controls and a 20-foot stainless steel screw conveyor. The press includes an independent gravity section, vertical pressure section and paddlewheel distributor. Features addressing odor control concerns include odor hoods, enclosed gravity sections, piped away filtrate and noise-reducing shower boxes. **518-695-6851; www.bdpindustries.com**



3DP Belt Press from BDP Industries

### BRIGHT TECHNOLOGIES, DIVISION OF SEBRIGHT PRODUCTS, 0.6-METER SKID-MOUNTED BELT FILTER PRESS



Belt filter press from Bright Technologies, Division of Sebright Products

The compact 0.6-meter skid-mounted belt filter press from Bright Technologies, Division of Sebright Products, has stainless steel frame and roller construction as well as radius wedge zone and wing roller for sludge dewatering. Components include a sludge pump, polymer system and wash-water booster pump. Options include a

sludge flowmeter, air compressor and discharge conveyors. With a compact, walk-around skid design, it can be utilized in as little as a 10-by-20-foot floor area. The Boerger rotary lobe sludge pump has a maintain-in-place design offering ease of maintenance. Cake solids of up to 35% can be achieved. Rates of 25 to 50 gpm make it ideal for small applications or when a processor has outgrown dewatering containers. **800-253-0532; www.sebrightproducts.com**

## Biosolids Handling/Hauling/Disposal/Application

### BOERGER BLUELINE ROTARY LOBE PUMPS

Boerger BLUEline rotary lobe pumps are a self-priming, valveless, positive displacement pump used for conveying viscous and abrasive materials. They are resistant to wear and provide pulsation-free operation. Operation is fully reversible, with dry run capability and flow rates up to 7,000 gpm. They are constructed with maintenance-in-place design, allowing for all wetted parts to be easily replaced through the front cover



BLUEline rotary lobe pumps from Boerger

without removing pipe or drive systems. The pump conveys biosolids (primary, waste activated sludge, return activated sludge, digested, thickened, etc.), grease, sewage, scum, lime slurry, alum sludge, permeate and polymers. **612-435-7300; www.boerger.com**

### ELODE USA ELECTRO-OSMOSIS DEHYDRATOR

The compact Electro-Osmosis Dehydrator from ELODE USA can easily retrofit in line with many existing presses. It is specified to reduce sludge disposal cost by 60% by producing much drier sludge cake. It uses the electrical potential difference in the sludge cake to separate water in the process and it works on 95% of municipal cakes tested without any chemical, polymer, heat nor mechanical press. It can be used to turn 15 to 20% DS cake to 40 to 45% DS quickly. **201-568-7778; www.elodeusa.com**



Electro-Osmosis Dehydrator from ELODE USA

### PAXXO LONGOPAC FILL

The Longopac Fill continuous bag system from Paxxo can connect to the discharge point of machines used to move, dewater or compact screenings, grit and biosolids. Material is then deposited in a 90-meter-long continuous bag for odor containment and spillage control. The cassette bag can be sealed with ease, and the material and odors are trapped inside, cutting down development of bacteria and fungus spores. **770-502-0055; www.paxxo.com**



Longopac Fill continuous bag system from Paxxo

### SRS CRISAFULLI FLUMP DREDGE

The FLUMP unmanned remote-control dredge from SRS Crisafulli removes biosolids and sediments. It is easy to use from a workstation or



FLUMP dredge from SRS Crisafulli

mobile phone, and easy to transport at approximately 6,000 pounds. It delivers lower operator exposure to potentially hazardous materials, high performance with minimum turbidity, and faster operations with high-speed reverse and pivoting traverse systems. Its pumps are manufactured with an ASTM AR400 mild carbon steel (BHN 400 hardness) pump volute and impeller, and dual carbon/ceramic shaft seals. The pump is mounted directly

behind the cutterhead and is lowered into the pond on the dredge's ladder. Standard, severe-duty or custom models are available. **800-442-7867; www.crisafullipumps.com**

## Biosolids Heaters/Dryers/Thickeners

### JDV EQUIPMENT SLUDGE HEATER AND EXCHANGER SYSTEM

The Sludge Heater and Exchanger System from JDV Equipment ensures optimal thermal efficiency for anaerobic digestion. The counter-flow tube-in-tube Ralph B. Carter design promotes high-efficiency heat transfer with minimal fouling to recirculated biosolids. The integrated three-way blending valve maintains a uniform inlet water temperature for increased digester operational efficiency. Each system is manufactured to ASME standards. **973-366-6556; www.jdvequipment.com**



Sludge Heater and Exchanger System from JDV Equipment

## VEOLIA WATER TECHNOLOGIES BIOCON ERS

Rising concern of PFAS contamination of water and soil has sparked interest in this emerging contaminant as it pertains to wastewater sewage sludge. BioCon ERS from Veolia Water Technologies offers a safe and sustainable drying and combustion system for treating PFAS-laden municipal biosolids. It combines the efficiencies of a convective air medium-temperature belt dryer with a biomass furnace, which uses the dryer output (dry product) as a biofuel. The heat available in the exhaust is captured and used as process heat in the belt dryer. This integrated dryer and energy recovery system is sustained by heat generated by the combustion of biosolids to drive the drying process, and in turn the dried material fuels the combustion system, making it a fully energy sufficient and sustainable operation. It combusts sludge between 1,400 and 1,800 degrees F, which is higher than the minimum temperature required for PFAS destruction. **919-677-8310; [www.veoliawatertech.com](http://www.veoliawatertech.com)**



**BioCon ERS from Veolia Water Technologies**

## Chemical/Polymer Feeding Equipment

### BLUE-WHITE INDUSTRIES FLEXFLO M4

The low-shearing pumping action of FLEXFLO M4 peristaltic dosing pump from Blue-White Industries allows it to gently and precisely pump chemicals that off-gas, including peracetic acid and sodium hypochlorite, with no vapor lock and no lost prime. Advanced features include a highly responsive and intuitive 5-inch display, firmware that can be field updated, and easy-to-attach M12 watertight connectors. **714-893-8529; [www.blue-white.com](http://www.blue-white.com)**



**FLEXFLO M4 peristaltic dosing pump from Blue-White Industries**

### FORCE FLOW TOTE BIN SCALE



**Tote Bin Scale from Force Flow**

The Tote Bin Scale from Force Flow allows plant operators to accurately monitor the amount of polymer being fed from IBC-type totes for dewatering. Simply place the tote on the platform and monitoring begins, as there is nothing to install inside the tote. Monitoring systems prevent costly overfeed conditions and enable the documentation of the actual amount fed, which keeps the plant in compliance with federal and state reporting requirements. Users can remotely monitor from SCADA or PLC. The unit is available with the SOLO G2 digital display or with the advanced Wizard 4000 chemical inventory management system. **800-893-6723; [www.forceflow.com](http://www.forceflow.com)**

### LUTZ-JESCO AMERICA LJ-POLYBLEND POLYMER SYSTEM

The LJ-PolyBlend Polymer System from Lutz-JESCO America is a dependable, motorized mixing machine with a corrosion-resistant housing, large turbine and multi-zone mixing chamber that provides uniform dispersion energy at the moment of initial polymer wetting. The prime mixing zone fully activates the polymer, while the second mixing zone promotes gentle polymer



**LJ-PolyBlend Polymer System from Lutz-JESCO America**

activation via a small turbine, lessening molecule fracturing. Its stainless steel injection valve prevents agglomerations and reduces the need for extended mixing time. The system includes a clear mixing chamber that provides visual monitoring of mixing polymer feed. Its compact design — only 1 to 1.5 square feet — means it's light and allows for easy installation and transportation. It has automatic pump speed adjustment via 4-20mA input, water flow sensor and priming port. **800-554-2762; [www.lutzjescoamerica.com](http://www.lutzjescoamerica.com)**

## Coagulants/Flocculants



**Clean H2S from Nanozyme Technologies**

### NANOZYME TECHNOLOGIES CLEAN H2S

Nanozyme Technologies Clean H2S is a catalytic enzyme consortium that continues to work long after it is applied throughout the system. It is designed to quickly bring the whole system into accepted values on an ongoing basis. It is typically applied in a vapor phase for large volumetric spaces like press rooms, but it can also be directly injected into air moving piping and equipment with dramatic effect as seen here. This technology is personnel and environmentally safe, and is organic and botanically derived. There are no living bacteria present. Each air quality system is designed for each specific application. **860-305-9881; [www.nanozymetech.com](http://www.nanozymetech.com)**

### NEXT FILTRATION NEXT-F.O.G.STOP

Next Filtration's Next-F.O.G.Stop is molecular kinetic technology that optimizes aerobic MLSS operation and increases wastewater throughput up to 40%. It promotes biostimulation of indigenous microorganisms through the uncoupling of microbial metabolic pathways. Trials demonstrate that it amplifies the metabolic rate of organic carbon degradation and lowers the amount of biomass produced. The excess carbon is metabolized and off-gassed in the form of carbon dioxide rather than being converted to biomass or biofilm. Specifically, results show feeding it into the inlet stream of municipal and industrial wastewater facilities led to a decrease of biological oxygen demand and total suspended solids, and an increase of dissolved oxygen. Indirectly, this leads to reduced energy consumption, due to reduced aeration blower rates. **800-783-0310; [www.nextfiltration.com](http://www.nextfiltration.com)**



**Next-F.O.G.Stop water treatment chemical from Next Filtration**

## Dewatering Equipment

### AQUA-ZYME DISPOSAL SYSTEMS ADS

The ADS 30-yard open-top roll-off dewatering unit from Aqua-Zyme Disposal Systems can be filled with 22,000 to 25,000 gallons of biosolids at 1% to 2% solids in about two hours. After draining for 24 hours, the unit can be picked up using a standard-capacity roll-off truck and transported for solids disposal. Sludge volume can be reduced by 80% with reductions to 98% in BOD, COD, FOG and TSS. Effluent is clear, the unit has few moving parts, and the size of filter media can



**ADS dewatering unit from Aqua-Zyme Disposal Systems**

be selected according to job requirements. Standard equipment includes a roll-over tarp system; side, floor and center screens; 1/4-inch floor plate; 7-gauge side plates; four door-binder ratchets; eight drain ports; two inlet ports; and a long-handle scraper. Units are also available in a 15-yard size. **979-245-5656; www.aqua-zyme.com**



Dewatering system from In the Round Dewatering

### IN THE ROUND DEWATERING HORIZONTAL DRUM

The horizontal biosolids dewatering system from In the Round Dewatering features a stainless steel drum with perforated plastic tile lining. The drum is mounted on a roll-off frame for easy transport and unloading. Trays contain discharge water. An 18,000- to 25,000-gallon batch is mixed with polymer before being filtered in the rotating drum, which is driven by a 1/2 hp variable-speed electric motor with a heavy-duty chain and sprocket. Turning eliminates crusting and wet pockets to produce uniform, consistent results. The dewatered material dumps easily, and the drum is self-cleaning. **317-563-2072; www.itrdewatering.com**

### PARK PROCESS SLUDGEKING II

The SludgeKing II roll-off dewatering container from Park Process incorporates an engineered design that eliminates trapped water in the bottom of the filter cake. The second center wall filter increases filter area by 33% producing drier cakes in less time. The plastic floor panels that cover the floor space between wall filters and center wall filters serve three purposes. They hold down the bottom of the filter elements, help eliminate standing water and aid in filter cake dumping. The inlet manifold is split into three inlets, each with a ball valve, allowing incoming flow to be distributed evenly into the three compartments formed by the two center-wall filters. **855-511-7275; www.parkprocess.com**



Sludge King II dewatering container from Park Process

## Digesters



Omnivore from Anaergia

### ANAERGIA OMNIVORE

The Omnivore is Anaergia's high solids approach to anaerobic digestion. It incorporates advanced mixing and robust thickening systems to convert low-solids digesters into high-solids digesters (5 to 8%). It adapts to take on increased sludge loading without requiring new construction and supercharges biogas and energy projects by enabling co-

digestion of high-strength waste. The system consists of a screw thickener combined with the OmniMix, a high-performance submersible mixer that delivers 30,000 gpm of flow, with a connected load of only 12.5 kW and an average power draw of 6 kW and can mix solids up to 12%. It features a gearless direct drive motor and a dynamic mixer that allows operators to adjust the mixer position to break up floating layers and re-suspend grit. The service box lets operators access the mixer without taking the digesters out of service, streamlining O&M. **866-978-9785; www.anaergia.com**

## Grinders/Shredders



Chopper Pumps from Vaughan

### VAUGHAN CHOPPER PUMP

Self-priming Chopper Pumps from Vaughan are designed to be easily accessed outside of the wet well while pumping waste solids at heavy consistencies, without plugging or dewatering of the solids. They eliminate the loss in production and mess, along with making it easy to service the pump to get it back in operation. **888-249-2467; www.chopperpumps.com**

## Grit Handling/Removal/Hauling

### ENVIRODYNE SYSTEMS OCTOCELL

The OctoCell grit removal system from Envirodyne Systems utilizes stacked trays to achieve a small footprint. Unique to their design is the ability to provide either the conventional vertical chute entry, or a horizontal inlet trough and tentacle arrangement above the trays. With the latter configuration, trays are engaged/disengaged based on actual flow. Other features include the visual detection of any plugging, and a means of active or passive control of flow to each individual tray for enhanced control of velocities and reduced organics accumulation. **717-763-0500; www.envirodynesystems.com**



OctoCell grit removal system from Envirodyne Systems

### HYDRO INTERNATIONAL COMPACT GRIT REMOVAL

Hydro International's line of Compact Grit Removal is designed to meet the flows, treatment needs, and budgets of smaller wastewater treatment plants. Engineered for low maintenance and high performance in a small footprint, the flexible layout options make it the ideal fit for even the smallest plants. Configured to seamlessly fit within existing infrastructure and without the need for a long approach channel, our line is easy to install and minimizes construction costs. With Grit King Compact and SpiraSnail Compact (or Decanter) dewatering, small plants can realize the



Compact Grit Removal line from Hydro International

benefits the proven protection advanced grit management provides. The systems are built for the specific needs of smaller treatment

plants. As a result, high performance grit removal is available to smaller plants at a price point and size that is within reach. **866-615-8130; www.hydro-int.com**

### SMITH & LOVELESS PISTA INVORSOR

Inspired by extensive expert CFD modeling and developed rigorously in actual field conditions, the PISTA INVORSOR grit removal system from Smith & Loveless combines the power of proven particle capture methods: enhanced settling by inclined plates meeting a defined surface overflow rate with the established hydraulic forced vortex to achieve ultra-fine grit removal efficiency down to 75-micron particle size across all flows with no



PISTA INVORSOR grit removal system from Smith & Loveless

derating. It helps deliver lower capital and operational costs, larger capacity in individual units, greater design flexibility for inlet-outlet design options, and a higher surface area-to volume ratio to generate consistent fine grit capture during low flow, daily flow and peak flow conditions — up to 50 mgd in single units. **800-898-9122; www.smithandloveless.com**

### TRILLIUM FLOW TECHNOLOGIES WEMCO HYDROGRITTER

The WEMCO Hydrogritter from Trillium Flow Technologies is a grit cyclone and classifier with an operational life of over 25 years at low operating and maintenance costs.

The system removes and dewateres grit from primary sludge or influent and can process from 220 to 1,570 gpm per cyclone at a pressure of 5 to 20 psi, which allows for a grit withdraw rate of 3/4 to 8 1/2 tons per hour at a 1% grit concentration. Typical configurations have one to four cyclones per classifier, allowing for maximum flexibility to meet grit removal needs, removing remove fine (+150 mesh) grit. **559-442-4000; www.trilliumflow.com**



**WEMCO Hydrogritter from Trillium Flow Technologies**

### Screw Conveyors

#### CHARTER MACHINE ROYAL SCREW PRESS

Charter Machine's Royal Screw Press offers a small footprint and high-efficiency design that has very low power consumption with a higher throughput. Using an integrated thickening drum, the system can concentrate feed solids up to 5% DS. The complete skidded system is ultra-quiet, large capacity and low-maintenance. The removable washwater nozzle ring travels, with its self-cleaning nozzles, laterally the length of the drum and gives a maximum clean with minimum amount of water. The sleek skidded design includes controls, drum thickener, sludge concentrator tank, sludge pump and screw press. **732-494-5350; www.chartermachine.com**



**Royal Screw Press from Charter Machine**

#### HEADWORKS INTERNATIONAL SCREWPACTOR

The Headworks International Screwpacktor shafted spiral washer compactor is available in three models for wastewater screenings, washing and handling applications. It is designed to receive screenings through conventional conveyance or sluicing applications. Solids enter through an inlet hopper and are conveyed by a shafted spiral where organics are washed and reintroduced into the treatment process. The washed screenings are conveyed through to a press zone where they are compacted into plug form and discharged into a bin or dumpster. Shafted Spirals are available in alloy or stainless steel. It offers throughput capacities up to 250 cubic feet per hour, and is capable of handling bricks, plastics and timbers. Optional heat tracing and continuous bagging units are available. **713-647-6667; www.headworksintl.com**



**Screwpacktor from Headworks International**

*(continued)*

# Landia GasMix

## A GROUND-BREAKING MIXING SYSTEM FOR ANAEROBIC DIGESTERS

Optimize **biogas** yields to achieve energy net-positive digester mixing with Landia's innovative technology.

### Process benefits

Increased VS destruction compared to traditional mixing.

### Cost benefits

No loss of **biogas** production during servicing.

### Maintenance benefits

All equipment is external and easily accessible. No piping or moving parts inside the digester.



Meet us at booth 651



Landia Inc.  
111 Triangle Trade Drive  
Cary, NC 27513

Tel. +1 (919) 466-0603  
info@landiainc.com

**Landia**  
landiainc.com

## Septage Receiving Stations

### JWC ENVIRONMENTAL HONEY MONSTER

The Honey Monster septage receiving station and FOG receiving system from JWC Environmental is designed to ease the management of septage waste for the wastewater plant operator and the hauler. It quickly screens and processes septage, grease, FOG and sludge from vacuum trucks. The automated septage acceptance plant provides for cleaner handling of septage truck waste by reducing and separating unwanted solids such as rocks, rags, clothing, plastics and other trash, according to the maker. The combination of grinding, solids removal, washing and dewatering allows a typical septage truck to unload in 5 to 15 minutes. It is completely enclosed to ensure safety, vector control and containment of foul odors. The optional MonsterTrack metering and control system uses a flowmeter to track septage and provide accurate billing data for the facility and a receipt for the hauler. **800-331-2277; www.jwce.com**



**Honey Monster septage receiving station and FOG receiving system from JWC Environmental**



**Raptor Septage Acceptance Plant from Lakeside Equipment**

### LAKESIDE EQUIPMENT RAPTOR SEPTAGE ACCEPTANCE PLANT

The fully automated Raptor Septage Acceptance Plant from Lakeside Equipment is designed to remove debris and inorganic solids from septage tanks, grease traps, sludge, leachate and industrial waste. It includes the Raptor Fine Screen, which compacts and dewateres the captured screenings to a solids content of 40%. The screen's rotating rake teeth penetrate the cylindrical screen bars, which prevents plugging and binding from grease and small debris. This allows for faster unloading times. The Raptor Acceptance Control System is a security access station that can be integrated to allow authorized haulers to unload their waste at the facility. Adding the data management and accounting system with the RACS station provides capabilities to track and invoice customers. **630-837-5640; www.lakeside-equipment.com**

## SCREENCO SYSTEMS TRASH MASTER 600 AUTO SCREEN

The Trash Master 600 Auto Screen from Screenco Systems uses gravity to separate the trash from the flow stream through a 6-inch inlet with dual fan spreaders. It is capable of power-offloading vacuum trucks with a single 6-inch offload or 2- to 4-inch offloads at the same time at a rate of up to 800 gpm. It comes with an aluminum hopper (stainless steel is optional), with an 8-inch outlet cam and 3/8-inch gapped 1/4-inch stainless steel bar screen. The stainless steel U-channel with ultra high molecular weight polyethylene plastic-lined titanium provides for years of wear, with a high strength alloy steel 11 1/2-inch shaftless screw that moves trash to a waste container. The U-channel has slotted drain holes and a center channel bar screen for cleaner and dryer trash. A custom-built stainless steel bar rake and cleaning brush are included for easy maintenance. **208-790-8770; www.screencosystems.com**



**Trash Master 600 Auto Screen from Screenco Systems**

## Screening Systems

### EVOQUA WATER TECHNOLOGIES FORTY-X DISC FILTER ARMOR SERIES

The Forty-X Disc Filter Armor Series from Evoqua Water Technologies is a high-rate filtration device that utilizes an integrated pre-screen and stainless steel panels that are designed to accommodate high solids loading capacities and greater hydraulic throughput. The woven optimum primary mesh filter panel utilizes 316L stainless steel threads to create a weave that improves solids collection and rejection, which makes this disc filter suitable for stormflow applications. The panel configuration includes a molded structural frame and pressured assisted seal, allowing the panels to sustain and operate at a higher headloss and provide higher throughput when compared to other disc filter synthetic media. The series combines the technology of outside-in and inside-out filtration into a single PLC-controlled unit with influent water flowing through the prescreen (outside-in) into the disc filter panels (inside-out). This combination of two filtration technologies provides an effective option for challenging applications. **844-409-9492; www.evoqua.com tpo**



**Forty-X Disc Filter Armor Series from Evoqua Water Technologies**

# 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.”

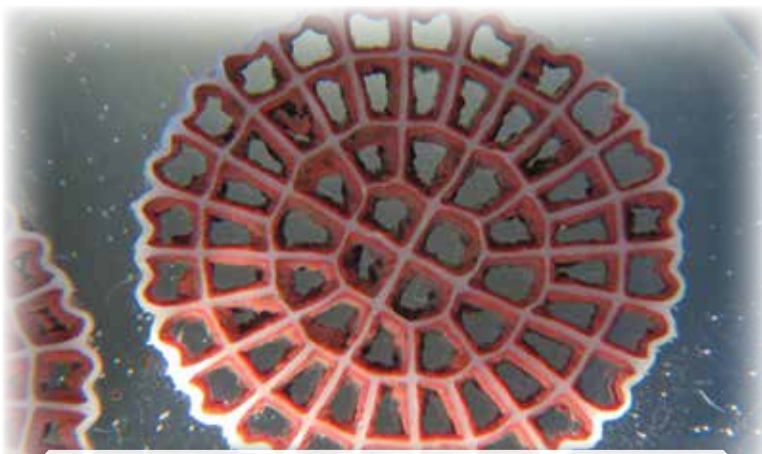
Jane Moore  
An Original Environmentalist  
PRODUCTION SUPERVISOR  
Philipsburg (Pa.) Water Treatment Plant



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

FREE subscription at [www.tpomag.com](http://www.tpomag.com)





**E & I Corporation**  
a Division of McNish Corporation

<p><b>COLLECTORS</b> Three and Four Shaft Rectangular</p> <p><b>SKIMMERS</b> Pipe • Helical</p>	<p><b>SCREENS</b> Multi-Rake (EIMT) Bar Screen Catenary Bar Screen Catenary Trash Rakes Catenary "Compact II" Traveling Water Screen</p>	<p><b>FLOCCULATORS</b> Vertical and Horizontal</p> <p><b>GRIT</b> Swirl Grit (Vortex Grit) Catenary Grit Collector V-Bucket Grit Collector Screw and Bucket Elevator</p>
---	--	--

Westerville, OH p: 614.899.2282  
w: [www.eandicorp.com](http://www.eandicorp.com) e: [info@eandicorp.com](mailto:info@eandicorp.com)

TREATMENT PLANT OPERATOR

**tpo + VEOLIA**

Present the webinar

**From Pilot to Full Scale, the Ins and Outs of Implementing Deammonification at the Fresno-Clovis Regional Wastewater Reclamation Facility (RWRf)**



**August 16 at 2:00 PM CDT**

Contact [ann.richmond@colepublishing.com](mailto:ann.richmond@colepublishing.com) with any questions

**Description**

This webinar describes the City of Fresno's drivers for implementing sidestream treatment at the 90 mgd RWRf and how the ANITA Mox deammonification technology fits into the City's nitrogen management plan. You will hear from experts that were directly involved in the pilot project and be given some insight about the background of the plant, what the pilot performance looks like, and how the pilot results are being leveraged in the design of the full scale facilities. This webinar will provide invaluable information for similar utilities who are interested in implementing sidestream as a first step towards nitrogen removal, or for those who already remove nitrogen and need to achieve more stable and/or stringent nitrogen limits.

**Presenters:**



**Andre Gharagozian, P.E.**  
Andre is an Associate Vice President out of Carollo's Walnut Creek office and has more than 24 years experience as a consulting engineer. He supports Carollo's wastewater practice as their Northern California Wastewater Process Lead and is an expert in the evaluation, planning and design of nutrient removal facilities including activated sludge BNR, intensification, and sidestream technologies.



**John Witter, P.E.**  
John is a Lead Engineer out of Carollo's Fresno office and has over 7 years of experience assisting Central California wastewater utilities performing capacity and performance assessment, biological process modeling, treatment process alternatives, and the piloting and design of nutrient removal and solids handling processes.



**Rodrigo Lara**  
Rodrigo Lara is a regional manager for Veolia. He supports the Western Region of the US and covers biological products including ANITA Mox, IFAS/MBBR, Biostyr DUO and Oxidation Ditch.

To Register, go to  
<https://bit.ly/VeoliaAug2023>

**SAF-T-FLO**  
CHEMICAL INJECTION



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-T-Seal Elastomeric Tip for excessive scale prone feeds.

**Learn More**  
call: 800-957-2383  
visit: [www.saffflo.com](http://www.saffflo.com)  
view: [youtube.com/saffflo](https://youtube.com/saffflo)



### Evoqua's wastewater aftermarket parts and services

Components and systems age at varying rates with some parts remaining useful while others are in imminent danger of failing. Often, the failure of vulnerable components can trigger larger failures and result in damages and/or compliance issues. Working with Evoqua's dedicated team of technical experts can help your plant save time and budget. They will ensure efficient and reliable operation of your equipment and systems to maximize process uptime and equipment life at the lowest cost. We have an extensive inventory of parts and can provide service for primary and secondary clarifiers, clarifier drives, chain and scraper systems, diffused aeration, high-speed aerators and sludge digestion equipment. Evoqua is the original equipment manufacturer of Envirex, FMC, Aqua-Lator, Link-Belt, Passavant Mammoth Rotors, PFT and many other brands. Let us help maximize your plant's performance and save you money.

262-547-0141;

[www.evoqua.com/wastewater-aftermarket](http://www.evoqua.com/wastewater-aftermarket)



### OZ Lifting XR Series davit cranes

OZ Lifting Products has launched its XR Series of davit cranes for wastewater and water operators. The

## product spotlight wastewater

### Flow switches help keep pumps safe

By Craig Mandli

It's proven that monitoring flow to prevent dry-run conditions extends the life of your pumps. In addition to the cost savings, you can avoid noncompliance with regulatory limits. Operators will be happy to not come to work in the middle of the night. And most importantly, you can protect the environment.

Thermal dispersion flow switches, like the **FlexSwitch FLT93 series from FCI – Fluid Components International**, can measure both a low flow and lack of flow. When flow reduces to a set-point, it triggers an alarm. The operator can then check the system and reset the flow switch after determining the cause of the problem. If the line actually runs dry, a second alarm rings and the pump is immediately shut down.

"When a pump's flow output begins to sag, it can signal an upstream clog or early warning of imminent pump failure, and further, pumps going dry can lead to serious and expensive repairs," explains Randy Brown, FCI's director of marketing. "By installing an FCI Model FLT93 in the pump's exit pipe, users set its Alarm 1 to trip on a 'low flow' condition as an early warning and set Alarm 2 for 'No Flow' detection to shut down the pump. Other applications include anywhere too high or too low flow detection will ensure proper and/or safe process operation."

Leveraged from FCI's field-proven thermal dispersion experience, the sensor technology combined with FlexSwitch temperature compensation circuitry



FlexSwitch FLT93 series from FCI – Fluid Components International

enables flow accuracy as precise as  $\pm 2\%$  of the set-point velocity over a  $\pm 50$  degree F temperature range; with repeatability of  $\pm 0.5\%$  reading. It also enables level resolution of  $\pm 0.1$  inch, with repeatability of  $\pm 0.05$  inch, and standard temperature accuracy of  $\pm 2.0$  degrees F, with repeatability  $\pm 1.0$  degrees F. The switches are "precision temperature compensated" to ensure the accuracy of factory and field set alarms when installed in dynamic process applications. Accuracy combined with temperature compensation results in preventing false alarms or alarm failure, maximizing operator and process safety and having the option to set alarms within a narrow set point range.

"The water and wastewater treatment industry, both municipal and industrial, are a natural fit for FCI's FLT93 flow and level switches," says Brown. "It is available for installation in pipes as small as 1/4 inch, and is available with process connections of compression fittings, fixed NPT, flanged and packing glands."

800-854-1993; [www.fluidcomponents.com](http://www.fluidcomponents.com)

Winona, Minnesota-based manufacturer has released the model in 500 and 1,000 pound capacities, but the long reach of the range is a stand-out benefit for operators. Where other davit cranes typically have reduced capacity when it is in the longest reaching position, this series maintains its maximum capacity rating in all configurations. This means wastewater and water professionals can lift more weight, further out, which presents many benefits for numerous lifting and material handling applications. The smaller crane weighs only 57 pounds and the larger crane weighs 95 pounds. Both have a maximum 62-inch reach and maximum hook height of 87 inches.

800-749-1064;

[www.ozliftingproducts.com](http://www.ozliftingproducts.com)



### NETZSCH TORNADO T1 Generation F rotary lobe pump

NETZSCH Pumps' TORNADO T1 Generation F pump is designed to produce high flow at low to medium pressures in a small compact package. The pump can handle a wide range of viscosities, solids, temperature, abrasion and corrosive/acidic process fluids and environments. The TORNADO T1 is extremely versatile for just about any orientation and installation. Its robust design allows the pump to

operate and handle many upset process conditions without causing harm to the pump. The pumps are available up to over 4,000 gpm and up to 130 psi. The front pullout design allows for easy access for maintenance and inspection. Opening the front cover allows access to the wear plates, lobes and seals, making this pump easy to service. Additionally, there is no need to access the timing gears or bearing as they are protected with the NETZSCH Gearbox Security System.

610-363-8010;

[www.pumps.netzsch.com](http://www.pumps.netzsch.com)

Check out more manufacturers and dealers at:

[www.tpomag.com](http://www.tpomag.com)



### IDEC Corp. SA2E PE sensor family

IDEC Corp. introduces the SA2E general-purpose photoelectric sensor family, available in five major model variations. The SA2E sensors generally improve response times to 0.5 ms, compared with 1.0 ms for previous generation models, for better detection of smaller and faster moving objects. Sensors are switchable between light-on and dark-on operating modes, and applicable models have an onboard sensitivity or range adjustment potentiometer. A new ASIC, common to the entire offering, delivers better response times and more capable detection. SA2E PE sensors are offered in five major variations: through-beam, polarized retro-reflective, diffused-reflective, background suppression reflective, and small beam reflective. 800-262-4332; [www.idec.com](http://www.idec.com) 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](mailto:editor@tpomag.com) or call 877-953-3301

### Longopac® Fill

The closed bag system for screenings and grit.

- Mounts to existing equipment
- Increased odor control
- Minimized mess
- Very robust, 90m, (295') long continuous feed, non-porous, polythene bag
- More than 20,000 installations worldwide

Contact [chris.pettigrew@paxxo.com](mailto:chris.pettigrew@paxxo.com) for more information



Paxxo Inc.  
1924 Millard Farmer Road, Newnan, GA 30263  
[www.paxxo.com](http://www.paxxo.com)  
Phone. +1 770 502 0055 Fax. + 1 770 502 0088



BEFORE



AFTER

## product spotlight water

### Signal advancement increases automation of chemical feed process

By Craig Mandli

Water and wastewater treatment plants continue to evolve, with constant efforts to make the treatment process more automated. **Blue-White** is at the forefront of these innovative solutions, as the company has simplified chemical feed by offering a **4-20 mA signal** out from their popular **CHEM-FEED MD1 Multi-Diaphragm Metering Pump and FLEXFLO M1 Peristaltic Metering Pump**.

The 4-20mA signal can be sent from the pump to a SCADA system where operators can remotely monitor the pump, allowing for improved automation and monitoring. The mA signal can also be used as an input for another device for controlling multiple devices with a single mA signal.

"The benefit is that you can now provide a remote feedback signal to tell you how the pump is operating remotely," says Patrick Murphy, Blue-White's vice president of operations. "It also can be tied to another device for control purposes. For example, a 4-20mA output signal from one pump can be sent to another pump's 4-20mA input signal. The pump receiving the input signal is now being controlled by the pump sending the output signal."

The FLEXFLO M1 Peristaltic Dosing Pump will not vapor lock and never loses prime. This self-priming chemical feed pump delivers smooth, consistent, and precise chemical dosing. The CHEM-FEED MD1 has dual-diaphragm hyperdrive technology, which provides a continuous



4-20 mA signal out from Blue-White's CHEM-FEED MD1 Multi-Diaphragm Metering Pump and FLEXFLO M1 Peristaltic Metering Pump

chemical feed that is engineered for zero maintenance. The DiaFlex diaphragm is built to last the life of the pump.

"Along with the 4-20mA upgrade, our pumps now come with chemical-resistant metal M12 connectors that are IP67-rated," says Murphy. "The connectors are made from high-quality materials and are designed to withstand harsh environments. They are resistant to shock, vibration, moisture and extreme temperatures."

According to Murphy, the initial upgrade research started with customer visitations. "We heard customers loving the pump, but wish they could see what it was doing remotely without any additional devices," he says. "We also heard that they wanted a way they could send a signal from the pump to another pump rather than sending running run wires to multiple pumps for a 4-20mA signal."

And according to initial user feedback, they love the upgrade. "Not only are they able to have more capabilities with automation, they love the durability of the chemically resistant metal connectors," says Murphy. 714-893-8529; [www.blue-white.com](http://www.blue-white.com)

## Modern decanters deliver twice the flow using half the power at water reclamation facility

### Problem

A water reclamation facility in the Southeast needed to replace its aging dewatering decanter centrifuges.

### Solution

**Alfa Laval ALDEC G3-125 decanter centrifuges** deliver up to twice the flow and use half the power and less polymer while fitting the existing footprint. The units include a Slimline conveyor, power tubes and features to simplify maintenance. Alfa Laval engineering expertise and partnerships enabled a turnkey project.



#### RESULT:

The retrofit of the centrifuges without outside engineering saved enough money to allow the purchase and installation of two decanters for the price of one and reduced the project timeline by almost a year. **866-253-2528; www.alfalaval.us**

## Screens increase plant resilience, adapt to changing flow conditions

### Problem

The Saginaw Charter Township (Michigan) Wastewater Treatment Plant handles sewage and stormwater runoff, resulting in dramatic wet-weather flow increases. The 4.65 mgd facility can see peak flows at 20 mgd, including stormwater debris.

### Solution

Seeking an innovative screening solution, the plant upgraded to the **Duperon FlexRake IQ<sup>2</sup>**, which automatically adapts to changing flow. During high flows, the raking speed increase. If speed alone does not satisfy the conditions, the screen opening size changes, improving hydraulic capacity.



#### RESULT:

Plant operators quickly saw improvement. The screen removes about three times the debris and does so as efficiently at 20 mgd as at 4 mgd. It reacts to flows, preventing backups or slowdowns. Increased debris removal requires more frequent emptying of the collection box, but plant operators view that as a worthwhile trade-off. **800-383-8479; www.duperon.com**

## Decanters provide smooth operation for military base's treatment plant

### Problem

Northern Wastewater Treatment Plant of Marine Corps Training Base Camp Pendleton in Southern California serves a migratory population of 200,000 people, including 18,000 troops, employees and their families.

### Solution

The \$66 million plant consolidates all the pump stations and lift stations of 12 treatment plants down to Northern and Southern treatment plants. While the Southern plant kept its older equipment, the Northern plant was out-fitted with **Flottweg centrifuge decanters** and 3.2 MW of solar power with a 2 MW backup generator.



#### RESULT:

Operator Philip Starks says one person can operate the equipment, which needs minimal maintenance: "You don't want to continuously have to take things apart and fix them. The plant runs so well, we rarely have issues. The Northern Plant is designed to handle a much larger population, and this could double or even triple easily in the future without breaking capacity."

**859-448-2331; www.flottweg.com**

## Rotary press helps city create cost savings

### Problem

The Fernandina Beach wastewater facility was hauling 2.34 million gallons of wet biosolids annually. Landfill costs were rising and landfill availability was getting tight. Dewatering would reduce biosolids volume by 75%.

### Solution

The city evaluated dewatering systems based on safety, maintenance, complexity, space required, loading on the headworks, operator time required and surface area to clean. As a result, the city chose a **Fournier Rotary Press**.



#### RESULT:

The press enabled increased wasting to the digesters, improving operation of all process trains. "This system should last well over 20 years and should pay for itself in about seven years of operation," says John Mandrick, P.E., utilities director.

**800-463-6328; www.fournierdewatering.com**

## Improving digester performance with direct steam injection heater

### Problem

A midwestern municipal sewerage district faced significant issues with its acid-phase steam injector units, including frequent plugging, high labor, and parts costs, and disruptions to the digestion process. District staff sought to reduce downtime and operating costs.

### Solution

**Hydro-Thermal** developed an unrestricted flow solution called the **Non-Obstructive Heater**, allowing larger solids to pass through without causing blockages. The units fit the original footprint with minimal piping modifications.



#### RESULT:

The system significantly reduced plugging and emergency work orders while optimizing the acid digestion process. This reduced labor and maintenance costs. Without the project, plugging would have continued. The Hydro-Thermal NOH improved digester performance and reduced operating costs.

800-952-0121; [www.hydro-thermal.com](http://www.hydro-thermal.com)

## High volume dry biosolids storage and outloading system meets restricted height limit

### Problem

The South Valley Sewer District's Jordan Basin Water Reclamation Facility in Riverton, Utah, needed to store and outload almost 400 cubic yards of dried biosolids from a new belt dryer. Local zoning height restrictions prevented a typical silo with truck drive-through loading.

### Solution

**Jim Myers & Sons** designed twin 35-foot-tall silos with NFPA explosion mitigation and low discharge. An en masse conveyor collects and elevates the dry biosolids to a truck loadout station and distributes it via three retractable chutes and a dust-collection system.



#### RESULT:

The facility has a safe, dust free, non-intrusive means to store dry biosolids and an outloading system for quick efficient truck filling. The installation includes a weigh scale and total system programmable logic controls.

704-554-8397; [www.jmsequipment.com](http://www.jmsequipment.com)

## Plant benefits from polyurea-based coating product

### Problem

When constructing a new wastewater treatment plant, staff in Warrington, Pennsylvania, knew it was a matter of time before the concrete and metals would begin to break down due to the harsh environment and so chose to coat the exposed surfaces.

### Solution

The team chose the **OBIC Armor coating system**, a multi-layer spray-on application followed by a surfacing layer and finished with another layer of polyurea. It has passed the Severe Wastewater Analysis Testing in accordance with ASTM G210-13. The polyurea also bonds well with materials including concrete, brick, steel and glass and does not crack or fracture.



#### RESULT:

The coating extended the life expectancy of the structure and added a 10-year warranty on the coating and installation. The city staff had confidence in the product, having used it for manholes and pump stations.

866-636-4854; [www.obicproducts.com](http://www.obicproducts.com)

## Waste-to-energy facility employs decanter technology for dewatering

### Problem

The waste-to-energy facility in Charlotte, North Carolina, sought to efficiently dewater solids after anaerobic digestion.

### Solution

The facility uses three **Pieralisi Jumbo 3 HS decanter centrifuges**.

Material is pre-processed to remove debris and then aerobically digested. The biogas is scrubbed and used to generate renewable electricity. The biosolids are dewatered in decanter centrifuge made of duplex stainless steel. The scroll inside is made of AISI 316 SS and has tungsten carbide tiles around the flight for durability. Dewatering involves an input of up to 100 gpm at 4-6% solids. The centrifuge produces cake at 22-25% solids that can be used as a fertilizer or soil amendment.



#### RESULT:

The modular design of the decanter makes it easy to maintain and repair. The unit reliably and efficiently handles biosolids while producing renewable energy.

513-275-4720; [www.pieralisi.com](http://www.pieralisi.com)

(continued)

## Reliability and space savings make rotary fan press an easy choice for municipality

### Problem

Tybee Island, Georgia, has a steady population of approximately 3,000 residents. With a spring/summer tourism influx of approximately 1.7 million people, the amount of wastewater needing treatment drastically increased with higher seasonal flows and no increase in operators.

### Solution

In 2012 the city selected the **Prime Solution Rotary Fan Press** as the solution to their outdated belt filter press. As flows continually increased year over year, they knew they needed to increase their capacity without requiring more operators and within their existing building space. In 2020, they again elected to go with a second Rotary Fan Press skid system, without outside engineering and within the existing building space.



#### RESULT:

Shari Haynes, plant superintendent, says adding the second press not only cut down time on dewatering, but allowed the city to save money. They went from running 10 to 12 hours per day, seven days a week to eight hours a day, five days a week. She also stated the ease of use and low maintenance allows them to easily train operators and meet plant requirements with less hours required.  
269-694-6666; [www.psirotary.com](http://www.psirotary.com)

## System maintains solids in suspension to prevent grit removal system buildup

### Problem

Operators of the Indiana Southport Advanced Wastewater Treatment Plant in Indianapolis sought to eliminate the need to periodically take JS 101 B out of service for cleaning due to grit accumulation.

### Solution

A **pulsed air system** from **Pulsed Hydraulics** was selected due to its higher mixing energy and better ability to keep or re-suspend solids throughout the entire tank. The system can be operated on a continuous basis or may be operated intermittently, based on operator preference. The system includes 24 bubble forming plates located in the channels and basin. Pulsed Hydraulics supplied three 4-valve mixing panels with Allen-Bradley PLC and two rotary screw 20 hp compressors.



#### RESULT:

Requirements were met and verified by the customer's engineer.  
800-641-1726; [www.phewater.com](http://www.phewater.com)

## Dewatering process recovers more water for utility

### Problem

The Tellico Area Services System, a water and wastewater utility in Maryville, Tennessee, built the Niles Ferry Wastewater Treatment Plant to treat 2 mgd. The original facility used a drying bed to dewatering biosolids, a labor-intensive process requiring manual labor with a backhoe and shovels as often as three times a week.

### Solution

The new facility has a **Volute Dewatering Press** from **PWTech** that yields much drier biosolid and requires minimal labor and maintenance. It automatically thickens, dewateres and conveys biosolids to a truck container without staff intervention.



#### RESULT:

Cake from the drying beds contained 13% solids; the dewatering press yields 20% solids. Benefits include reduced landfill fees and reduced emissions from truck hauling, and reduced landfill stress. Other benefits include odor elimination and consistent operation regardless of the weather.

410-238-7977; [www.pwtech.us](http://www.pwtech.us)

## Restructured air intake system reduces corrosion rate of clarifier drive

### Problem

City of Camas (Washington) Wastewater Treatment Facility was experiencing rapid corrosion around a clarifier drive unit.

### Solution

The facility hired **Rebuild-It Services Group** to retrofit the flat tank cover to take in air near the center of the clarifier and exhaust the air in two locations instead of one. The corroded drive was repaired and coated with aliphatic amine epoxy.



#### RESULT:

Gases no longer escape the tank through the drive unit opening. The rapid corrosion has been corrected and the drive is running smoothly.  
888-709-5676; [www.rebuild-it.com](http://www.rebuild-it.com)

## Cost savings with screw presses at water reclamation facility are notable

### Problem

The Big Creek Water Reclamation Facility, the largest clean-water plant in Fulton County, Georgia, needed additional capacity to accommodate growth.

### Solution

A multiphase expansion from 32 mgd to 38 mgd is to be completed mid-2024. A new dewatering building features some of the largest screw presses in North America. It includes two **Schwing Bioset FSP 1203 screw presses**, each with a 1,200 mm screw diameter for throughput of 2,600 dry pounds per hour of aerobically digested biosolids. These new presses replace five smaller screw presses.



### RESULT:

The machines, with high-performance screens, improved dewatering performance and provide significant savings in hauling costs and landfill tipping fees. They reduced electricity usage and maintenance. 715-247-3433; [www.schwingbioset.com](http://www.schwingbioset.com)

## Auger heater keeps screw conveyor from freezing

### Problem

A new wastewater treatment plant in Dunkirk, New York, was designed with a biosolids auger that extends outside for truck loading. The temperature frequently dips to -20 degrees F. To prevent freezing of wet material, the architect sought a solution to heat the auger.

### Solution

The architect specified a **Thermo-Tech auger heater**. The unit operates in conditions down to -40 degrees F, and its stainless steel, weather-tight construction stands up to harsh elements. It is IP68 rated and thermostatically controlled. Installation was completed on a -15 degree F day and immediately went into action.



### RESULT:

The system not only stopped the freezing issue and also dried the biosolids, preventing freezing in the trucks. 304-259-5860; [www.beltheater.com](http://www.beltheater.com) tpo

**Screenco Systems LLC**  
Dual Screen Design  
208-790-8770  
[www.ScreencoSystems.com](http://www.ScreencoSystems.com)  
[sales@screencoSystems.com](mailto:sales@screencoSystems.com)  
MADE IN THE USA

**NEW**  
**TRASH MASTER 600 RECEIVING STATION**

**Simplest Auto Screen In The Industry**

- Uses Gravity To Separate Trash From Flow Screen
- 6" or Dual 4" Offload From Truck
- 800 GPM with 8" Discharge
- Dewateres Trash - 3 HP with VFD
- 3/8" Gap, 1/4" SS Bar Screen, UHMW Plastic Lined U-Channel Separator
- Heavy Duty 11 1/2" Shaftless Screw Moves Trash To Receptacle
- 3 Spray Bars Clean Trash
- OSHA Compliant Cat Walk

US PATENT PENDING

**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

855.511.PARK  
[www.ParkProcess.com](http://www.ParkProcess.com)

*Fresh Content*

IS KEY TO YOUR COMPANY'S MARKETING STRATEGY...

LOTS OF IT.

COLE Media's content generation team specializes in custom-built, affordable solutions exclusively tailored to fit your needs.

**COLEmedia**  
800-257-7222  
[cole-media.com](http://cole-media.com)

**PHi**  
Pulsed Hydraulics, Inc.

**Big Bubbles**

**No Trouble Mixers**

800-641-1726  
[www.phewater.com](http://www.phewater.com)

### Xylem makes progress on its sustainability goals

Xylem delivered significant progress towards its sustainability goals in 2022, including enabling water utilities to reduce their CO2e emissions by 2.8 million metric tons since 2019. Through its operations, supplier and sector-wide partnerships, and green finance offerings, Xylem aims to advance water security by reducing greenhouse gas emissions, building watershed stewardship and resilience to climate change, and advancing equitable access to water, sanitation and hygiene.

### Anaergia wins Net Zero Carbon Champion of the Year

Anaergia has been named Net Zero Carbon Champion presented by the Global Water Awards. In addition, a Victorville, California-based wastewater project designed, built and financed through the company's subsidiary SoCal Biomethane for Victor Valley Wastewater Reclamation Authority was named Wastewater Project of the Year. The awards were presented at the Global Water Summit in Berlin, Germany.

### Atlas Copco sponsors military workforce training program

The Manufacturing Institute, the workforce development and education partner of the National Association of Manufacturers, announced Atlas Copco as a silver sponsor of its Heroes MAKE America initiative. Heroes MAKE America is a Department of Defense-approved SkillBridge program dedicated to promoting manufacturing careers in the United States, building connections between the military and veteran communities and the manufacturing industry, and providing exposure to a reliable stream of skilled military talent.



### New Watts Works Learning Center opens in Fort Worth

The latest of the Watts Works Learning Centers, now with over 200 employees, has opened in Fort Worth, Texas. The 250,000-square-foot facility — customized for broad training purposes, administration and manufacturing — joins several other Watts Works Learning Centers across North America. In addition to a working mechanical room with pressurized water lab, the facility includes a 3,600-square-foot learning center, office areas and a wide range of product manufacturing and assembly, including robotic welding and cutting, metal passivation, sheet metal rolling, precision laser metal cutting, CNC machining and ASME testing.

### California-based PFAS treatment plant receives recognition

A collaborative project between the Orange County Water District and the Yorba Linda Water District received the 2022 American Society of Civil Engineers Region 9 Outstanding Project Award for the Yorba Linda Water District Ion Exchange PFAS Water Treatment Plant. Region 9 is ASCE's California chapter representing more than 18,000 members throughout the state.

### KROHNE names new Mid Atlantic manufacturers' rep

KROHNE announced that PRO-QUIP, headquartered in Kenilworth, New Jersey, is the company's regional manufacturer's representative covering the process industries in the greater New York City region, New Jersey, Eastern Pennsylvania, Delaware, Maryland and Washington, D.C., as of Dec. 1, 2022. PRO-QUIP is replacing Stover Sensor Controls and Jobe & Co. as KROHNE's representative in the area.

### Blackline Safety appoints Peter Attalla as VP, international sales

Blackline Safety has appointed Peter Attalla to the position of vice president, international sales. Prior to joining Blackline Safety, Attalla spent over 15 years in progressively senior roles at Husky Energy focused on safety, growth and operational management, and as a safety and operational consultant for Dupont Sustainable Solutions. Attalla takes over the position from Neil Campbell, director, international sales and marketing, who is transitioning to the role of adviser, global sales.



Peter Attalla

### Asahi/America announces new team members

Asahi/America has added Jessica Chase to the technical field service team. She will assist customers with training and installing Asahi/America's single and double wall industrial and high purity piping systems through thermofusion processes in the southern U.S. Also, the company promoted Shane McDaniel to business development manager/team leader. His new role will manage the company's business development team's short- and long-term goals to align with various market-focused objectives. tpo



Jessica Chase



Shane McDaniel

**VT & VTC SERIES** | Vertical Twin-Auger Mixers  
320 - 1,200 ft.<sup>3</sup> mixing capacities • truck, trailer & stationary models

**THOROUGH MIXING AND MATERIAL BREAKDOWN.**

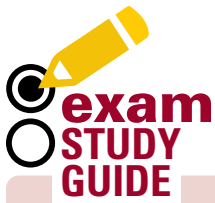
Tough, long-lasting design.

- Vertical sides, steep baffles and redesigned augers ensure a fast, complete mix
- Withstands continuous operation while mixing and breaking down tough materials
- Large, replaceable knives provide outstanding particle breakdown

INVEST IN QUALITY™  
www.kuhn.com

Visit our website to locate a Dealer near you!





Licensing exams can be challenging. Our **Exam Study Guide** helps you prepare by presenting questions similar to those on an actual exam. You can find many more sample questions on the *TPO* website at [www.tpomag.com/study](http://www.tpomag.com/study).

## WASTEWATER

By Rick Lallish

According to U.S. EPA Part 503 regulations, which type of biosolids may be used as soil amendment and/or fertilizer for growing various crops (with some restrictions)?

- A. Class A
- B. Class B
- C. Both/either
- D. Neither

**ANSWER:** C. Class A biosolids use one of many processes to further reduce pathogen levels below detection limits (1,000 bacteria/gram). Class B biosolids may have relatively high numbers of fecal coliform bacteria (2,000,000 bacteria/gram). Class B may be applied to private land without public access, and Class A may be applied commercially or sold. Both must meet vector attraction reduction requirements. With proper analysis and controls, either classification may be used as a soil amendment for growing certain crops. Please note that many states have differing laws in lieu of or in addition to the Part 503 regulations. More information may be found in the WEF textbook: *Wastewater Treatment Fundamentals II: Solids Handling and Support Systems*, Chapter 1.

## DRINKING WATER

By Drew Hoelscher

What gallon per minute flow can an operator expect if the bonnet on a fire hydrant is painted blue?

- A. 1,500+
- B. 1,000 to 1,499
- C. 500 to 999
- D. Less than 500

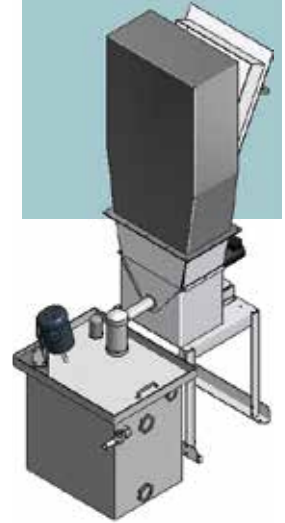
**ANSWER:** A. Fire hydrants serve two main purposes, fire protection and water system maintenance. Typically, hydrants are inspected annually and flow tests are performed every five years. Inspections ensure the unit is in good working order, and flow tests help uncover infrastructure problems in the distribution system. Flow tests also help with designing fire sprinkler systems for commercial buildings. Painting the bonnet of a hydrant identifies the approximate flow in gallons per minute. Blue, 1,500+; Green, 1,000 to 1,499; Orange, 500 to 999; Red, <500

### ABOUT THE AUTHORS

Rick Lallish is water pollution control program director and Drew Hoelscher is program director of drinking water operations at the Environmental Resources Training Center of Southern Illinois University Edwardsville. **tpo**

# FEED IT!

The Eagle Microsystems VF-100 Dry Chemical/Polymer Feeder is rugged, simple to use, and very versatile. Available with a wide range of options and accessories, the VF-100 can fit any dry feed application!



## FEATURES:

- Direct drive
- Flex-wall agitation
- Accurate SCR speed control
- Stainless steel construction
- 2 year warranty
- Multiple configurations



YOUR SOURCE FOR PRECISION PROCESS SOLUTIONS

800.780.8636

EAGLEMICROSYSTEMS.COM

classifieds August 2023



### POSITIONS AVAILABLE

\$2,500 Signing bonus. Fairfax County Government. **Operates wastewater treatment processes** at the Noman M. Cole Jr. Pollution Plant. Apply: <https://www.governmentjobs.com/careers/fairfaxcounty/jobs/4072499/plant-operator-i?keywords=plant%20opertor&pagetype=jobOpportunitiesJobs> (T08)



FIND IT  
BUY IT  
POST IT  
SELL IT

AVAILABLE ANYTIME,  
ANYWHERE, ANY DAY

[www.tpomag.com/classifieds/place\\_ad](http://www.tpomag.com/classifieds/place_ad)

Classifieds

get the job done.

Print | Online | Mobile

Place your classified ad today.

[www.tpomag.com/classifieds/place\\_ad](http://www.tpomag.com/classifieds/place_ad)

## people/awards

**Dustin White**, wastewater foreman in Albert Lea, Minnesota, earned his Class A Wastewater Treatment Facility Operator Certificate from the Minnesota Pollution Control Agency.

The **Galesburg Sanitary District Wastewater Treatment Plant** was named Group 1 Plant of the Year by the Illinois Association of Water Pollution Control Operators.

**Peter Baratti**, manager of the Minden Gardnerville Sanitation District, was named 2023 System Manager of the Year by the Nevada Rural Water Association.

**Manuel Dos Santos**, lead plant operator for the City of South San Francisco – San Bruno Water Quality Control Plant, was named 2022 State of California Operator of the Year by the California Water Environment Association.

The **Macon Water Authority** was recognized by the AWWA for the Best Tasting Drinking Water in Georgia.

The **City of South Lyon, Michigan**, was recognized by the Centers for Disease Control and Prevention, the American Dental Association, and the Association of State and Territorial Dental Directors for maintaining fluoride in its drinking water for the last 50 years.



### JDV LEVEL LODOR™

*Design for Even Distribution*

&

*Odor Control*

[www.jdvequipment.com](http://www.jdvequipment.com)



The **Camas Wastewater Treatment Plant** received a 2022 Wastewater Treatment Plant Outstanding Performance award from the Washington Department of Ecology.

The **North Slope Wastewater Treatment Plant** in Moline was named Best Operated Treatment Plant by the Illinois Association of Water Pollution Control Operators.

The City of Kirksville, Missouri, recognized **Larry Bradshaw** in his retirement after 27 years of service. He began as a customer service representative reading water meters, became a utility maintenance worker, and then served as a utility operator at the water treatment plant for nearly 20 years.

**Gregorio Ramon**, chief executive officer of the Little Rock (Arkansas) Water Reclamation Authority, 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](mailto:editor@tpomag.com). tpo*

## events

### Aug. 2

AWWA All in One Place – Water Project Planning and Funding Clearinghouses webinar. Visit [www.awwa.org](http://www.awwa.org).

### Aug. 14-16

Alabama Water and Pollution Control Association Conference, Perdido Beach Resort, Orange Beach. Visit [www.awpca.net](http://www.awpca.net).

### Aug. 15-17

AWWA Rate-Settling Essentials: Connecting Financial Planning, Cost-of-Service and Rate Design seminar, Hampton Inn Boston Seaport District, Massachusetts. Visit [www.awwa.org](http://www.awwa.org).

### Aug. 21-24

Ohio AWWA Section Annual Conference, Greater Columbus Convention Center. Visit [www.onewaterohio.org](http://www.onewaterohio.org).

### Aug. 23-25

Indiana Water Environment Association Annual Conference, Grand Wayne Convention Center, Fort Wayne. Visit [www.indianawea.org](http://www.indianawea.org).

### Aug. 28-30

Kentucky Rural Water Association Annual Conference & Exhibition, Galt House Hotel & Suites, Louisville. Visit [www.krwa.org](http://www.krwa.org).

### Aug. 29-31

Annual KWEA/KsAWWA Water & Wastewater Conference, Hyatt Regency & Century II Convention Center, Wichita, Kansas. Visit [www.kswaterwastewater.com](http://www.kswaterwastewater.com).

### Aug. 30

AWWA Utility Management of Workforce Development Webinar for All Disciplines, online. Visit [www.awwa.org](http://www.awwa.org).

»» Online Exclusives at [www.tpomag.com](http://www.tpomag.com)

**HURST**

# STEAM & HOT WATER BOILERS

## Steam & Hot Water Boilers

Hurst has been a leading choice in the package boiler industry for over fifty years. Manufacturing reliable steam and hot water boilers with decades of service. Whether its conventional fuels like natural gas, oil or an alternative renewable biofuel, Hurst offers more solutions to meet your needs.



**MORE MODELS  
CHOICES  
SOLUTIONS**

[hurstboiler.com](http://hurstboiler.com)

## Dual-Tank Oxy-Miser "DOM" series

The Hurst Dual-Tank Oxy-Miser "DOM" series boiler feed system is a spray-type Deaerator and condensate surge tank packaged together as a single unit sharing a common stand and pump header.

All Deaerators are ASME Section VIII unfired pressure vessels, which must be taken offline from time to time for inspection & maintenance as required by jurisdictional authorities and/or insurance providers. The Hurst DOM DA/ST combo tank is available with emergency cross over piping which allows the surge tank to act as a temporary boiler feed system, keeping the boiler plant in operation while the DA is out of service.



**HURST**BOILER

100 Boilermaker Lane • Coolidge, GA 31738-USA  
Tel: (229) 346-3545 • Fax: (229) 346-3874  
email: [info@hurstboiler.com](mailto:info@hurstboiler.com)

**MasterSpec**



# CLOGS? NOT ON OUR WATCH.



## Chopper

When the going gets tough, turn to the toughest pump on the planet. Since 1960, the unrivaled Vaughan Chopper Pump has been on the cutting edge. This original chopper pump was built first and made to last in any application, including:

- Municipalities
- Hospitals
- Housing Developments
- Prisons
- Pulp and Paper Mills
- And more

*Choose the unmatched reliability of Vaughan.  
Ask about our free trial program and on-site demos.*

**GUARANTEED PERFORMANCE | EXPEDITED DELIVERY | ELIMINATES COMMUNICATORS**  
888-249-CHOP | [CHOPPERPUMPS.COM](http://CHOPPERPUMPS.COM)

SEE CHOPPER  
IN ACTION

